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Cover Feature

RUNNING ON EMPTY

Former Pennsylvania Gov. Ed Rendell and other industry experts discuss solutions for the nation's crumbling transportation infrastructure.

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Citizen lobbyists vital in all-out drive for increased transportation funding and contracting out.

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From ACEC to You

Citizen Lobbyists Vital in All-Out Drive for Increased Transportation Funding

ith competition heating up for control of Congress and the White House, the Council is pressuring lawmakers for early 2012 action on critical industry objectives, including a fully funded multiyear transportation bill with a strong contracting out provision.

Both houses of Congress are currently debating the merits of their respective transportation funding proposals, as the expiration of the current funding extension looms at the end of March.

With a growing bipartisan consensus on the need for a new federal-aid transportation program, we believe a bill that combines traditional financing mechanisms with new, sustainable sources of funding-can be achieved.

Our upcoming Annual Convention in Washington, D.C. (April 15–18), will play a vital role in achieving not only a new transportation bill, but other industry objectives as well-such as funding for water and energy projects, and tax reform. (See Convention preview on page 16.)

This issue of Engineering Inc. also explores the viability of the most discussed alternatives to federal transportation funding, such as vehicle miles traveled systems, public-private partnerships and a state/national infrastructure bank. (See page 8.)

Former Pennsylvania Gov. Ed Rendell, a longtime advocate for increased transportation infrastructure investment, also provides a preview of his upcoming Annual Convention address on the politics of infrastructure investment.

We look forward to your participation at the Annual Convention.

Terry F. Nime

Terry Neimeyer ACEC Chairman

David A. Raymond ACEC President & CEO

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News&Notes

Green Building Retrofitting Set to Surge

reen retrofits of U.S. buildings are expected to substantially increase in 2012, despite the recent slowdown in new commercial and government construction, industry experts predict.

International green building consultancy Yudelson Associates has predicted a rebound in overall U.S. green building with retrofits for college and university projects and nongovernmental organizations leading the surge.

Jerry Yudelson, founder of Yudelson Associates, said that local and state governments are also expected to step up mandates for green buildings in the public and private sector. "We'll see at least 20 new cities with commercial-sector green building mandates," he said.

In 2011, McGraw-Hill released *Business Case for Energy Efficient Building Retrofit and Renovation*, which reported that 78 percent of business owners intend to upgrade or retrofit their buildings to maximize energy efficiency within the next two years.

The report said that while government and outside financing are major incentives for businesses to make such improvements, more than 85 percent of current retrofitting projects are paid for by the companies themselves-representing "a major commitment by businesses to decrease utility costs, increase profit margins and improve employee productivity and satisfaction,"

according to the report. McGraw-Hill's

Green Outlook 2011 Jerry projected that the U.S. green building market would top \$135 billion by 2015, up from \$71 billion in 2010, and that major retrofit and renovation projects for existing buildings will total \$18 billion in five years.

According to Yudelson's Top Ten Green Building Mega Trends for 2012, green building in 2012 will benefit from ongoing support from the Obama administration, and its commitment to a minimum certification of LEED Gold for all federal projects and a focus on energy-efficiency renovations. President Obama announced in December 2011 that his Better Buildings Initiative will invest \$4 billion in energyefficiency upgrades to existing buildings over the next two years, half of which will be in the private sector.

Hill's Jerry Yudelson at the puilding market for 2

Discovery Channel to Launch New Engineering Competition Series

he Discovery Channel and unscripted-series producer Craig Piligian are introducing a new engineering competition show.

Deadline Hollywood reports that Discovery has ordered eight episodes of the yet-untitled engineering series from Piligian, the man behind such long-running Discovery shows as Dirty Jobs and American Chopper.

The show reportedly will be filmed on set at Water Entertainment Technologies, a renowned Los Angelesbased water/fire design and engineering firm that has created more than 200 installations, including fountains for the Bellagio Hotel in Las Vegas and The Dubai Fountain, the world's largest. The show, produced by Piligian's Pilgrim Studios, will feature engineers competing against each other in



extreme challenges that push the boundaries of technology, creativity, ingenuity and craftsmanship. It is expected to debut by spring 2012.

