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FEATUR ES

ELECTION PREVIEW
Positions on key industry issues by leading presidential candidates, and how to analyze election polling.

BOTTOM-LINE STRATEGIES
Sound financial management tactics help firms “beyond the numbers.”

FROM THE GROUND UP
Innovative land development solutions.

2008 ANNUAL CONVENTION PRIMER
A preview of ACEC’s 2008 Annual Convention and Legislative Summit.

2007 ACEC/PAC HONOR ROLL

COV ER STORY

BIM
Implementation issues delay the transition to next-generation modeling.

DEPARTMENTS

FROM ACEC TO YOU
BIM, election, ACEC Convention.

NEWS & NOTES
CELSCOC becomes ACEC/California; $458 million Big Dig settlement.

MARKET WATCH
Dubai, Abu Dhabi market surge.

LEGISLATIVE ACTION
House supports aid to engineering students; stimulus package includes beneficial tax provisions; Bush budget slashes infrastructure programs.

ACROSS THE FEDERATION
Highlights of ACEC State Organization activities.

BUSINESS INSIGHTS
Online repository of engineering contracts; new book details CMAR process.

MEMBERS IN THE NEWS
Michael R. Flannery appointed president and CEO of Woolpert, Inc.; Al Barkouli named president and COO of David Evans and Associates, Inc.
From BIM to Annual Convention

Much has been made of the benefits of Building Information Modeling (BIM). The new 3D modeling software is being called revolutionary for its potential to reduce errors and omissions and provide a high level of design flexibility. Despite this enthusiasm, software providers and many users have concerns about adaptability and liability. (See story on page 12.)

The Primary Season

We are also in the midst of an exciting election year with tremendous implications for our industry.

The Council will be playing a prominent role in supporting candidates favorable to our industry. Last year’s record ACEC/PAC fundraising increased our financial clout for backing candidates who support our positions on energy, infrastructure funding, repeal of the unfair 3 percent withholding mandate and other important issues. (For a complete list of 2007 ACEC/PAC donors, see page 36.)

Make Your Voice Heard

These challenges will be the focus of our lobbying efforts on Capitol Hill at the upcoming Annual Convention, April 27–30, in Washington, D.C.

The Convention will feature election perspectives by Fox News’ Chris Wallace, Tucker Carlson, host of MSNBC’s Tucker, and former Clinton adviser Paul Begala. A town hall debate will address “Who should own America’s infrastructure—the public or the private sector?”

This issue of Engineering Inc. also features the positions of leading presidential candidates on issues of importance to our industry, and a look into the realities of political polling. (See page 10.)

We also extend congratulations to ACEC/California, which changed its name from the Consulting Engineers and Land Surveyors of California (CELSOC) to become the 50th Member Organization of ACEC to subscribe to the common name. See you at the Annual Convention. Your participation this year is very important.

Orrin B. MacMurray
ACEC Chairman

David A. Raymond
ACEC President & CEO
ACEC BIT

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The ACEC BIT is guided by practicing engineers with experience finding solutions to practice management issues. The trustees meet regularly to discuss ways to meet the insurance needs and help advance the practices of the ACEC membership.

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CELSOC Becomes ACEC/California Solidifying Nationwide Brand

California is now the 50th Member Organization of ACEC to subscribe to the common name since the effort was launched in 2001 to bring all 51 federations under one brand.

CELSOC President Robert Salaber of Salaber Associates, Inc., in Dixon, Calif., announced the state’s action: “California is excited about joining the rest of the nation in using the well-recognized and respected name of ACEC. The name CELSOC was respected and held special meaning for many of our members, including our valued land surveying firms, but the time has come to take advantage of the national brand.

“I want to assure all our members that our organization’s mission will not change with our new name. We will continue to fight for the professional practices of engineering and land surveying in our state, and we look forward to working side-by-side with the national organization, and the other ACEC State Organizations.”

ACEC Chairman Mac MacMurray praised California’s decision: “I am thrilled to serve as the first president of ACEC/California, as I’ll be taking office on the exact day that the name change takes effect. We, the CELSOC membership, have established ourselves as the legislative voice in Sacramento for the engineering and surveying communities and will continue to advocate state business and professional issues as ACEC/California.”

Green is the first land surveyor to head the industry organization.

ACEC Chairman Mac MacMurray
The joint venture of Bechtel/Parsons Brinckerhoff, which oversaw design and construction of the nation’s largest public works project—Boston’s Central Artery/Tunnel, also known as the Big Dig—has agreed to pay $407 million of a total $458 million to settle a state lawsuit stemming from leaks, a fatal ceiling collapse and other design flaws that plagued the project during construction.

Several smaller companies will pay some $51 million related to cost recovery issues associated with the Big Dig as part of the overall settlement. Bechtel/Parsons Brinckerhoff will not face criminal charges, but the settlement allows authorities to seek additional damages from the consortium in the event of a major future failure in the project causing more than $50 million in damage.

The majority of the $458 million will be held in a new state trust fund to pay for future non-routine repairs and maintenance of project tunnels and roadways.

ACEC/Massachusetts Executive Director Abbie Goodman said: “ACEC/Massachusetts and its member firms are pleased that a settlement has been reached with the Commonwealth. “We have been actively and cooperatively working for a settlement of the issues related to the project for several years and continually advocated a single, fair, fact-based cost recovery settlement process with finality that was approved by both federal and state authorities.”

The $14.79 billion Big Dig project replaced the old elevated Central Artery that ran through the heart of Boston with a series of underground tunnels, ramps and a new bridge.

For a comprehensive look at the major engineering achievement embodied as the Big Dig, see the July/August 2007 issue of Engineering Inc.
Dubai, Abu Dhabi Surge as Emerging Development Markets

By Joe Salimando

The development boom in China is still in full swing. But for international marketers, China isn’t the only game in town.

International business also is booming in regions such as the United Arab Emirates (UAE), where billions of dollars are being spent on new construction.

Oil exports have fueled a culture of prosperity and expansion with many engineering opportunities.

Arabian Boomtowns

What’s already happened in Dubai is legendary. Engineers created a livable, man-made island where land didn’t previously exist. Dubai also is now home to the world’s tallest building and to state-of-the-art technology, including a futuristic rotating skyscraper.

Last year, more than 30,000 construction cranes dotted the small emirate’s modern landscape. Those cranes represented 24 percent of operational construction cranes in the world and worked on construction projects worth more than $300 billion combined.

Still in the planning stage, the Dubai Mall project soon will be the largest shopping complex in the world.

Dubai, which recently used its oil wealth to create its own commercial airline, Emirates Airline, and a major aircraft-leasing company, known as DAE Capital, now has plans to join the $41 billion global aircraft-maintenance industry.

Step 1: Build the world’s largest facility for jetliner maintenance, repair and overhaul. Dubai also is creating a 140-square-kilometer (about 56 square miles) aviation center and airport. As part of that development, known as Dubai World Central, the government is investing $1.5 billion to build an aircraft-upkeep complex capable of handling as many as 400 aircraft.

There are opportunities here. Engineering firms that can offer innovative ways to construct the new cities, houses and commercial buildings will find huge demand. Clients will hold at a premium building methods heavy on efficiency but light on manpower.

Abu Dhabi Makes Its Move

“Abu Dhabi will have the highest concentration of wealth on the planet” by 2020, said Kito de Boer, managing director of global development and consulting firm McKinsey & Co.’s Middle East office, during a conference last fall.

Between 2005 and 2020, de Boer projected, the UAE capital city would accumulate an oil surplus of $800 billion.

Middle East news website Ameinfo.com reports that there is “$2.4 trillion worth of active and announced projects in Abu Dhabi” alone.

Here, from the same report, is yet another eye-opener: “The Chief Operations Officer of Al Jaber Group, Fatima Al Jaber, already has 30,000 workers under her control, and was gearing up for the estimated workforce of 700,000 that will be needed to construct the new Abu Dhabi.”

Oil wealth justifies much of the expansion in the UAE. Still, the scale of what’s planned is shocking. According to the CIA World Factbook, UAE’s population is 4.4 million. In late 2006, Dubai Waterfront Co. announced plans to build — on what the International Herald Tribune described as “vacant beachfront” — a self-contained community larger than Manhattan, with housing for 700,000 people.

Innovation Needed

Reading that snippet about going from 30,000 workers to 700,000, it’s easy to become skeptical. From where will these people come? How can any city or nation accommodate $2.4 trillion in construction?

One answer is prefabrication — and it’s a niche where engineers likely will play a key role. Paul Arneill, an executive for Al Naboodah Laing O’Rourke, told Construction Week magazine in November that his firm’s “ambition is that 70 percent of everything will be prefabricated in the future.”

Jim Young of Realcomm.com, a commercial and corporate real estate technology website, wrote this about UAE after a late 2006 visit:

“As the United Arab Emirates is booming in regions such as the Arabian Boomtowns, we heard how the Building Operations Center will serve as the hub for the building automation requirements in this 180-building project, as well as the central point for management of public utilities, traffic and safety systems. Their goal is to run all of these traditionally disparate systems over one standard IP network.

“Another subtle yet significant presence of innovative technology was found in restaurants, where servers arrived at your table with a small wireless device ready to take your order. Before they even left the table, your drink order was placed and on its way.”

The November issue of Arabian Business, which keeps tabs on construction trends in the region, featured an interview with Arab real estate expert Khalid Esbaitah of Al Mazaya Holding.

Esbaitah’s contention: “The current real estate boom is likely to expand to other neighboring markets in the Middle East, as we are currently witnessing mega-projects being launched in Jordan, Lebanon, Egypt, Tunisia and Morocco, with more projects to be announced in these countries and others in the future.”

Opportunity is knocking.

Joe Salimando writes frequently on the construction industry at www.eleblog.com. He can be reached at ecdotcom@gmail.com.
SECON is an ISO 9001:2000 certified GIS Driven Multidiscipline Engineering company with over 700 personnel. SECON is a financially sound, stable, zero-debt company that was established in 1981. SECON is one of the leading multidiscipline engineering consulting firms and the largest and oldest surveying and mapping firm in India with over 27 years of experience. Most of SECON's clients are repeat and long-term clients. We have repeat business clients in the USA, India, Europe, Australia and Libya.

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Stimulus Package Includes Beneficial Tax Provisions

President Bush in February signed a $151.7 billion stimulus package that includes provisions to encourage more investment by engineering firms and other businesses.

H.R. 5140, the Recovery Rebates and Economic Stimulus for the American People Act, includes a 50 percent bonus depreciation provision that will allow firms to quickly recover half the cost of certain equipment put into service in 2008.

The bill also provides a temporary increase—from $128,000 to $250,000—in the limit on the amount of equipment that small businesses can write off in the year that equipment goes into service.

The stimulus package gives individuals earning less than $75,000 a year a $600 tax rebate; married couples earning less than $150,000 receive a $1,200 rebate.

ACEC worked with coalition partners during Senate debates to add $5 billion in infrastructure investment to the bill. In a letter to senators, ACEC President Dave Raymond stressed the importance of infrastructure investment in stimulating short- and long-term economic growth: “This investment will create well-paying jobs—every $1 billion worth of federal transportation investment creates 47,500 jobs—and boost the economy very quickly.” Raymond added that the benefits “will be felt over the long term as well, as the resulting infrastructure improvements will help to sustain economic growth for years to come.”

Under a bipartisan agreement to move the package forward, the Senate opted not to vote on an infrastructure amendment. House and Senate leaders are discussing the possibility of a second stimulus package that includes an infrastructure component.

Bush’s FY2009 Budget Cuts Key Infrastructure Programs

Funding for transportation, water and other infrastructure faces severe cuts if President Bush’s proposed $3.1 trillion 2009 budget is enacted.

“At a time when the economy desperately needs a jump start, this budget proposal simply doesn’t cut it,” said ACEC President Dave Raymond. “We have our work cut out for us in persuading Congress to reorder our budget priorities to address our nation’s infrastructure.”

The budget for the U.S. Department of Transportation would be reduced by 10 percent. Proposed highway funding would be reduced by nearly $2 billion in 2009 to $39.4 billion from the $41.2 billion it received in 2008. Transit funding would increase slightly from $9.5 billion in 2008 to $10.1 billion in 2009. The administration also proposes that $3.2 billion be moved from the transit account in FY2009 to cover the shortfall in the highway account.

Airport projects under the Airport Improvement Program would be slashed to $2.6 billion—a reduction of $765 million from the 2008 funding level.

The news is mixed for water infrastructure programs. The Clean Water Act State Revolving Fund (SRF) program would be cut significantly from $689 million in 2008 to $555 million in 2009. Drinking-water projects would receive a slight increase from $829 million this year to $842 million in 2009, while funding for Superfund cleanup projects would remain stable at $1.26 billion.