"Scientific exploration and experimentation is at the core of Discovery Channel's DNA," said Nancy Daniels, Discovery's executive vice president for production and development. "With its competition format, this new series will shine a spotlight on the exciting world of science and engineering in a completely new way."





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Legislative Action

House to Consider Five-Year, \$260 Billion Transportation Bill; ACEC Praised

he U.S. House of Representatives is poised to consider legislation to reauthorize federal highway, transit and safety programs that protects current levels of investment over the next five years. Highway programs would receive an average of \$41 billion annually. Transit activities would be funded at more than \$10 billion.

H.R. 7, the American Energy and Infrastructure Jobs Act, consolidates numerous highway programs, giving states more flexibility for allocating funds. At ACEC's urging, the measure also streamlines the project approval process by integrating planning decisions into environmental reviews, setting tight deadlines for resource agency decisions and exempting more projects from the most extensive and cumbersome reviews.

In order to supplement the funding provided in the bill, states are given permission to toll new highway lanes to add capacity. In addition, the Transportation Infrastructure Financing and Innovation Act program of loans and loan guarantees would be expanded to \$1 billion annually to leverage more state, local and private-sector investment in projects.

In announcing the bill at a Capitol Hill press conference in January, House Transportation and Infrastructure Committee Chairman John Mica (R-Fla.) singled out ACEC for its strong support of the five-year, \$260 billion package.

The bill was scheduled for a vote following a one-week recess in the House.





Rep. Richard Hanna (R-N.Y.), left, and ACEC President Dave Raymond at the press conference announcing the transportation funding bill that includes Hanna's strong provision on contracting out.

H.R. 7 Includes ACEC Contracting Out Mandate

he House transportation bill includes a major industry provision initiated by ACEC that would require state departments of transportation to contract out engineering and design services to the private sector "to the maximum extent practicable." The contracting out section also includes a reporting requirement to measure compliance.

The language was sponsored by Rep. Richard Hanna (R-N.Y.), vice chairman of the Highways and Transit Subcommittee. "The engineering industry plays an essential role in helping state and local agencies provide the innovation, expertise, on-time delivery and long-term cost savings necessary for cost-effective transportation projects," Hanna said in support of the measure.

ACEC will be working to retain the provision as the bill moves through the House and Senate.

President Signs Four-Year Aviation Bill; Endorses Use of QBS

President Obama has signed into law a four-year reauthorization of various Federal Aviation Administration programs totaling \$64 billion through 2015.

H.R. 658 provides \$3.35 billion annually for the Airport Improvement Program, consistent with 2012 funding levels and an increase above the House-passed bill.

The agreement also includes an ACEC-initiated provision supporting the use of Qualifications-Based Selection (QBS) on airport projects funded solely with passenger facility charges, which are not currently subject to federal QBS mandates.



Energy Bills Advancing With Highway/Transit Bill

CEC has backed an amendment to the highway bill (H.R. 7) that would expedite the design and construction of the Keystone XL pipeline to bring Canadian oil to Texas refineries.

The House bill also includes energy initiatives intended to supplement the Highway Trust Fund and create additional sources of domestic energy. It would require the administration to move forward with new energy exploration and production along both coasts, the eastern Gulf of Mexico and the Arctic National Wildlife refuge. The measure would also encourage the development of U.S. oil shale resources and support shale technology research and development.

"It makes sense to combine transportation and energy, both in terms of helping to finance an expanded highway and transit program as well as expanding domestic energy markets and making us less dependent upon imports," said Ralph Christie, chairman of ACEC's Environment and Energy Committee and president and CEO of Merrick & Company.

| | WHAT'S NEXT |
|-------------------------------------|--|
| Highway, transit bill | Senate action expected in March |
| Offshore energy, ANWR, oil shale | Negotiations with the Senate in March |
| Contracting out by federal agencies | ACEC-drafted legislation to be considered late spring |

Key Senate Committee Approves Infrastructure Financing Package

he Senate Finance Committee has approved a bipartisan financing package to support a two-year, \$109 billion transportation reauthorization bill. The bill adds \$5.5 billion to the Highway Trust Fund from various sources, enough to keep the Trust Fund solvent through September 2013.

Like its companion in the House, the Senate bill currently under consideration seeks to consolidate many existing federal transportation programs to give state DOTs greater flexibility, as well as improve and streamline the environmental review process. The debate and amendment process could continue through the end of February.

The committee also approved by voice vote an ACEC-backed amendment, offered by Sen. Bob Menendez (D-N.J.), to lift the state volume cap on Private Activity Bonds for water and wastewater projects for six years. The amendment is based on legislation Menendez and Rep. Bill Pascrell (D-N.J.) have introduced to expand funding options available to the states to support local water needs. If enacted, the provision is expected to raise between \$2 billion to \$6 billion annually for water infrastructure.

ACEC Committee Calls for Increased Contracting Out During Hill Meetings

CEC's Federal Agencies and Procurement Advocacy Committee (FAPA) lobbied key House and Senate committees in January for more controls on insourcing and on competition by federal agencies during its recent winter meeting.

ACEC members met with staffs of the House and Senate committees on Oversight and Government Reform, Small Business, and the Appropriations subcommittees on Energy and Water.

During a meeting with the Small Business Committee staff, FAPA members outlined ACEC's recom-

For More News

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mendations for the upcoming Small Business Size Standard rule and called for improved acquisition planning and small business programs.

In a separate conference with the U.S. Army Corps of Engineers, FAPA members voiced concerns about insourcing and recent increases in the Corps' engineering staff.

"We need this kind of one-on-one engagement with key policymakers in order to improve the contracting environment for firms working in the federal markets," said FAPA Committee Chairman Jim Blake of Johnson, Mirmiran & Thompson.

Running options

Takeaways

- Increased investment in the surface transportation system is critical.
- Several alternative funding measures have been floated by Congress, but there is little consensus.
- The rise in high-efficiency vehicles reduces the long-term value of a gasoline-only tax.

very day, millions of vehicles crisscross the 42,794-mile network of roads that make up the nation's massive interstate highway system.

More than 60 years after President Dwight D. Eisenhower first established the interstate system—the longest span of which allows drivers to travel uninterrupted on 1-90 from Boston to Seattle—it's hard to imagine life in the United States without it.



Ask the Experts

Q: "What do you believe has to be done in the United States to adequately finance the transportation infrastructure required to meet the challenges of the 21st century?"



Geoffrey Yarema Chair, the Infrastructure Practice Group Nossaman LLP "First and foremost, we need to dramatically increase the size of the TIFIA Program. Second,

states need flexibility in incorporating tolling into their funding programs. Third, we need to lay the foundation for a change over to VMT by 2020. Fourth, we must loosen restrictions so that states can make decisions about how to best deliver projects in a tax-poor environment."

D.J. Gribbin



Managing Director Macquarie Capital Advisors "The only obstacle

to a fully funded transportation program is public support. At present, the public is highly

skeptical that its investment in transportation infrastructure will produce a return in terms of improved mobility. Connecting user fees or taxes to user benefits will improve public trust, and the expanded use of public-private partnerships ensures that capital is available for the operation and maintenance of at least these facilities."

Ken Wightman



Chairman of the Board. David Evans Enterprises, Inc.; **ACEC Transportation Committee Chair** "We must supplement the type of funding that goes

into the Highway Trust Fund. The traditional gas tax is all but on its last legs and we must consider alternatives, such as Vehicle Miles Traveled systems, infrastructure banks, TIFIA financing, and public-private partnerships...it cannot be politics as usual."

But, as the population grows and the nation's roadways become increasingly crowded, it has become clear that the Highway Trust Fund, the tax-based funding mechanism established by Eisenhower in 1956 to maintain the original interstate system, is no longer sufficient to meet the demands of its aging infrastructure.

"Our surface transportation system is at a crossroads," says Jack Schenendorf,

24% Amount of U.S. highway traffic handled by the interstate highway system Covington & Burling LLP and former chief of staff for the U.S. House Transportation and Infrastructure Committee. "We were blessed to have the Eisenhower generation give us a new interstate system with excess capacity. It helped drive economic

counsel at the law firm

Source: Federal Highway Administration

> growth for many years. But the system is now running out of capacity and aging. It requires major repairs and improvements."

> Several alternative funding measures, including a Vehicle Miles Traveled (VMT) system, public-private partnerships (PPPs),

state and national infrastructure banks and expanded user fees, have been floated by Congress, engineers and others, but there's little consensus about which direction to head.