The U.S. Army Corps of Engineers’ Civil Works Program, which funds flood control and other Corps water projects, would be cut to $4.7 billion in 2009 from $5.6 billion in 2008.

On the positive side, military construction spending would increase significantly in 2009, growing from $17.8 billion in 2008 to more than $21 billion in 2009. The U.S. State Department’s construction budget would increase $1.8 billion to accommodate the construction of nine new embassies.

The energy sector would benefit as well. Bush’s proposal includes additional funding to encourage the development of advanced nuclear power plants and clean coal technologies.

ACEC Opposes World Bank Procurement Plan for Borrowing Nations

ACEC and industry partners have expressed concerns with World Bank procurement officials over a pilot program that
allows countries to use their own procurement rules on bank-financed projects.

ACEC believes that the proposal fails to ensure that the procurement practices of borrowing countries are equivalent to World Bank guidelines. Such changes might increase instances of fraud and corruption under bank-funded projects.

“The proposal is essentially a green light for borrowing countries to disregard international best practices in procurement and utilize any procurement methodologies they see fit, as long as they meet watered-down requirements,” said ACEC International Committee Chairman Bill Howard.

ACEC and its coalition allies recommended improvements, and Congress intervened on behalf of our coalition by including language in the omnibus appropriations bill in December that would withhold 10 percent of U.S. funding to the bank until the U.S. Secretary of the Treasury reports on the extent to which the bank has applied its procurement guidelines, including Standard Bidding Documents, to all bank-funded projects, including those under the pilot program.

The language requires the bank to hold additional consultations with the private sector regarding the implementation of the pilot program and requires “pilot program countries” to meet all of the bank’s antifraud and anticorruption policies.

Congressional Leaders Request Study on Water Trust Fund

ACEC is supporting an effort by senior members of the U.S. House infrastructure and tax-writing committees to work with the U.S. Government Accountability Office (GAO) to find new ways to fund water projects around the country.


Federal funding for wastewater facilities and other water-related projects currently is subject to available appropriations each year, and funding has varied widely in recent years. Congress provided more than $1 billion for wastewater projects under the Clean Water Act State Revolving Fund program in 2007, but that funding level dropped to $688 million in 2008 and President Bush’s budget request for 2009 reduces it further to $555 million.

“Federal appropriations are on the decline, and I fully expect that the president’s budget will, again, miss the mark on address-

ing the nation’s water infrastructure needs,” said Oberstar.

He has asked GAO to identify methods of raising at least $10 billion per year to maintain and upgrade wastewater treatment and sewer-collection systems. The GAO study is scheduled for completion in January of next year. Based on its findings, Oberstar is expected to introduce new legislation.

FOR MORE NEWS

For weekly legislative news, visit ACEC’s Last Word online at www.acec.org.
Race for the White House
Where leading candidates stand on industry issues

Barack Obama (D)

Positions:

- Supports increased federal investment in the physical sciences and engineering research, which has dropped by half since 1970.
- Will call for the creation of a “National Infrastructure Reinvestment Bank” that would invest $60 billion over 10 years in highways, technology and other projects to “rebuild America” and create 2 million jobs in the process.
- Would mandate that all businesses provide health insurance to employees or contribute a percentage of payroll to a national plan.
- Supports overturning recent reductions in personal income-tax rates, estate taxes, capital gains and dividend taxes, except for lower- and middle-income taxpayers.

“As our society becomes more mobile and interconnected, the need for 21st-century transportation networks has never been greater. However, too many of our nation’s railways, highways, bridges, airports and neighborhood streets are slowly decaying due to lack of investment and strategic long-term planning.”

Hillary Clinton (D)

Positions:

- Supports establishment of a $10 billion “emergency repair fund” to address the backlog of critical infrastructure needs, $250 million in “emergency assessment grants” to conduct safety reviews of critical infrastructure and a national commission to assess engineering review standards to better prioritize repairs of roads and bridges.
- Would require large employers to provide health insurance or contribute to the cost of coverage; small businesses that provide quality health coverage would qualify for a tax credit.
- Proposes to cut 500,000 government contractors.
- Supports overturning recent reductions in personal income-tax rates, estate taxes, capital gains and dividend taxes, except for lower- and middle-income taxpayers.

“We are seeing the results of the failure to invest in infrastructure. The tragic bridge collapse in Minnesota this past summer, a recent levee break in Nevada and what happened with the levees in New Orleans are painful reminders that our infrastructure is in dangerous disrepair.”

John McCain (R)

Positions:

- Proposes to cut the corporate tax rate from 35 percent to 25 percent to improve competitiveness; would keep in place recent rate reductions in estate taxes, individual taxes and capital gains and dividends.
- Opposes “earmarking” of infrastructure and other government spending programs. Voted against SAFETEA-LU because of earmarks.
- Supports tax code changes to stimulate the economy, including new expensing incentives to encourage businesses to invest in equipment and a permanent research and tax credit.
- Supports market-based health care reforms, including tax credits of up to $5,000 for families to access insurance, and allowing individuals and businesses to purchase health insurance through trade associations or other professional associations.

“The federal government spends too much money, squanders precious resources on questionable projects pushed by special interests and ignores the priorities of the American taxpayer.”
The Politics of Polling

Political pollsters outline the mechanics of polling and reveal keys to understanding presidential polling

By Maureen Conley

Polling plays such a prominent role in elections that recent failures to accurately gauge Hillary Clinton’s support in New Hampshire, or Barack Obama’s in South Carolina, raise the question: What are these pre-election polls really worth?

Frank Newport, editor-in-chief at the Gallup Poll, says polling is “a statistical technique to estimate what we would find if we interviewed everybody in a population,” providing a snapshot of the public’s preference at the time of the poll. The closer to the election, the more accurately the poll can predict the outcome.

April Radocchio, assistant director of the Quinnipiac University Poll, says the best polls follow standards set by the American Association for Public Opinion Research (AAPOR). To conduct a valid probability sampling poll, AAPOR’s website says, the pollster first must define the population to be sampled: U.S. citizens, likely or registered voters, state residents, Republicans, Democrats and independents are among the most common categories, and each can be broken into subgroups by age, gender, ethnicity and so on.

The pollster also must select a “representative” sample—meaning one that represents accurately the population at large. Everyone in the sample has to have a chance of being selected for the poll. They do not, however, need to have an equal chance, which is where margin of error comes in. Newport says random samples can be compared demographically to large population characteristics, such as those maintained by the Census Bureau, and adjusted if necessary.

Margin of error is “the price you pay for not talking to everyone in your population group,” AAPOR explains, and depends mainly on sample size. What’s more, Newport says, the margin does not change dramatically once samples reach 1,000. Gallup says it sometimes uses 2,000-person samples so that subgroup answers can be reported more accurately.

What Went Wrong?

So who’s to blame for the woefully inaccurate polls prior to primaries in New Hampshire and South Carolina?

Pollsters have been conducting post-mortem examinations of New Hampshire data, reinterviewing poll participants to better understand what happened. Newport says those studies will take time. A special AAPOR committee says it plans to report its own findings in April 2008.

Theories abound. Some point to the Bradley effect, referring to the 1982 California gubernatorial campaign of Los Angeles’ African-American Mayor Tom Bradley, who narrowly lost after leading in pre-election polls—giving rise to the theory that some white voters might not admit they oppose a black candidate. Or perhaps Clinton’s support was not fully captured because her supporters were less likely to participate in polls.

Scott Keeter, director of survey research at the Pew Research Center, says that, for the most part, polls tend to reliably predict elections. But he says they are “best used for understanding why people voted the way they did. Was it a vote for continuity or change? Was it based on certain issues as opposed to others?” asks Keeter.

Fritz Wenzel, director of communications at Zogby International, warns polls are not a good predictive tool and “should not necessarily influence what people think” or how they vote. Gallup employs statisticians and methodologists who constantly work to make its polls as accurate as possible. Zogby performs quality spot-checks by calling 2 percent of a sample a second time to verify that answers are accurately tallied. Pew tries to call each number multiple times, on different days and at different times, to give everyone in a sample a chance to be polled. Interviewers are well-trained and regularly monitored, and Pew pretests its surveys before they are deployed, says Keeter.

Keys to Victory

Asked what demographics are important in this presidential campaign, not all pollsters agree. In a close election, Keeter says, it could be women, and how much they rally around Clinton if she is the Democratic nominee: independents, and whether their skepticism about Clinton can be overcome; evangelical Christians, who gave 78 percent of their votes to Bush in 2004, but might not support John McCain in the same measure; and the black vote, and whether a highly energized black electorate could offset resistance to Obama elsewhere. Newport believes swing voters will again hold the key, since partisans are likely to vote their ticket.
The goal? To expedite the design process, automate tasks, reduce errors and trim costs. By combining CAD with technical specifications, project management and other input, the agency ushered in what many in the industry see as the future of design engineering.

With the integration of BIM, the Corps took processes that once took weeks and condensed them into days, giving design teams the ability to share electronic documents and files and give stakeholders up-to-the-minute access to project specifications.

The entire project was completed in 11 weeks, far less than the six months it would have taken had the Corps used conventional design systems.

“We spent less time drafting and more time designing as a team,” says Dalton. “We were able to identify interference early in the design process, when it is easiest and most cost-effective to make changes. We also were able to let the customer experience the project in a 3D virtual environment before it was built.”

The Corps isn’t the only government agency piloting next-generation BIM projects. The technology, which already has gained traction in the business world, is now rippling through government. The General Services Administration (GSA) is now using it for a variety of initiatives, and the U.S. Naval Facilities Engineering Command (NAVFAC) is mulling potential advantages of the technology. And they are not alone. Other federal, state and local agencies also are turning to this next-generation building tool.

“BIM represents the future of design,” says David Pluke, vice president of technology at Ericksen, Roed & Associates, a St. Paul, Minn.-based engineering and design firm. “It helps engineers visualize a project and catch conflicts much sooner. It leads to better design decisions up front and a better set of documents in the field.”

James Dalton knows the pressures of completing projects on time and on budget. As chief of engineering and construction for the U.S. Army Corps of Engineers, he understands that the smallest details affect projects in big ways. That’s why, when the Corps recently built a new warehouse to replace 14 temporary wooden warehouses at Fort McCoy in Wisconsin, it turned to Building Information Modeling (BIM) to design the 80,000-square-foot, state-of-the-art structure.

By Samuel Greengard
BIM at a Glance

Traditional CAD applications provide advanced design and geometric capabilities. But BIM advances engineering and design further by incorporating data associated with a project and providing real-time, dynamic capabilities to spot problems and explore certain “what-if” scenarios. BIM supports an array of computer applications and funnels data into a central repository. Essentially, it creates a series of data representations about a project.

For example, when constructing a building, BIM technology enables designers to input detailed information about the electricity, plumbing and ductwork, even the color of paint to be used, giving developers a clear-cut understanding of the scope and cost of the project before it begins. Design professionals can then swap out changes and different scenarios—including cost data and future energy consumption. BIM can even reuse existing data. If, for example, a company needs to build a call center for 200 employees, BIM can generate design options based on the climate, earthquake codes, equipment requirements, lighting, building costs, green initiatives and other factors. “BIM moves beyond 3D and creates a fourth dimension of data,” says Jeff Beard, ACEC’s vice president of business affairs.

Its capabilities and versatility make BIM ideal for complex projects, including wastewater treatment plants, bridges, tunnels, large buildings and highways. Rather than work off of hundreds, even thousands, of drawings and data files, an organization can create a single data repository, which it can share with business partners, subcontractors and other stakeholders. BIM also provides tools to examine a project and its costs over its life cycle.

conflicts much sooner. It leads to better design decisions up front and a better set of documents in the field.”

Yet, despite its enormous capabilities—and potential—substantial challenges remain. BIM is still in its infancy. Where large, private firms have proven to be among the first and most willing to experiment with the technology, slower-moving government agencies are trying to understand how and when to best use BIM, how to deal with competing platforms and how to work with partners, including A/E/C firms. Though BIM appears poised to work its way into engineering’s mainstream, it’s neither an easy nor a painless transition. And achieving bottom-line results isn’t a given.

Business Modeling: A New Frontier

Improving work processes is a central goal of almost any engineering technology. As the industry migrated from paper and vellum renderings to CAD during the 1980s, a new era of productivity emerged. Suddenly, engineers could develop projects in 3D. They had access to advanced modeling software, simulations and reusable design components. But they also ran into problems—not the least of which was the existence of incompatible file formats and technology standards.