Time and money are running out. "We must take action," says Greg Cohen, president of the American Highway Users Alliance. "We're facing a dire situation that threatens to undermine the nation's longterm competitiveness and safety."

Road Blocks

One needs only to glance at the problems confronting individual states to recognize the extent of the nation's highway deficiencies.

The American Association of State Highway and Transportation Officials (AASHTO) reported in 2009 that Texas will require some \$73 billion over 22 years to maintain its interstate network. Oregon, meanwhile, needs \$200 million annually over the next 10 years to maintain its roads. The state currently falls about \$70 million a year short of that figure.

Despite huge spikes in traffic, the total number of highway lane miles has grown by a paltry 4.4 percent in three decades.



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The number of hours delayed per traveler tripled from 1982 to 2005, and total hours of delay increased fivefold. In urban areas alone, congestion resulted in 4.8 billion hours of traveler delays and consumption of an additional 3.9 billion gallons of fuel in 2009.

The Highway Trust Fund

The objective of the HTF was to link transportation-related taxes with transportation funding. When the original threecent-per-gallon gas tax was introduced in 1956, it provided ample revenue to build a state-of-the-art user-paid highway system. The HTF worked well until the 1980s, when existing infrastructure began to age, construction costs spiked and the tax base, in turn, fell short. The situation has continued to deteriorate.

"We're approaching the breaking point, partly because many highways require major upgrades and construction," says Cohen.

Stakeholders have found it difficult to put their finger on any one problem. Congress hasn't raised the current federal gasoline tax—18.4 cents a gallon for gasoline and 24.4 cents for diesel fuel—since 1993. In that time, AASHTO says the tax has lost nearly 33 percent of its purchasing power. Cohen and other observers say that figure could be closer to 50 percent. Even if Congress were to consider an increase, experts say the fear of political backlash would make such a move unlikely.

Making matters worse, the current HTF has become inexorably intertwined with the general fund, calling into question how money collected through the fund is spent.

"Unfortunately, HTF has lost a great deal of credibility with the public. It's unlikely that there will be any significant increases in funding until some of the problems have been addressed," Schenendorf says.

The rise of high-efficiency vehicles, including hybrids and electric cars, has also called into question the long-term viability of a fund supported solely by a gasoline tax.

"Fuel-efficient vehicles are a very positive development but, based on the current funding model, a drop in consumption means that you're reducing revenues," says James Whitty, manager of the Office of Innovative Partnerships and Alternative Funding at the Oregon Department of

Infrastructure Advocate Ed Rendell To Address Annual Convention

hroughout his distinguished political career, including two terms as Pennsylvania governor, eight years as Philadelphia mayor, and chairman of the Democratic National Committee, Ed Rendell has remained a strong advocate for infrastructure investment. His insights into the politics of infrastructure

investment, and why he is adamant that infrastructure should never become a partisan issue, will be the subject of his address at the upcoming ACEC Annual Convention, April 15-18, in Washington, D.C.

Rendell, with former California Gov. Arnold Schwarzenegger, and New York City Mayor Michael Bloomberg, founded Building America's Future–a bipartisan national coalition of elected officials dedicated to increased U.S. investment in infrastructure.

ACEC: You have been an outspoken proponent of infrastructure funding. Why are you so passionate on this issue?

RENDELL: Because no other issue involves our economic competitiveness, improving our environment, public safety, our quality of life and is the best way to create well-paying jobs. We must focus on infrastructure investment before it's too late and, in doing so, we can create thousands upon thousands of jobs that will help revive our economy and stimulate American manufacturing, as well.



ACEC: What mechanisms beyond the traditional forms of infrastructure financing do we need to embrace in an era of constrained budgets?

RENDELL: We must drastically increase Transportation Infrastructure Finance and Innovation Act funding because of its great leverage effect, lift the ban on states' tolling of federal highways and create an infrastructure bank to take advantage of the hundreds of billions of dollars in the private-sector investment community currently available for infrastructure projects.

ACEC: What do we need to do to highlight the importance of infrastructure investment to lawmakers?

RENDELL: As Building America's Future is doing, we have to motivate Americans in their hometowns to tell Congress that they want investments in our infrastructure. In essence, we need them to give their lawmakers a permission slip to make the appropriate needed investments.