“It took years for engineering firms to migrate entirely to CAD,” says Pluke. As they consider the usefulness of BIM, engineers remain mindful of these challenges.

Though major software vendors—including Bentley Systems, Autodesk and Graphisoft—are aggressively pushing new BIM-oriented solutions, lingering compatibility concerns, coupled with the potentially steep cost of adoption, have tempered enthusiasm about the transition.

A single seat runs upwards of $5,000, and an organization adopting BIM also faces additional costs associated with altering workflows and acclimating staff to the software. Platform compatibility is another potential stumbling block. In some cases, firms considering BIM are forced to host the technology on multiple platforms, further bloating the cost of successful implementation.

“Getting up to speed can demand substantial money and resources,” says James Blake, a vice president of Hunt Valley, Md.-based KCI Technologies, Inc., a design and engineering firm that works often with government agencies.

Then there is the issue of standardization. Because the A/E/C industry hasn’t migrated en masse to BIM, and because software vendors cling to proprietary systems and formats, using the software in the real world presents its share of obstacles.

“Although a growing number of organizations are adopting BIM, there isn’t a lot of knowledge about best practices and return on investment,” explains Blake. “People are still trying to figure out how to use it.”

Government agencies are largely in the early stages of adoption—and, as neophytes, regard BIM with equal parts optimism and caution.

“We expect BIM will become a tool that NAVFAC uses for the design, construction, operation and maintenance of facilities and infrastructure,” says Joseph Gott, NAVFAC’s acting chief engineer. “The drawback is we have many different companies offering software that isn’t necessarily based on common system architecture.”

NAVFAC relies on a mélange of applications, including Autodesk CAD, DrChecks, eProjects and Primavera, to oversee the design and construction of facilities for the Navy, the U.S. Marine Corps and other military commands. Though it has yet to select a platform for BIM, Gott says the agency is working with the National Institute of Building Sciences and the U.S. Department of Defense CAD/BIM Technology Cen-
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ter to establish standards. Gott says NAVFAC must first understand the migration path and data-flow changes necessary before it commits to a transition.

“The ability to spot design conflicts early in a project is a huge benefit—particularly with long lead times for fabricated steel and other items,” says Gott. “Everyone recognizes the value of BIM. Unfortunately, the current state of the software and environment is about where CAD was three or four years after its infancy. We don’t have the budget or the inclination to support multiple platforms. We’re waiting for a common architecture.”

Corps administrators continue to keep a close eye on BIM. Dalton says that the agency has piloted a few BIM projects and is moving toward widespread adoption later this year.

Where NAVFAC remains unsure about what platform to build its system on, Dalton says, the Corps will deploy technology from Bentley Systems (because most of its legacy applications also run on Bentley) for a subset of projects developed under its standard facility designs approach.

Though Bentley is its platform of choice now, Dalton says, the Corps is constantly monitoring the landscape and expects to see expanded interoperability between platforms soon. “Our goal isn’t to exclude any engineering firms. It’s simply not practical to adopt multiple platforms for our reusable designs.”

Apart from its recent warehouse project, the Corps also used BIM for a barracks renewal project at Fort Lewis in Washington. In both cases, Dalton says, the projects combined 3D modeling with materials acquisition.

The Corps also is using BIM in a variety of large-scale civil engineering projects—including the Mississippi River Lock and Dam 22 outside Hannibal, Mo.—to simulate and test possible renovation techniques prior to committing to a design.

With BIM, “we can view different options and scenarios and determine the best approach,” says Dalton.

GSA is another federal agency heavily invested in BIM. The agency, responsible for government acquisitions, requires all of its building projects—and the A/E/C firms it contracts with—to submit and exchange files in IFC format (a nonproprietary interoperability standard), which encodes layers of data and makes it compatible within BIM systems. The agency works with several BIM applications, including products from Autodesk, Graphisoft, Bentley, Common Point, Solibri, Onuma and Riuska. GSA requires that all projects funded by Congress beginning in fiscal year 2007 be BIM- and IFC-compatible.

“Most larger firms already have the technology in place, and a growing number of mid-size and small firms are adopting it as well,” says Charles Matta, director of federal buildings and modernization for GSA, which manages upwards of 350 million square feet of warehouse and building space. The agency is so serious about the transition that it offers financial incentives to partner firms using BIM.

“The biggest value of Building Information Modeling is not the core software package, it’s all the add-ons that you can apply to the model to take full advantage of the technology, whether you’re talking about energy modeling or quality surveying, cost estimating or other elements,” explains Matta.

GSA already is realizing some clear-cut benefits of the technology, which it first experimented with in 2003. “We have seen a reduction in change orders, better communication, improved designs and better overall project information,” explains Matta. “We’re now working with models that are a lot more accurate because we have the most current data available.”

Designs on the Future

Though engineers across the board agree that BIM is the way of the future in collaboration and design, the ability to achieve results still is uncertain.

Far from the next logical step beyond CAD, BIM is an entirely different software package with more complex features. “You don’t just move up a version,” points out Daniel DeYoung, president and founder of DJG, Inc., a Williamsburg, Va.-based engineering firm. “Essentially, you start all over with a whole new application.”

For A/E/C firms doing business with multiple government agencies—or a single agency that requires more than one BIM application—the cost of deploying software and training personnel can represent an enormous challenge.

“At a certain point, the question becomes: ‘Is it possible to recoup my investment and derive the maximum benefit from the software?’” says KCI’s Blake. “There’s a certain amount of risk associated with installing multiple applications and not knowing which will prevail in the marketplace.”

Some engineering firms report having received requests for proposals in a variety of BIM formats and say BIM’s incompatibility across platforms makes it impossible to compete openly for contracts.

Though emerging interoperability standards such as IFC are helping GSA and other agencies address certain compatibility issues, there still is no single, open standard on which to build the technology.

The problem has led some executives to question whether moving to BIM, given its current interoperability issues, is wise. One criticism is that highly qualified firms—particularly smaller firms—will be unfairly excluded from bidding on projects. What’s more, critics say, incompatible platforms and systems can skew the selection process and increase job costs while lowering performance.

The prospect of measuring cost benefits—and, more important, return on investment—on what is essentially an imma-
The software is fairly well developed in certain areas, but gaps remain in others.

SEAN SMITH GRESHAM, SMITH AND PARTNERS

The software is fairly well developed in certain areas, but gaps remain in others,” says Sean Smith, division vice president at Gresham, Smith and Partners (GSP), a 900-person Nashville-based firm.

“The software is fairly well developed in certain areas, but gaps remain in others,” he says. “It’s unrealistic to think that you can install a package and use it productively out of the box. There are a lot of nuances and subtleties to address.”

Moving to BIM requires firms to reshuffle and reorder an array of clearly established processes and relationships.

“BIM is supposed to be a smarter system that improves design, construction and facilities management processes,” says DJG’s DeYoung. However, “When you involve a number of companies—and numerous people have their fingerprints on a project—you crack open the door for ownership and chain-of-custody problems. BIM can make it more difficult to define the boundaries and liabilities,” which, in turn, leads to disputes and costly litigation.

For their part, software vendors say they understand the problems and are working hard to develop more open platforms upon which to build the technology.

Paul McRoberts, director of engineering for the A/E/C Division of Autodesk, says the ultimate goal is to support a wide array of electronic file formats, including PDF, XML, Java, Excel and DWG, to name a few.

Christopher Jarrell, a product manager at Bentley Systems, says past attempts to create more open standards have been unsuccessful. “Data degradation, data loss and lack of data exchange are a huge issue in structural engineering software,” he explains. Bentley is developing an integrated structural model, something Jarrell says will enable the company’s software applications as well as competing products to read and write the same file format without passing through a translation layer.

For now, though, most firms will simply stay tuned to developments in the BIM arena as well as to the government agencies that choose to use it. Just as it took years for the industry to sort out the dizzying array of issues, concerns and problems surrounding CAD, these same issues are playing themselves out in the context of BIM.

“There’s no question that BIM offers sophisticated capabilities and features,” says GSP’s Smith. “There are compelling reasons to use it, but it is a formidable transition.”

Samuel Greengard is a freelance business writer based in West Linn, Ore.

The Society for Design Administration (SDA) is a professional organization comprised of administrative personnel in the design industry, including architecture, engineering, landscape architecture, interior design and construction firms. For over 45 years, we’ve promoted continuing education, best practices in the management of design firms, and professional standards for design firm administrative personnel.

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Sound financial management seems a natural complement to the practice of any engineering firm. Both deal in absolutes—one follows fundamental rules of budgeting and financial reporting while the other utilizes scientific principles to formulate the design of structural components. Effective financial management, not unlike effective design and construction, requires more than a reliable tally of numbers and transactions. It requires superior management, period. Too often owners and managers adopt strategies that are ill-suited to the way their firms conduct business, or fail to maximize a firm’s unique advantage.

“Expenses in all professional services firms are directly and 100 percent related to delivery of services,” explains Jim Steiker, president of Philadelphia-based Shared Equity Strategies, Inc., a consultant to A/E firms on financial matters. “In addition to overhead, firms also have the costs of developing service lines, marketing, hiring staff ahead of the curve and so forth—things that are usually not well accounted for.”

The project-based nature of A/E work is another important factor, according to T. Wayne Owens, managing director of Deemer Davidson Prather, PC, a Duluth, Ga.-based accounting firm. As such, financial management involves project-specific contracts, time, staff, subcontractors and other direct costs.

“All this needs to be effectively integrated into the firm’s information and reporting systems to give managers perspective,” Owens says.

Barring a project-centric approach, “management might assume that one thing is causing them to lose money when it’s actually something else,” says former ACEC Chairman Jeff Daggett, a senior vice president of WHPacific, Inc., an engineering/ architecture/management services firm.

A Strategic Foundation

Any number of elements can influence the quality of an A/E firm’s financial management strategy. But for financial tools and resources to be used effectively, firms need a sound foundation upon which to apply them. For that reason, Owens says, the bedrock of good financial management is strategic planning.

“You need a three- to five-year plan that states your goals and how to get there—the rate of growth, client and project types, geographic markets and so on,” he says. “That ties in to the firm’s annual business plan with a budget for achieving those objectives, which in turn ties in to project managers’ incentives, compensation and professional development goals. All three must be devel-
Expenses in all professional services firms are directly and 100 percent related to delivery of services.

JIM STEIKER
SHARED EQUITY STRATEGIES

delivery of services.

managers who have the greatest influence good financial management are the project departments.

says. "Plus," he adds, "in today's environment, everyone's busy. Project managers won't back away from client or project needs, but they will often let administrative needs slide."

Solving Problems... and Avoiding Them
Paradoxically, the very kind of growth and success that is contingent upon good financial management often is the reason A/E firms overlook the practice.

"Small firms realize pretty quickly that they need to watch numbers closely," Isaacs says. "As they grow, they start to think that management responsibilities can become more specialized, which isn't the case."

Another common mistake is relying on off-the-shelf accounting and financial management software rather than tools tailored to the needs of A/E firms.

"Products such as QuickBooks might be OK for very small firms," Owens says, "but A/E firms need to look at other alternatives if they're going to grow."

Having qualified financial management expertise in-house or under contract also is important to ensure that the routine aspects of financial management—accounting, billing, collections—are properly managed.

Project managers also need to be clear on their targets, says Daggett.

"For example, if a firm sets up a project with an effective multiplier of 3, but it comes in at 2.7, the project manager will say it was profitable, but the firm has actually lost 10 percent of the potential revenue that could have been used for growth," he says. "That's why it's important to continually emphasize the importance of meeting profit goals."

"There are many metrics to measure financial success, and all of them have advantages and drawbacks," explains Ney. "The key is to have a limited number of common metrics that are used across the company, and make sure that all managers understand them. Large amounts of time can be wasted if different units within the company use different metrics to measure success."

Providing project managers with timely, consistent, to-the-point financial information can reinforce these principles without adding another responsibility.

"A daily one-sheet report can provide the latest project expenditures, billing status, revenue factor and other key details," Daggett says. "A project manager immediately knows where things stand and what areas need special attention."

Similarly, Owens says, involving project managers in contract negotiations helps build a better understanding—one that benefits the firm and its clients.

"In small- and mid-sized firms, especially where the owner is the main client contact, the project manager has no concept of what's required and might be unaware of

Smart planning helps firms avoid potentially resource-draining errors.

T. WAYNE OWENS
DEEMER DAVIDSON PRATHER
A daily one-sheet report can contain the latest project expenditures, billing status and other key details. A project manager immediately knows where things stand and what areas need special attention.

JEFF DAGGETT
WH PACIFIC, INC.

...scope creep,” he says. “By participating in developing of the scope, staffing levels and budget, project managers have the information to effectively manage the project from the outset.”

“You need to know how to deal with clients because it all affects your bottom line,” says Ross. “Smarter negotiating allows you to be more selective about the clients and projects you take on, which make you a more financially sound firm overall.”

Share the Knowledge

Whether an A/E firm sees the need to tweak its existing financial management processes or craft an entirely new information management infrastructure, Ross advises to avoid taking a piecemeal approach, citing her own firm’s experience as an example.

“As we’ve upgraded our corporate information systems, we’ve come to realize how one section affects the others,” she says. “Because we got behind technologically, it became difficult to share information throughout the organization.”

Daggett strongly recommends that ACEC members take advantage of the Council’s Organizational Peer Review program. “You get the benefit of an objective examination of your firm’s operations and practices from CEOs of other A/E firms, who bring the latest knowledge of management to the table,” he says. “ACEC’s CEO Roundtables are another valuable forum for learning about the latest trends and asking questions in a confidential, non-threatening environment.”

Benchmarking also is a helpful practice for improving financial management practices. Daggett recommends making comparisons to the top-performing quartile of A/E firms. “That way, you’re always challenging yourself at a high level,” he says. “It’s a very constructive process.”

The biggest obstacle to good financial management may well be the instinct to keep traditionally sensitive information close to the vest.

“Firms fear that their employees will perform differently, and I agree—they’ll do better by knowing how they contribute to the bottom line,” Isaacs says. “If you maintain the attitude that financial information is a black box, you won’t succeed.”

Though many A/E senior managers might see it differently, Isaacs says, their firm’s success hinges on its ability to see the broader picture. “Younger generations that are now in the workplace have higher expectations about having information,” he explains. “They want to know what’s going on, how they contribute and what rewards they’ll receive in return. There are ways to safely share key financial information, and firms need to commit themselves to doing it.”

Jim Parsons is a freelance business writer living in Bristol, Va.

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The 4.96-million-square-foot Meadowlands Xanadu project is designed to become one of the most distinctive mixed-use developments in the world. Standing adjacent to Giants Stadium in New Jersey, the massive Xanadu complex includes plans for a broad array of entertainment facilities including a minor-league baseball park to an indoor ski slope, among other amenities.

By Darlene Bremer

FROM THE GROUND

Creating a Dynamic Entertainment Destination

PROJECT: Meadowlands Xanadu, East Rutherford, N.J.

FIRM: Langan Engineering & Environmental Services, Inc., Elmwood Park, N.J.

The 4.96-million-square-foot Meadowlands Xanadu project will include a minor league baseball park, an ice-skating rink, shopping and an indoor ski slope, among other amenities.
hotels, restaurants and office space. Not to mention a multilevel parking garage, which, in itself, is remarkable for the tri-state area.

The venue also will host an ice-skating rink and a variety of other shops and meeting places, inviting providers of all manner of goods and services, from fashion to home and life products and even education.

“The objective,” observes David Gockel, president and CEO of Langan Engineering & Environmental Services, the New Jersey-based design and engineering firm heading the project, “was to redevelop a somewhat underused venue with a tremendous existing infrastructure in the heart of the New York metropolitan area that would be consistent with and complementary to the other components on the site, be sustainably designed and provide a wide array of options.”

Langan’s responsibilities for the $1.3 billion project, with the first major building scheduled for completion this fall, include overall project management; a comprehensive geotechnical investigation; landscape architecture permit planning; the design of off-site roadway improvements; and site and civil engineering, including detailed phased plans for grading, storm drainage, sanitary sewer and potable water for permitting purposes.

“Langan also prepared the environmental impact statement and navigated the team through complex regulatory issues, including the preparation of more than 15 state and federal approvals required for the project,” says Gockel. The investigation helped the project team better understand the environmental impact of the project. It was that understanding that aided engineers as they sought to determine the best means of construction.

To determine the optimal foundation strength, Langan developed a comprehensive pile load test that involved driving different types of piles into the bedrock. The piles eventually chosen for the foundation were recycled oil-casing pipe. The pipes were not only strong enough to support the project, but they also were recycled, which was important, because developers had pledged to be as environmentally conscious as possible, says Gockel. Redeveloping an actively used site presented its own set of challenges. Developers had to ensure that attendees and participants of other Meadowlands events, including NFL football games at Giants Stadium, still had access to the existing arena, stadium and racetrack during construction. “For most projects, the parking areas are built last. However, for this project, one of the major parking decks was constructed first to minimize traffic disruption for Meadowlands’ event parking,” explains Gockel.
Sustainability in Stone Creek

PROJECT:
Stone Creek Planned Unit Development, Fairhope, Ala.

FIRM:

When developers began work on the 190-acre Stone Creek Planned Unit Development project in 2004, the goal was to create a self-contained community where residents could live and work—even shop and go out for a night on the town, if they so choose.

As the project got underway, developers contracted with Mobile, Ala.-based Volkert & Associates, Inc., to conduct initial project surveys and wetland delineations. The company also was responsible for developing the site’s master plan, including planning for housing lots, roads and commercial properties. Plans for landscape architecture, rezoning, annexation, environmental protection, storm drainage, utilities and other services also were included in Volkert’s initial analysis. The company then stayed on board throughout the process to oversee construction.

Completed in 2006, the project coincided with the city’s comprehensive plan for quality growth, in building a traditional neighborhood with a village center, providing residents a self-contained lifestyle where everything from retail stores and restaurants to banks and day care is available within walking distance of their homes. The development includes a mix of lot sizes, three lakes, a clubhouse, a swimming pool and tennis courts.

The project was extensive. But the lakes were particularly challenging, says Volkert Vice President Steve Commander, one of the lead engineers responsible for the development.

“The lakes were designed as an amenity while serving as detention ponds for storm water detention and filtration,” says Commander. Developers were adamant that the detention ponds not look like detention ponds, but instead serve as attractive features of the community. The company met the challenge by enlarging the ponds to achieve more surface area and decreasing the freeboard necessary for the ponds to serve as water storage facilities. The ponds also were lined with clay to retain the water in sandy soil. Prior to filling the ponds with water, the survey crew taped a blue line around the perimeter at the designated water elevation so engineers could better visualize the desired height of the water. “This was done in case any adjustments were needed to the overall structure of the ponds,” Commander explains.

Another challenge was the trees. The undeveloped site was completely forested, making it difficult for city officials and community members to visualize the concept and its merits as a finished product.

To ease that process, Volkert employed 3D computer models to aid in the city’s approval process and to help other stakeholders better understand the layout. “Using the technology at several public hearings, one with the Fairhope Planning Commission and another with the Fairhope City Council, we were able to demonstrate what the final result of the plan would be and eventually received unified public support for the project,” explains Commander.

Volkert’s team of landscape architects, environmental scientists and engineers also performed extensive site investigations and worked closely with the Fairhope planning staff to create an effective blueprint from which to work. “These unified efforts created an environmentally sensitive plan that addressed the needs of the developer and the requirements of the Fairhope Comprehensive Plan,” says Commander.
The Sporting Life

PROJECT:
Legacy Development Subdivision, Eagle, Iowa

FIRM:
Stanley Consultants, Inc., Muscatine, Iowa

Read the names associated with the Legacy Development Subdivision, the massive 700-acre land development project under way in Eagle, Iowa, and it sounds like a who’s who in American sports history. Names such as Courier, Nicklaus, Hamm and Spitz headline the project, which aims to combine residential living with world-class athletics and instruction.

As part of the project, a vast swath of Iowa farmland has been converted to make room for a complex featuring upscale housing and state-of-the-art sports instruction academies. Jack Nicklaus plans to open one of his signature academies of golf; Mia Hamm, Brandi Chastain and Julie Foudy, three former members of the U.S. women’s soccer team, plan to open an academy of soccer. Tennis star Jim Courier and Olympic gold medalist Mark Spitz also plan to open instructional facilities as part of the project. Residents living in the development will pay a monthly fee to access the facilities and for group instruction.

The first phase of the project consisted of 225 acres and 340 home sites and was completed at the end of 2007. The full plan includes more than 1,500 homes, retail and commercial space, elementary school sites and more than 30 acres of ponds. Phase II of the project won’t begin until summer.

Before development began, the entire site was farmland. “The goal was to take idle land and turn it into a thriving community that would be integrated into the natural topography,” says Steve Arnold, project principal for Stanley Consultants, the Iowa-based design firm that heads the project. Stanley began by annexing the land and rezoning it into the City of Eagle. “Our responsibilities encompassed the entire development process from the initial topographic mapping and boundary surveys to the final engineered plans for streets, sewer, water, gravity irrigation and site grading,” explains Scott Wonders, vice president and manager of Stanley Consultants’ office in Boise, Idaho.

The company faced obstacles from the start. There was a lack of existing utility infrastructure near the site, which required the extension of nearly a mile of oversized sewer main. Even running water was a problem. The Legacy Development project was the first major construction project to test the city’s revamped water system. “This was to be the first water system owned and operated by the City of Eagle and required a great deal of coordination to implement,” explains Arnold. Success required that the company work with the Department of Environmental Quality and with the city officials to plot the location of water mains and make allowances for future connectivity.

Project organizers say the design complements the natural landscape and should ensure the development’s sustainability for years to come.
NBC Universal in Los Angeles is the largest working movie studio in the world. Formed in 1909, its Universal Studios in Hollywood also is one of the oldest. To help the company make the transition into the 21st century, NBC Universal in 2006 unveiled a long-term Vision Plan for renovating its 391-acre Universal City property, including the studio, its Universal Studios Hollywood theme park and Universal CityWalk, a popular tourist attraction featuring a variety of Hollywood-themed shops and restaurants.

The goal is to create a blueprint that will carry the company and its facilities through the next quarter-century.

“The Vision Plan seeks to accommodate future uses of the property, address economic and employment vitality concerns, integrate new housing and transportation for employees and visitors, and environmental stewardship that will benefit both the company and the region,” explains Tom Smith, senior vice president of West Coast real estate for NBC Universal.

The Vision Plan calls for a multiyear commitment that aims to upgrade NBC Universal’s existing studio, generate new office space and refresh the theme park’s operations. NBC Universal tapped Psomas, a California-based design and engineering firm, to assist in the development of a new 124-acre, 2,900-unit residential neighborhood complete with hiking trails, parks and a town center.

“Overall, Psomas will be responsible for conducting topographical surveys to locate existing improvements, boundary surveys to define NBC’s ownership of the land and the boundary between the city and county of Los Angeles, conducting the planning and entitlements process and avoiding or mitigating environmental impacts of the project during and post-construction through sustainable engineering solutions,” explains Sean Vargas, Psomas’ vice president and principal.

“The project is in a highly developed area where a great number of people already live and work,” says Vargas.

In an effort to ease mounting concerns about the project’s impact on traffic patterns and the environment, NBC Universal says it will hold a series of meetings demonstrating how the project can be conducted responsibly and with regard for the community and its citizens.

The property straddles Los Angeles City and County lines, which requires Psomas and other project participants to plan in advance for two distinct sets of local permit and zoning requirements.

“The team that NBC put together, including engineers, architects, planners, public relations specialists and land-use attorneys, developed a blueprint that enables us to demonstrate to both jurisdictions how the development balances the needs and priorities of each,” says Vargas.
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“Primary Season” Reception/Dinner
Sunday, April 27
Experience the excitement of a national political convention at this specially themed dinner complete with patriotic bunting, state buttons and placards. Dinner includes musical entertainment and special political guests straight from the campaign trail.

Campaign 2008
Chris Wallace
Monday, April 28
The veteran host of Fox News Sunday will share his views and predict the outcome of the election.
Great Debate
Tucker Carlson vs. Paul Begala
Monday, April 28
Two leading political observers will square off in a rousing debate as the national race heads down the home stretch. Representing the Blue states is Paul Begala, former top aide to President Clinton, and on the Red side, Tucker Carlson, host of MSNBC’s *Tucker* and former co-host of CNN’s *Crossfire*.

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ACEC/PAC Sweepstakes Drawing
Grand Prize: $10,000
The winner of the ACEC/PAC Sweepstakes drawing will win $10,000 in cash! The second-place winner receives $5,000, third place $2,000 and fourth place $1,000. Tickets are $200 each. ACEC is capping sales this year at 400 tickets. Ticket sales begin in January and end Tuesday, April 29, or until tickets are sold out. *The winner will be announced at Wednesday’s ACEC/PAC Breakfast.* Limit: five tickets per person. Raffle tickets will be sold onsite from Sunday, April 27, to Tuesday, April 29.

Hotel Information
Convention activities will be held at The Grand Hyatt, located at 1000 H St., N.W., in Washington. ACEC’s discounted room rate is $260, single/double occupancy, plus tax. Call the hotel at (202) 582-1234 and reference ACEC. The cut-off date for reservations is April 4. ACEC’s discounted hotel rates are available through the cut-off date or until rooms in the block are sold out, whichever occurs first.

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Engineering Excellence Awards Gala
Emmy Award-Winning Host Ross Shafer
Tuesday, April 29
Known as the “Academy Awards” of the engineering industry, the annual black-tie reception, dinner and awards program honors the year’s most outstanding projects.
ACEC/Alabama
Presented ACEC’s award-winning video “The Voice of the Engineering Industry” at nine regional membership meetings throughout the state for effective image enhancement with members and clients. Attendees included the speaker of the Alabama House, key legislators and leaders from several major state universities.

ACEC/Alaska
Lobbied the governor and state legislature for progress on the proposed Alaska natural gas pipeline. The estimated $30 billion project would deliver natural gas from northern Alaska to the continental United States. Worked with the U.S. Army Corps of Engineers to address design-build concerns for regional base realignment projects.

ACEC/Arizona
Received Award of Excellence from the Arizona Society of Association Executives for 2007 Engineering Excellence Awards brochure. The full-color publication showcases award-winning member projects and is distributed to more than 4,000 Arizona construction firms and colleagues.

ACEC/Arkansas
Conducted Project Management Boot Camp. Implemented new state PAC fundraising program through donations of 10 percent of annual dues. Planned Engineering Excellence Awards Banquet at Governor’s Mansion.

ACEC/California
Achieved a major victory for state consulting firms when the California Supreme Court ruled unanimously to once again uphold Proposition 35, the law authorizing state and local agencies to procure private engineering, surveying and environmental services. Launched grassroots campaign aimed at junior high and high school students to recruit new engineers and surveyors for California’s workforce. The campaign’s educational DVD is available at www.celsoc.org.

ACEC/Colorado
More than 100 members attended the Council’s first “Dancing With Engineers” event, held jointly with the Rocky Mountain School of Dance (RMSD). Designed to attract young engineers to the Council, the event was choreographed by RMSD and featured 12 members.

ACEC/Connecticut
Presented recommendations to the Governor’s Commission on reforming the state Department of Transportation, including continued support for Qualifications-Based Selection (QBS), increased transparency on projects, and the need for debriefing after selection interviews.

ACEC/Delaware
Worked with the Delaware Department of Transportation to address overhead rates and profit formulas, and with the Department of Natural Resources to clarify and simplify its contracting procedure.

ACEC/Florida
Produced and distributed “Engineer’s Guide to Community Service,” a how-to publication for participants in the Council’s leadership and legislative programs.

ACEC/Georgia
Summer Conference drew 400 attendees and featured Georgia’s secretary of state, along with a panel of state agency leaders who addressed the “State of Affairs in Engineering.”

ACEC/Hawaii
Negotiated removal, over the wishes of the governor, of an onerous contract requirement mandating that design professionals “defend” the state, regardless of negligence, in a lawsuit. Also achieved reinstatement of a Design Claims Conciliation

Panel to combat frivolous lawsuits against engineering firms after years of attempts to pass a Certificate of Merit bill.

ACEC/Idaho
Worked with the Idaho Department of Transportation on language for potential design-build legislation for federally funded projects. Also advocated for enhanced use of GARVEE bonds to increase transportation funding.

ACEC/Illinois
Testified at a U.S. House Subcommittee on Highways and Transit hearing on transportation issues for the 2016 Summer Olympic Games, which Chicago seeks to host.

ACEC/Indiana
Coordinated awareness campaign for state legislators on funding needs for water/wastewater infrastructure. Held focus group with “private-client” firms to explore special membership needs and concerns about current Council programs and services.

ACEC/Iowa
Initiated partnering program with state Department of Natural Resources resulting in streamlining of water and wastewater permitting process and review of procurement and contract procedures.

ACEC/Kansas
Led coalition advocacy of new statewide Comprehensive Transportation Plan, and taught a class for the Master of Public Administration program at the University of Kansas on project management and procurement of design services.

ACEC/Kentucky
Played a major role in guiding a continuing education bill through the Kentucky General Assembly that would require engineers to obtain 30 hours of continuing education in the two years prior to license renewal.

ACEC/Louisiana
Held second successful “Outlook to Rebuild Louisiana” conference featuring leaders of key government agencies. Also advised state agencies on QBS, engineering selection criteria, and plan review process.

ACEC/Maine
Engineers from member firms provided valuable industry experience to Maine public school students as part of a program to encourage students to pursue careers in engineering.

ACEC/Maryland
Celebrated 50th anniversary by defeating legislation that would have expanded the state’s sales tax to include engineering services. Assisted in delivering more than $400 million annually in new transportation funding.

ACEC/Massachusetts
Introduced bills in the legislature to: (1) create a state water infrastructure finance commission to address the growing need for funding water and wastewater projects; (2) clarify the role of the Board of Registration of Professional Engineers and Land Surveyors; (3) create a QBS law for horizontal projects conducted by state agencies.

ACEC/Metro Washington
Sponsored networking luncheons with county, state and federal agency leaders in transportation, water/wastewater infrastructure and the environment; and met with county officials to address concerns with fee proposals.

ACEC/Michigan
Developed the Michigan Design and Construction Coalition to encourage young people to consider careers in engineering and construction. Hosted an exhibit during the annual Michigan Youth Engineering and Science Expo that attracted more than 15,000 high school students.

ACEC/Minnesota
Led coalition to secure voter-passage of an amendment to the state constitution mandating motor vehicle sales taxes be 100 percent dedicated to roads and transit by 2011. Launched effort to develop professional skills of young members and to pro-
mote benefits of involvement in Council activities.

**ACEC/Mississippi**
Honored Gov. Haley Barbour with the 2007 Leadership Award for his outstanding guidance after Hurricane Katrina.
Also served as lead sponsor of Design-Build/Construction Management At-Risk legislation to guide use of the delivery method by state agencies.

**ACEC/Missouri**
Hosted a meeting of Missouri-based design organizations to coordinate common professional interests pertaining to: licensing law changes, proposed Bachelors + 30 model law, interprofessional issues, and coordination of the now-mandatory QBS law for Missouri’s local governments.

**ACEC/Montana**
Established a Water Policy Committee to guide elected officials on issues likely to be addressed during the 2009 legislative session, including new water-rights applications in closed basins, modifications to the water-rights application process, individual wells that are currently exempt from closed-basin laws, and water-quality issues in aquifers.

**ACEC/Nebraska**
Hosted a forum to support increased infrastructure funding, which included officials from the state’s Natural Resources Committee, Transportation Committee and Appropriations Committee.

**ACEC/Nevada**
Joined with state contractors, labor unions and business owners to address the state’s looming transportation infrastructure crisis as part of the Nevada Highway Users Coalition.

**ACEC/New Hampshire**
Defeated proposed legislation that would have mandated that design professional firms pay a disproportionately large share of civil damages.

**ACEC/New Jersey**
Defeated legislation that would have prohibited state agencies from contracting out services to the private sector, including engineering.

**ACEC/New Mexico**
Played lead role in New Mexico Department of Transportation study of the state’s transportation funding history, assessment of current needs, and recommendations for future funding solutions. The final report—House Memorial 35: Sustainable Funding Strategies—is available on the NMDOT website.

**ACEC/New York**
Developed a flash movie presentation titled Consulting Engineering—A Career That Matters to raise awareness of the profession among college students, featuring young engineers describing their work across the various engineering disciplines. It can be viewed at www.acecny.org.

**ACEC/North Carolina**
Commissioned a study on how to enhance the organization’s visibility in the public and legislative arenas; and undertook a branding campaign with special focus on the media, white papers on timely issues, use of the Council’s logo by member firms, and the tagline: “Engineering North Carolina’s Future.”

**ACEC/North Dakota**
Led industry-wide coalition to revise state statute on construction management which legislators overwhelmingly passed.

**ACEC/Ohio**
Charged state PAC trustees with working with the Council’s staff and outside lobbyist to select political candidates worthy of financial support and to carry out fundraising efforts to meet state and national political action goals.

**ACEC/Oklahoma**
Led a coalition effort to donate a “centennial clock” to the state in celebration of Oklahoma’s 100th birthday. The $25,000 replica of a 1907-era clock is located on the south side of the state capitol.

**ACEC/Oregon**
Worked with representatives of the schools of engineering at the University of Portland, Portland State University and Oregon State University to foster greater interest in engineering careers.

**ACEC/Pennsylvania**
Led a broad-based coalition to pass legislation creating a partnership between the Pennsylvania Department of Transportation (PennDOT) and the Pennsylvania Turnpike Commission to create additional revenue for highway projects. The bill provided for the transfer of $83.3 billion from the Turnpike Commission to PennDOT for transportation projects and the lease of Interstate 80 from PennDOT to the Turnpike Commission.
ACEC/South Carolina
Led business coalition that achieved passage of meaningful workers’ compensation reform. Also lobbied for reform of state DOT laws governing the practice of engineering and surveying.

ACEC/South Dakota
Tendered Council support for the South Dakota Energy Smart Initiative, designed to foster development of energy efficiency programs in South Dakota.

ACEC/Tennessee
Achieved passage in the General Assembly of the Tennessee Tollway Act allowing work on two pilot toll projects, constituting a new option for developing large-scale highway projects. Also sponsored a forum for Nashville mayoral candidates, which drew a standing-room-only crowd.

ACEC/Utah
Worked closely with the state legislature to gain passage of record infrastructure funding for transportation, water and vertical infrastructure projects, including $1 billion for the state highway fund.

ACEC/Vermont
Led coalition effort to oppose legislation that would require bidding by design professionals on state-funded education projects.

ACEC/Virginia
Hosted welcome reception for the new Virginia DOT commissioner. Spearheaded middle school program to increase awareness of engineering as a career. More than 200 seventh- and eighth-graders contributed essays to a competition. The top 25 winners received a weekend trip to an engineering boot camp to learn more about the profession.

ACEC/Washington
Introduced a bill in the State Senate that would require anyone claiming that a design professional violated a standard of care to obtain a Certificate of Merit by a qualified expert before filing a claim. Also spearheaded an industry coalition to raise the profile of infrastructure and funding needs before the media, legislators and policymakers.

ACEC/West Virginia
Promoted QBS throughout the state through the West Virginia QBS Council. The U.S. Department of Agriculture has expressed interest in using the West Virginia QBS manual as its main QBS resource, which would be distributed to several hundred agencies nationwide. Also played a lead role in West Virginia for Better Transportation to educate West Virginians on the state’s needs.

ACEC/Wisconsin
Published a special magazine to honor the Council’s 50th anniversary. Also hosted the 16th annual Division of State Facilities Consultants Conference, drawing record attendance and featuring a keynote address by the Governor.

ACEC/Wyoming
Hosted a statewide conference on issues faced by member firms and clients, including the Department of Transportation, State Engineer’s Office, Water Development Commission, School Facilities Commission and the Department of Environmental Quality.

CEC/Texas
Concluded successful legislative session focused on enhancing opportunities for regional toll-road authorities to advance key projects, expanding alternate project delivery methods into the infrastructure area, and tightening limits on broad-form indemnity agreements. Also conducted seventh leadership class and hosted a second annual project-delivery conference.
Council Launches One-Stop Contract Shop

ACEC has launched “Contracts & Risk Management Central,” an online repository of universal contract forms and supporting documentation used nationwide by more than 500,000 design and engineering professionals.

The website, accessible through the ACEC Bookstore at store.acec.org, is designed to help engineers—and clients—manage the reams of paperwork that often accompany large-scale projects. The site includes project contracts of several professional associations and boards, including the Engineers Joint Contract Documents Committee, International Federation of Consulting Engineers, Council of Professional Surveyors, Construction Management Association of America, Council of American Structural Engineers, and the American Institute of Architects.

Ed Bajer, ACEC’s senior director of contracts and risk management, says the goal is to provide a single, centralized location where engineers can retrieve the contracts necessary to do their jobs under the law.

“We wanted to offer a wider variety of contracts and risk management tools than we ever had before,” says Bajer. “People can come to the site and get exactly what they need, no matter what they want to do.”

Documents range from bid forms and contract forms to change orders, copyright assignment, design-build, government funding contracts, payment forms, surveying contracts and more. Bajer says the Council plans to continue to expand its resources.

New Book Offers Insights into CMAR

As the Construction Manager-at-Risk (CMAR) project delivery method grows in popularity, ACEC has published a new book that explains how to use CMAR.

The book’s author, Elliott Gappinger, president of Oridian Construction Services, says that one of the primary attractions of CMAR is that the project owner can select its contractors on the basis of project-relevant qualifications and then negotiate the contract price—much the same as engaging the services of a professional engineer.

According to Gappinger, other owner benefits to CMAR include:

- Use of contractor expertise in the design phase of the project;
- Reduction of time required for bid advertising and execution of construction contracts;
- Opportunities to negotiate the project scope with the contractor to suit the budget, without change orders; and
- Virtual elimination of claims and disputes that add cost to the project during construction.

Engineers who participate in CMAR projects often find that their role is made more complex by the presence of the contractor in the design phase. Construction is frequently started before plans are complete, adding stress to the process of producing final plans and specifications. Design professionals can take several steps to mitigate these impacts, including:

- During negotiation of the design contract, get a clear definition of the expected relationship between A/E and contractor;
- Allow plenty of time for design coordination meetings and plan reviews to include the contractor in the process;
- Expect that the owner might ask to have contractor-furnished design details included in the project plans; and
- Be prepared to produce plans and specifications for Guaranteed Maximum Price (GMP) preparation, in addition to the usual sequence of review drawings. Projects with multiple phases might have multiple GMPs.

CMAR is a qualifications-based contractor selection process for the general contractor. CMAR differs from design-build in that the owner contracts separately with the design firm and the contractor. The owner of a CMAR project defines and manages the relationship between the two. Thus, the A/E works directly for the owner, as on traditional design-bid-build projects, the difference being that the contractor is inserted into the traditional designer/owner relationship. This matter of combining the traditional with something new creates a need for fairly sophisticated project management on behalf of the owner—something that many do not expect when they first enter into the CMAR process.

CMAR seems to work best on projects that require special contractor expertise, have multiple phases, or are time driven. According to CMAR advocates, the process allows the project owner to assemble the design and construction professionals that provide the best combination of qualifications and experience for the project.

How does right of way impact your projects?

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**ACEC Convention**

April 27 - 30th, Washington, DC
As the national election campaign and state races heat up, record ACEC/PAC fundraising has positioned ACEC to weigh in on political issues likely to affect the engineering industry.

Propelled by a robust year-end finish, ACEC/PAC raised more than $550,000 in 2007, eclipsing the previous record of $440,000 set in 2006. Another record was achieved when 33 states reached their PAC fundraising goals, up from 27 in 2006.

“ACEC’s political program really caught fire in 2007,” said ACEC Chairman “Mac” MacMurray, “which has us well positioned to becoming a million-dollar PAC for the first time in the Council’s history.”

Said ACEC President Dave Raymond: “We’re achieving this success because more ACEC members than ever before are stepping up to support our political program,” adding that “these fundraising totals send a strong message that our industry is playing to win.”

ACEC/PAC Champions already are actively raising money for 2008, setting the stage for a record election-cycle fundraising total projected to exceed $1 million.


2007 ACEC/PAC CAPITOL CLUB
Craig Avery
Raymond Messer
Chuck Pennoni
Ralph Peterson

2007 ACEC/PAC CHAIRMAN’S CLUB
Efren Abratique
Don Allen
Fred Berger
Chris Borton
Art Brooks
DeWayne Brown
Chris Burke
Janice Burnett
Robert Close
Thomas Collins
Dick Corrigan
Jeff Daggett
Michael Della Rocca
Daniel DeYoung
Don Durden
Eric Flicker
Jim Galt
Ron Gillerson
Paul Grosser
David Harrell
John Hennessy III
Bill Howard
Bob Jones
David D. Kennedy
Jacob Lopa
Danny Longworth
Jeffrey Lookup
Orrin “Mac” MacMurray
Bob Macomber
Evan Mosshager
Tom Mosure
Ed Mulcahy
Terry Neimeyer
David Oates
Phillip Ortinger
Ralph Palmer
Satch Pecori
Dennis Petersen
Chris Poland
Frank Rudd
John Schneider
Randolph Scott
Stephen Scott
Dan Thacher
Douglas Watson
Doris Willmer
Karen Wood
**2007 ACEC/PAC MILLENNIUM CLUB**

<table>
<thead>
<tr>
<th>Name</th>
<th>ACEC President Dave Raymond, right, greets Rep. Joe Knollenberg (R-Mich.) during a special reception for the lawmaker at ACEC headquarters.</th>
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</thead>
</table>

ACEC/PAC—the American Council of Engineering Companies Political Action Committee—is the engineering industry’s preeminent political action committee. The sole purpose of ACEC/PAC is to elect candidates to the U.S. House of Representatives and Senate who support policies and legislation favorable to the engineering industry.

**The Capitol Club** members donate $5,000 per year to ACEC/PAC to support key House and Senate members.

**The Chairman’s Club** mobilizes ACEC’s most politically active PAC contributors. Chairman’s Club members agree to pledge a minimum of $2,500 per year to support key House and Senate members (of which at least $1,000 is given to ACEC/PAC and the balance is available for direct giving to candidates at ACEC/PAC-sponsored events).

**The Millennium Club** members donate $1,000 per year to ACEC/PAC to support key House and Senate members.

**State Goals**—The PAC Champions assign each ACEC state organization an annual fundraising goal based on its membership strength.

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**ACEC/PAC Honor Roll by State**

- **States that achieved 2007 ACEC/PAC goal**
- **2007 State PAC Champions in bold**

**ALABAMA (35)**

Alain Gallet, Jason Ayers, Kenneth Bailey, Bob Barnett, John Bowlin, Chad Bowman, Billy Carville, Renee Casillas, Steve Commander, Tyler Davis, J. David Gulledge, Kelly Hulftntuler, Bert Hughes, James Joyce, H. McClure, David Moon, Kevin Moore, Gary (Russ) Nevin, Leslie Noble, Guy O’Connor, Robert Porter, Lauren Pratt, Christopher Roberts, Randy Sain, J. Schaffer, Dwayne Smith, Steven Speaks, Bob St. John, Michael Tate, H. White, Frank Whiting, Charles Williams, Scott Wilson, Jennifer Wilson, D. York

**ALASKA (22)**

Floyd Damron, Duane Anderson, Rickey Bennett, Dennis Berry, Tanya Bratslavsky, Marka Brooks, Brett Coburn, Stafford Glaishan, Duane Hippe, John McClellan, Lance Meang, Duane Miller, Kevin Murphy, Mark Musial, Paul Ramert

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ACEC President Dave Raymond, right, greets Rep. Joe Knollenberg (R-Mich.) during a special reception for the lawmaker at ACEC headquarters.
2007 ACEC/PAC HONOR ROLL

Frank Rast
Charles Riddle
James Sawhill
Daniel Sterley
Willem Van Hemert
Timothy Vig
Jack Wilbur

ARIZONA (133)
Robert Stanley
Ronald Ablin
Ronald Alcala
Catherine Alcorn
Thomas Arn
Gary Bacon
Vicki Beaubien
Michael Bonar
William Bricey
Arthur Brooks
Kerry Brough
Barry Brown
Dewey Brown
Lawrence Bruce
Janice Burnett
Misael Cabrera
James Campbell
Peter Chan
Matthew Clark
Jerry Collins
John Conrad
Cindy Cornelius
Greg Creaser
Chris D'Arcangelis
J. Deatherage
Dave DeChant
Kent Dhible
Paul Dickman
Andrew DiLeo
James Dowell
Charles Dryden
Samuel Edmondson
David Fabiano
George Fares
Jeff Farnsworth
Kenneth Feyen
Michael Fleury
P. Folk
Jerry Frieling
Devon Furstenau
Uday Gandhe
Joseph Gervasio
Greg Gesicki
Thomas Getting
C. Gnanasambanthan
Michael Gordon
Alexander Gourlay
Edward Gruner
Jay Guettin
Lawrence Hansen
Mark Hamshaw
Larry Hanson
Charles Harris
Daniel Heller
Peter Hemingway
Michael Holder
J. Hollingsworth
Steven Hunt
Natasha Hyland
Paul Izzi

Jeffrey Kracht
Philip Lagas
Eduardo Latimer
David Leistiko
James Lemon
William Linck
Greg Lingor
Thomas Lodge
Oleg Lysyj
David Mahafay
James Martin
Patrick Marum
George Masehe
Douglas McCants
James McClaskie
Thomas McGovern
Tom McLean
Robert Meade
Eric Meares
Frank Medina
Richard Mettee
Bob Mickelson
Diane Miller
Patrice Miller
Jeffrey Minch
Brent Mutti
Saetesh Nabar
Gary Newman
Carolyn Newman-Crane
James Nichols
James Oliver
Antonio Paez
Ashok Patel
Bruce Patton
Rod Penniman
Claudia Perchinelli
Richard Perry
R. Peters
David Peterson
Joseph Phillips
Benjamin Porritt
Steven Rex
Edward Ricci
Justan Rice
R. Richards
Gary Rogers
Albert Remano
Joel Saurey
Michael Schiller
Douglas Schneider
James Schoen
Paul Scott
Christy Sipos
Stephen Smith
Kenneth Spiker
Ronald Starling
Robert Suarez
Michael Sylvain
Frank Tantone
Rebecca Tamir
Stephen Todd
Darrell Truitt
Phil Turner
Stanley Turney
David Valentine
Robert Wagner
Gordon Wark
James Weaver
Berwyn Wilbrink
Darrel Wood
Michael Young
Jan Zander
Robert Zicafouse

ARIZONA (20)
L. Carl Yates
Thomas Bond
Matt Crafton
Sam Cummings
Roger Dodds
Dennis Ford
Jeffrey Geurian
Robert Graham
Ann Hamilton
Brad Hammond
Tom Hopper
Brock Johnson
Jerry Martin
Barry McCormick
Neal Morrison
Herbert Parker
Les Price
C. Shupe
James Ulmer
Daniel Williams

CALIFORNIA (86)
Jacob Lipa
Efren Abratique
Shahnawaz Ahmad
Greg Bardini
Jim Boss
Gene Bougdanos
Ron Bowman
Thomas Br西班
Kin Chan
George Cinquini
Robert Close
Patrick Courtney
Joseph Covello
J. Crawford
Kyle Davy
Robert DeWitt
Christopher Diaz
Vincent Doyle
Paul Enneking
Raymond Fares
Lou Ann Frederick
José Gama
Christopher Gorges
James Graydon
William Green
Michael Greenspan
Ed Henderson
Kim Henry
Keith Higgins
Eric Hinzel
Ronald Horn
Patrick Huston
J. Kapp
David Kennedy
Eddie Kho
Robert Krieger
Joseph Kulikowski
Michael Kane
Keith London
Ferry Maljian
James McDonald
Michael Moordian
Richard Morton
Blake Murillo
Eric Noel
Edward O'Brien
Robert Ost
Joseph Paoluccio
Bartlett Patton
Albert Perdomo
Kevin Peterson
Chris Poland
Richard Poul
Bruce Presser
Alanna Poomas
Timothy Poomas
Richard Ray
Ignacio Roman
Roland Rothman
Jane Rizza
Robert Salaber
Gerald Salontai
Jeff Savard
Bruce Schmith
Gunji Sikand
Larry Simonetti
Robert Sims
Kenneth Sinclair
Iver Skavdal
Gary Skrol
Erik Soderberg
Melvin Sukow
Steven Tayanipour
Chad Taylor
Robert Terada
Muriel Tolaney
James Van Beveren
Stephanie Wagner
Jeff Walker
Donald Weiden
Win Westfall
Thomas Wosser
Steven Wrightson
Daniel Yau
Allen Yourman
Chris Zadoorian

COLORADO (61)
Gregg Ten Eyck
Ed Armbruster
John Ballegeer
Michael Barrett
Scott Beck
Cade Benson
Leslie Botham
James Brady
James Easter
Waylan Bryant
Scott Cartran
Ray Chamberlain
Ralph Christie
John Clarke
Charles Crum
Dan Donego
Paul Duncan
Rod Eisenbraun
Michael Ellsberry
Russell Erbes
Lauren Evans
Robert Feldburg
Greg Fischer
Jon Ford
David Frick
Brien Gidlow
George Hadji
Mark Hamouz
Billy Harris
Joseph Hart
Marvinetta Hartwig
Paul Hause
Peter Henckley
Linda Hoffmann
Frank Holliday
Stephen Holt
David Huelskamp
Gary Johnson
Karl Knapp
James Kramer
Narendra Kumar
Tracy Lyman
Charles McKnight
Michael Meints
Gordon Meurer
Stuart Monical
Peter Monroe
M. Ridley Moorman
Steven Pawlak
Ralph Peterson
Robert Revem
Mariken Reimer
Randall Ritchey
Thomas Roberts
R. Roshe
Barry Schulz
William Siegel
LaDawn Speke sperling
Ronald Vasquez
Janet Williams
Erie Wilson
Brian Zick
Michael Angelo
Nathan Nate Buttoff
Thomas Carroll
R. Charles
Joseph Charma
James Cloonan
A. Cottrell
John Fabian
Ahmad Faqiri
Mario Gangemi
Philip Horsey
Ted Janusza
Stephen Johns
Bruce Jones
Mike Karia
Keith Kooker
Jennifer Laning
Stephan Leh
Robert MacIntosh
Hugh Mahaffy
Gregory Moore
Josh Moss
Jessica Nichols
Edward Rasiul
Scott Rathlon
Jurgen Riemann
David Simkins
Dev Sitarum
W. Stack
Theodore Thomson
Matthew Vensel
Punith Venkatesh
Dwight Walters
Ted Williams
Jason Winterling

CONNECTICUT (22)
Thomas Ahneman
Rodney Bascom
Paul Brady
Nils Ericson
J. Michael Potter
Anthony Paniccia
Steve Mifflin
Joseph McMahon
Sally Kohn
Troy Kenner
Tanzer Kalayci
Leslie Haines
George Jacobs
Geoffrey Jacobson
Robert Jurasin
John Miller
Ashwatha Narayana
Bangalore Neelkanti
Sophia Nishberg
Richard Repeta
Bruce Richardson
Paul Schmidt
James Sherwont
Thomas Sr. Denis
Theodore von
Rosewine
Nate Whetten

DELWARE (37)
Tim Anderson
Jeffrey Bross
Robert Felsburg
Lauren Evans
Michael Ellsberry
Russell Erbes
Lauren Evans
Robert Feldburg
Greg Fischer
Jon Ford

FLORIDA (37)
Robert Maconber
Suzanne Bartlett
Charles Carlan
Andrew Cummings
Christopher Dausch
Kimberlee DeBosier
Fermin Diaz
Scott Eckler
Nancy Fuller Brown
James Fennell
John Foley
Charles Geer
Maryam Ghyabi
David Gildersleeve
Warren Hahn
Michael Hermesmeyer
Leslie Hernandez
David John
Taner Kalayci
Todd Kenner
Sally Kohn
Robert Maxman
Joseph McMahon
Steve Means
Steve Mifflin
Robert Miller
John Padavich
Anthony Paniccia
J. Michael Potter
Stephen Percott
David Reser
Frank Rudd
Steven Shealey

Michael Angelo
Nathan Nate Buttoff
Thomas Carroll
R. Charles
Joseph Charma
James Cloonan
A. Cottrell
John Fabian
Ahmad Faqiri
Mario Gangemi
Philip Horsey
Ted Janusza
Stephen Johns
Bruce Jones
Mike Karia
Keith Kooker
Jennifer Laning
Stephan Leh
Robert MacIntosh
Hugh Mahaffy
Gregory Moore
Josh Moss
Jessica Nichols
Edward Rasiul
Scott Rathlon
Jurgen Riemann
David Simkins
Dev Sitarum
W. Stack
Theodore Thomson
Matthew Vensel
Punith Venkatesh
Dwight Walters
Ted Williams
Jason Winterling
AEC President Dave Raymond shows Rep. Jim Oberstar (D-Minn.) a copy of Engineering Inc. during a reception to honor the congressman at the Annual Convention. Oberstar, chairman of the House Transportation and Infrastructure Committee, was the subject of the cover feature.
2007 ACEC/PAC HONOR ROLL

MAINE (5)
John Nelson
Jack Palmer
William Shelley
Guy Vaillancourt
Bruce Ward

MACHUSSETTS (66)
Michael Hanlon
Robert Vokes
Alexis Arakelian
Annis Autio
Mary Barry
Joseph Beggar
Bruce Belyer
David Bohn
Lisa Brothers
Robert Brustdin
Brian Buckley
Nicholas Campagna
Alfred Carrier
Dennis Coffey
Robert Cutone
Joan DeLorey
Crystale Dion
John Donovan
Brian Doyle
Stanley Elkerton
Mark Ensign
Nicola Ferrazza
Harold Flight
John Giudicci
Joel Goodmonson
Lara Groves
Mary Hall
Mike Hertly
Edward Hollingshead
Diane Howard
William Howard
Patrick Hughes
J. Irwin
Ko Ishikura
Ikido Johash
William Kelleher
Michael Kenally
Christopher Koehler
Brian Lawlor
Francis Leathers
John Manning
Michael McInnis
Richard Moore
Thomas Morgan
Paul Murphy
Judith Nitsch
Richard O’Brien
Margaret O’Meara
Stephen O’Neill
Robert Oroski
James Pappas
Michael Powers
William Reed
Peter Richardson
Gregory Roy
L. Roy
Alec Smith
Eric Stoofton
Edie Triano
Joel Ugleich
Timothy Wolfe
Stephen Zentz
James Zito

METRO WASHINGTON (17)
Phinlos Angelides
Fredric Berger
Lawrence Bory
Jonathan Barry
Richard Corrigan
Sandra Gitlin
David Greenwood
Steve Hall
Cynthia Hu
Roger Jordan
Dennis Kamber
Curt Kane
Dan Knauf
Gerald Levitt
Colin Matheson
Dave Raymond
Michael Wiercinski

MICHIGAN (91)
Daniel Fredendall
Walter Alix
Regime Beboeuf
Michael Bergstrom
Matthew Bissett
Danny Bongiovanni
Kirk Branson
Rene Brone
James Canham
Curt Christeson
Christopher Cook
James Cook
William Costick
Robert Cochrane
Craig Dasher
Don Devries
Kent Early
Bruce Elenbaas
James Escamilla
Lee Fahren
Jacqueline Fleis
Lawrence Fleis
Karl Freed
John Fried
Michael Fuller
Paul Grods
Arnold Gelderman
William Gipson
Philip Glupker
Rhet Groenvelt
Russel Groenvelt
Philip Hampton
Noel Harrig-Moore
Patrick Hastings
Lester Hewitt
John Hiltz
Helen Himes
Kevin Hoppe
Roger John
Samuel Kain
Vyrautas Kaulenks
Jonathan Kramer

MINNESOTA (3)
William Bennett
Timothy Mo
e
William Sayre

MISSISSIPPI (44)
Charles Williford
Judy Adams
Hunter Arnold
Perry Attherton
N. M. Burge
William Burle
Jim Cantrall
Ronald Cassada
L. Compton
Larry Coohey

IOWA (43)
Jerry Shellberg
John Bender
Richard Berndt
Larry Berns
Larry Buchholz
F. Daoud
Ivan Dreeusser
Mike Dryden
Tom Edgerton
Donald Eider
Michael Flattery
Thomas Hayden
Keith Hobson
Gilbert Janes
Alan Jensen
Michael Kammerer
Paul Kline
Jeffrey Krueger
Neal Kuehl
Philip Larson
R. Dan Lovett
Kim McKeown
John Meyer
David Moemond
Dale Moore
Patrick Mullin
Allen Munsterman
Herbert Ohrt
Robert Payer
Douglas Post
Bennet Reichsauer
Gayle Roberts
Kent Rode
Ralph Russell
Penny Schmitz
David Scott
J. Scott Shevel
Terrence Smith
Greg Thomopoulos
Allen Varney
Dale Watson
Rick White
Curts Wiseman

KANSAS (27)
Maurice Bowersox
Debra Allison
Steven Bakenberg
Kenneth Bengston

LOUISIANA (7)
Frank Nicolais
Wilfred Barry
Lawrence Blanchette
Blake Kinschen

JOSEPH (29)
Joseph Brand
Ryan Brantford
Bill Brungardt
Matthew Brungardt
Kent Dvorak
Troy Eisenbraun
David Gaboury
Martin Goedeck
Kenneth Hancock
Mike Hess
Kevin Honomichl
Saint Johnson
Kenil Lynn
Dale Maltbie
Glen Nilsen
Michael Olson
Chris Price
Brent Remsberg
Murray Rhodes
Clinton Robinson
Thomas Ruggles
Kar Svay
N. Wooten

KENTUCKY (37)
Ron Gilkerston
Michael Anderson
Hugo Aparicio
George Athanasakis
Craig Avery
John Bemke
Stephen Bickel
George Binder
Daniel Byers
Sean Chapman
Don fuller
James Galt
Louie Greenwell
Kenneth Hardin
Joe Herman
Carol Kearns
Mark Likenhus
Danny Longsworth
John Malag
Chad Modesit
Evang Mossberger
Scott Murray
Kenny Ott
Ralph Palmer
Ben Quinn
Randall Bryan
Kurt Schaefer
John Schneider
Randolph Scott
Stephen Scott
John Storm
Richard Sutherland
Dar Thacher
Joseph Tierney
Karen Wood
Greg Yankey

LEWIS & CLARK (9)
Linda Adams
Karen Blevins
John Brown
Robert Carbon
Brett Childs
Gary Colvin
Sharon Dierker
Steve DuBois
Ann Ferguson

LOUISIANA (7)
Frank Nicolais
Wilfred Barry
Lawrence Blanchette
Blake Kinschen

MAINE (5)
John Nelson
Jack Palmer
William Shelley
Guy Vaillancourt
Bruce Ward

MASSACHUSETTS (66)
Michael Hanlon
Robert Vokes
Alexis Arakelian
Annis Autio
Mary Barry
Joseph Beggar
Bruce Belyer
David Bohn
Lisa Brothers
Robert Brustdin
Brian Buckley
Nicholas Campagna
Alfred Carrier
Dennis Coffey
Robert Cutone
Joan DeLorey
Crystale Dion
John Donovan
Brian Doyle
Stanley Elkerton
Mark Ensign
Nicola Ferrazza
Harold Flight
John Giudicci
Joel Goodmonson
Lara Groves
Mary Hall
Mike Hertly
Edward Hollingshead
Diane Howard
William Howard
Patrick Hughes
J. Irwin
Ko Ishikura
Ikido Johash
William Kelleher
Michael Kenally
Christopher Koehler
Brian Lawlor
Francis Leathers
John Manning
Michael McInnis
Richard Moore
Thomas Morgan
Paul Murphy
Judith Nitsch
Richard O’Brien
Margaret O’Meara
Stephen O’Neill
Robert Oroski
James Pappas
Michael Powers
William Reed
Peter Richardson
Gregory Roy
L. Roy
Alec Smith
Eric Stoofton
Edie Triano
Joel Ugleich
Timothy Wolfe
Stephen Zentz
James Zito

METRO WASHINGTON (17)
Phinlos Angelides
Fredric Berger
Lawrence Bory
Jonathan Barry
Richard Corrigan
Sandra Gitlin
David Greenwood
Steve Hall
Cynthia Hu
Roger Jordan
Dennis Kamber
Curt Kane
Dan Knauf
Gerald Levitt
Colin Matheson
Dave Raymond
Michael Wiercinski

MICHIGAN (91)
Daniel Fredendall
Walter Alix
Regime Beboeuf
Michael Bergstrom
Matthew Bissett
Danny Bongiovanni
Kirk Branson
Rene Brone
James Canham
Curt Christeson
Christopher Cook
James Cook
William Costick
Robert Cochrane
Craig Dasher
Don Devries
Kent Early
Bruce Elenbaas
James Escamilla
Lee Fahren
Jacqueline Fleis
Lawrence Fleis
Karl Freed
John Fried
Michael Fuller
Paul Grods
Arnold Gelderman
William Gipson
Philip Glupker
Rhet Groenvelt
Russel Groenvelt
Philip Hampton
Noel Harrig-Moore
Patrick Hastings
Lester Hewitt
John Hiltz
Helen Himes
Kevin Hoppe
Roger John
Samuel Kain
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Jonathan Kramer

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Hunter Arnold
Perry Attherton
N. M. Burge
William Burle
Jim Cantrall
Ronald Cassada
L. Compton
Larry Coohey

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2007 ACEC/PAC Honor Roll

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Robert Schuerger
Ronald Schultz
Edward Sefick
Paula Selvaggio
Jay Shutt
Gregg Simon
C. Smith
Gregory Tkacz
Edward Turner
James Van Ostran
Richard Werner
Daniel Whited
Donna Wirth
Greg Wright

OKLAHOMA (9)
Darold Davis
James Benson
Gerald Finn
J. Ford
Thomas Hendrick
Michael Homan
Stacy Loffler
Alan Soltan
James Stewart

OREGON (16)
Jack Beemer
Stephen Anderson
Stacy Bartoletti
James Carnahan
David Evans
Dwight Hardin
Gayle Harley
Devon Pereira
Cindi Polychronis
Ermel Quevedo
Cindi Polychronis
Marshall Elizer
Charles Craycraft
Angela Cannon
F. Burnette
William Barry
Alan Aront
John Agee
Gerald Stump
Karen Nichols
Daniel DeYoung

Pennsylvania (70)
Christopher Borton
Mark Aliskey
Chester Allen
S. Barnes
Victor Bertolina
Lisa Brovey
Jeffrey Campbell
Nicholas Coppage
James Cullison
Edward D’Alba
Bony Davood
Paul DeBerry
David DeLizza
John Diviney
Thomas Donahue
Ronald Drneich
James Eisenhardt
James Elliott
Ellen Ferretti
Eric Ficker
Eric Frary
Donald Gennuso
Joseph Giltott
Robert Goetz
William Gralski
David Hersh
Jeffrey Hill
Andrew Hilt
Arthur Hoffmann
Charles Skip Homan
Carl Hunt
Christine Hunt
Cynthia Jampole
W. Andrews Jenkins
Lynn Knepp
G. Kurgan
Thomas Lawson
James Lombardi
Russell MacNair
Mark Magalotti
Thomas Maheady
Michael Marso
Joseph McAtee
Christopher McCue
Paul McGuade
Kristina Monahan
Todd Morris
Michael Mudry
G. Myers
Kenneth Nadler
Joseph O’Neil
C. Pennoni
Michael Poletti
John Prybella
George Rettew
John Robinson
Richard Robyak
Barry Schoch
Jerome Schwertz
Brian Shunk
James Smith
Justin Smith
Larry Smith
Dave Stewart
William Stout
Doug Warfel
Michael Wilk
Steven Wilson
Thomas Zagoski
Dale Zeiders

SOUTH CAROLINA (46)
Miller Love
Velma Atkinson
William Blackwood
James Bohannon
James Boyles
Allen Chestnut
A. Davis
Dan Dennis
James DuPre
Haze Elliott
Elham Farzam
Robert Ferrell
Joseph Greenburg
W. Grubbs
Donald Hamburger
Larry Hargrove
Michael Horton
Kenneth Humphries
Janet Jenkins
Irwin Johnson
Joe Jones
Charles Joyce
James Keister
Daniel Lealy
James Lewis
Michael McGuire
Jack Mobley
James O’Connor
C. Palmer
Arthur Parrish
M. Perry
Robert J. Probst
Frederick Quinn
Kevin Shoemake
M. Smith
William Spearman
Charles Stearns
Peter Strub
David Taylor
Jerry Timmons
Holli Walker
Richard Ward
Walter Warren
Gay White
Tony Woody
Mark Yodice

TENNESSEE (40)
Gerald Stump
John Agee
Jeff Arnold
Alan Arnot
Mark Askew
William Barry
F. Burnett
Angela Cannon
W. Cannon
Phillip Coop
Everett Cowan
Charles Craycraft
Marshall Elizer

UTAH (53)
Karen Nichols
Hiram Alba
Marvin Allen
David Alter
Craig Ashcroft
Craig Bagley
Larry Becknell
Dale Bennett
Norman Bennion
Larry Bowen
Michael Brehm
John Buttenob
Lee Cammack
Fredric Campbell
Michael Collins
Bob Davis
Robert Davis
Darrel Dixon
Fred Dubenow
Bruce Erickson
Leo Florence
James Horrocks
Gary Horton
David Jenkins
Brent Jensen
Jeromiah Johnson
Pat Harcourt
Edward Hargraves
David Harrell
Greg Harris
Mark Harrison
Tommy Jordan
John Kenny
Catherine Kingery
Stephen Lane
James Littlejohn
Shannon Looney
Stephen Meyer
William Moore
James Morinac
Thomas Needham
Phillip Ortinger
Wayne Overman
Shane Pike
Sandra Reaga
Brad Salsbury
Michael Stomer
Susan Thresher
Candy Toler
Edward Watt
Marion Wynne
David Yates
David Young

VERMONT (3)
John Lens
Robert Faulkner
John Forcier

WASHINGTON (94)
Kevin Weed
Jess Abed
Diane Adams
Steve Asaka
Kurt Anderson
Cale Ash
Aref Aziz
Lawrence Balanko
Kristen Betty
Rachel Boehm
Kevin Austin
Jim Baldrige
John Ballard
C. Bamforth
Donald Booth
Herbert Braun
Ned Cleland
Cecil Doyle
Alvin Dunbar
Ronald Ewing
Michael Galli
Matt Gough
Roger Hart
Ronald Helton
Michael Hurd
Nancy Israel
William Johnson
Samuel Kirby
Kevin Kokal
Jeffrey Lighthiser
David Lookenbill
John Mann
Arthur M. Matthews
Michael W. Matthews
Arthur McKinney
Adam Mickiewicz
Timothy Mills
Peter O’Hara
Jeffrey Perry
Steven Roberts
Ann Samford
R. Schwartz
Richard Simon
Don Siber
Kenneth Stepla
Roger Stroud
Rensin Tisdale
R. Vaughan
Gary Weisshaar
C. Williams
Frank Willson
Franklyn Wilson
Christopher Workman

The winning foursome from the ACEC/PAC golf tournament at the Fall Conference in Maui is left to right: Gary Bourne, David Winter, Kurt Gahagen, and ACEC/Washington Executive Director Bill Garrity.
Mergers and Acquisitions

AECOM Technology Corp. announced plans to acquire two U.S. engineering firms: Earth Tech, Inc., and Boyle Engineering Corp., further enhancing the firm’s expertise in water/wastewater, transportation and environmental markets.

Earth Tech provides engineering consulting services to water/wastewater, environmental, transportation and facilities clients, and employs 7,000 people worldwide. “By adding Earth Tech to AECOM, we immediately strengthen our position in our core water and wastewater markets. We also bolster our environmental, facilities and transportation businesses, while further expanding AECOM’s global footprint,” said John M. Dionisio, AECOM president and CEO.

The firm also entered into an agreement to acquire Boyle Engineering, a Newport Beach, Calif.-based engineering firm that specializes in the water sector, including drinking water, wastewater treatment and water-resource management. Boyle, which has a strong presence in the southeast and western United States, employs more than 600 people.

“We are excited about welcoming Boyle to the AECOM family,” said Dionisio. “For more than 65 years, Boyle has been a leader in the delivery of water and wastewater services. They will enhance our leadership in the water and environmental infrastructure markets.”

Calendar of Events

2008

MARCH

18 Industry Improvement Initiatives—Are U.S. Firms Behind? (online seminar)

19 Developing and Implementing Winning Strategies for Engineers, Architects and Construction Companies (online seminar)

26 New Approaches to Design Management (online seminar)

26–29 Business of Design Consulting (BDC) for the Engineering Firm of the 21st Century, New Orleans

APRIL

1 Thinking Outside the Inbox: Deploying an E-Mail Management Process Enterprise-Wide (online seminar)

2 Pandemic Flu—Implications for Your Firm and Your Clients (online seminar)

8 Merger and Acquisition Transactions—Looking Ahead (online seminar)

9 The Business Case for Sustainable Engineering Practice (online seminar)

15 Escaping the Wal-Marting of Engineering (online seminar)

16 rcep.net: The NCEES/AEC Nationwide Portal to Continuing Education for Engineers (online seminar)

27–30 ACEC Annual Convention & Legislative Summit, Washington, D.C.

Additional information on ACEC’s events is available at www.acec.org. To add your events to this calendar, e-mail Andrea Keeney at akeeney@acec.org.
Now Hiring

Simpson Gumpertz & Heger is a national consulting engineering firm that designs, investigates, and rehabilitates structures and building enclosures.

We are always looking for highly qualified candidates interested in working on challenging and exciting projects in an environment that promotes employee growth and satisfaction. We have five offices: Boston, Los Angeles, New York, San Francisco, and Washington, DC.

From left clockwise: Macallen Building, Boston, MA; MIT Simmons Hall, Cambridge, MA; John Hancock Tower, Boston, MA; John Adams Courthouse, Boston, MA

We offer an excellent compensation and benefits package in a corporate culture based on learning and growth. To learn more about SGH and current job opportunities, visit our web site at www.sgh.com/EmploymentOpportunities.

Please send your resume to: Simpson Gumpertz & Heger Inc. Attn: Human Resources Dept. 41 Seyon Street, Bldg. 1, Suite 500 Waltham, MA 02453 Fax: 781-907-9009

On The Move

Michael R. Flannery was appointed president and CEO of Woolpert, Inc. Flannery succeeds Rex W. Cowden, who stepped down and now serves as Woolpert senior vice president, where he manages ongoing acquisition initiatives.

Al Barkouli was named president and COO of David Evans and Associates, Inc. Barkouli succeeds Ken Wightman, who recently became CEO. Founder Dave Evans continues to serve as chairman of the board of directors.

Chuck Kohler was appointed executive vice president of Parsons Brinckerhoff (PB), where he will oversee information technology, risk management, staff development, business development systems and market intelligence. He was previously operations director for PB’s Europe/Africa operations. George J. Pierson was named COO of PB’s Americas operations. Pierson, an engineer and attorney, joined the firm in 2006 as general counsel and secretary; he will manage the firm’s operations in North and South America. Stuart Glenn was named COO of PB’s international operations. Glenn succeeds Keith J. Hawksworth, now PB’s CEO. Glenn will oversee PB’s operations in Asia, Europe, Africa, the Middle East and Asia-Pacific regions. He is currently managing director of the firm’s Australia-Pacific group.

MEMBERS IN THE NEWS

Michael R. Flannery
Al Barkouli
Chuck Kohler
George J. Pierson
Stuart Glenn

Simpson Gumpertz & Heger
Engineering of Structures and Building Enclosures
How Can One Simple Move Today Help Your Employees Enjoy a Better Tomorrow?

One easy way to help your employees get on the road to a more sound financial future is by offering them a 401(k) defined contribution plan. But if you’ve hesitated because you’re concerned about the fiduciary responsibilities—or feel you’d need help with enrollment—the ACEC Retirement Trust has what you need.

As a participating employer in the ACEC Retirement Trust, you have access to the following:

- **Fiduciary support**—Prudential Retirement® is the recordkeeper for the ACEC Retirement Trust and has the experience and expertise to help you meet your fiduciary responsibilities as a plan sponsor. ACEC Retirement Trust offers fiduciary assistance by selecting the plan investment options.

- **Comprehensive advisory services**—The ACEC Retirement Trust, together with Prudential Retirement, can provide you with the tools and services you need to help ensure that the plan you adopt is well designed, cost effective, financially sound and compliant with applicable laws.

- **Automatic enrollment**—When you offer a plan that participates in the ACEC Retirement Trust, the automatic enrollment feature enables you to enroll all your eligible employees without requiring them to actively enroll.

Don’t your employees deserve a more financially secure future? With a 401(k) defined contribution plan that participates in the ACEC Retirement Trust, you can help them get on the right path. If your firm is already participating in the ACEC Retirement Trust, simply contact your representative for assistance.

**Do you need to join the ACEC Retirement Trust?**
Contact Nancy Barrette at (800) 521-9463 or via e-mail at nancy.barrette@wachoviasec.com for information on how your firm can join.

Act today—to help your employees prepare for a better tomorrow.
The ACEC Life/Health Trust makes it easier to offer affordable, high-quality benefit plans to your employees.

It’s all about choosing the right people for the job.

We know it’s important to have knowledgeable people on your team. That’s why the ACEC Life/Health Trust has chosen UnitedHealthcare, one of the largest health and well-being services companies in the world, to administer and insure the health care coverage plans from health, dental, vision, disability, life and more. Together, we’re committed to providing solutions to our client base that includes more than 1,400 firms and 44,000 employees and their dependents who enjoy an enhanced health care experience and improved health.

As a member of the ACEC Life/Health Trust, you’ll find the right plans for your whole firm in one place.

Additional ACEC Life/Health Trust benefits

ACEC Life/Health Trust members receive the following benefits:

• Specific rates, pricing and custom plan designs
• Dedicated ACEC sales and service teams waiting to serve you
• All governing decisions are made by the Trust specifically on behalf of engineering firms
• Preferred retention/renewal strategy and approach
• 24-hour NurseLine℠ access
• Wellness representatives assigned specifically to ACEC member companies
• Fully integrated consumer-driven health products, including banking services
• Easy-to-use information on physicians and hospitals
• Online self-service tools that give members access to personal health records, plan transactions and account information at any time

For more information or a no-obligation quote, call 1-877-275-3644 or visit www.uhctoday.com/acec

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The NurseLine℠ service can not diagnose problems or recommend specific treatment. The information provided through the NurseLine service is not a substitute for your doctor’s care.

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