Transportation. "Over time, revenues for the roadway system are going to dry up and go away."

A Brighter Future?

So who—or what—is going to pay for these upgrades? A 2009 report, "Paying Our Way: A New Framework for Transportation Finance," recommended phasing out the gas tax and adopting a VMT charge in addition to other financing and funding methods.

Here are deeper explanations of some of the ideas floated in the report:

Vehicle Miles Traveled. One of the most widely discussed alternatives to today's gasoline tax is a VMT fee, also referred to as a road-user charge. As the name implies, it tracks the number of miles a vehicle travels. "It is the ultimate user tax" and it ensures that hybrid and electric vehicle owners pay their fair share, says Ken Wightman, chairman of the board at Portland, Ore.-based David Evans and Associates, Inc., and chair of ACEC's Transportation Committee. Variable pricing is also possible, he says. "You can create incentives



and disincentives for driving at certain times of the day or taking certain routes."

In 2007, Oregon pilot tested a program with 285 volunteer vehicles. Participating vehicles carried a GPS unit that recorded the distance traveled but didn't track the movement of vehicles. Though the concept was deemed technically feasible, privacy concerns emerged as the primary roadblock. "One of the biggest objections was that the government could mandate the use of a GPS and that it could be used for tracking purposes," Wightman says. Critics also argue that the system imposes a larger proportional burden on the poor and people living in rural areas.

One way around that, according to Oregon's Whitty, is to offer an opt out that would allow motorists to pay a flat annual fee as an alternative to the VMT tax. Such a fee would sit atop a baseline that might range between \$100 and \$200 per year calculated at, say, 1.5 cents per mile.

The Oregon Department of Transportation plans to run a second test of the VMT system later this year. "The key to the public accepting a road-user charge is creating an open system and providing choices," Whitty says. A 2011 Congressional Budget Office Report, "Alternative Approaches to Funding Highways," concluded that VMT is a desirable and viable long-term solution. Other states, including Texas and Minnesota, have begun to develop policy frameworks for migrating to a VMT tax.



User-System Tolls. The use of tolls, congestion pricing and high-occupancy vehicle lanes is nothing new. But tolls are getting a closer look as officials explore ways to boost highway funding. "They make sense as part of the overall solution because they can be used to collect fees and also manage traffic and congestion," says D.J. Gribbin, managing director at Macquarie Capital and a former general counsel for the United States Department of Transportation. "Modern electronic tolling is fast, accurate and efficient."

Interstate 15 in San Diego features a dedicated lane for high-occupancy vehicles as well as any drivers who enroll in a "FasTrak" program in which they agree to pay a toll ranging from 50 cents to \$8, depending on time of day. The I-15 Express Lanes were paid for by a local half-cent sales tax and \$350 million in federal, state and local funds. The total cost of the project: \$1.3 billion.

Geoff Yarema, chair of the Infrastructure Practice Group at Nossaman LLP, says for states to use tolls effectively, flexibility is essential. "There are lots of restrictions that the federal government imposes on states regarding the use of tolls. These restrictions are totally outmoded and need to change. States need all the tools possible as we move forward."

Public-Private Partnerships. Over the last decade, an increasing number of transportation-related publicprivate partnerships have emerged. Success stories, such as the 15-mile-long San Joaquin Hills Toll Road in Southern California and the 14-mile-long Dulles Greenway in Virginia, have demonstrated the usefulness of such approaches—at least in some places. Cohen suggests that PPPs be used to supplement conventional construction—particularly for new roads or expansion projects. But he cautions the model might not be popular if applied to older roads. "Turning over existing public roads to a private company and imposing tolls is likely to generate a backlash," he says.

Either way, PPPs can provide benefits, says Yarema. "Saving 25 percent off the lifecycle costs of a project through a public-private partnership is essentially the same as providing 25 percent more revenues," he notes. One reason PPPs can inject money into a project is because they're not subject to the same restrictions and regulations that affect government financing. These projects typically transfer risk, including cost overruns, from the government and its taxpayers to the private sector.

PPPs can also be used by government agencies to subcontract construction to private firms, says Gribbin. "It's a no-nonsense way to deliver needed infrastructure at a dramatically lower



cost." Despite these and other potential advantages, Yarema views PPPs as a niche solution—one that faces an uphill battle with taxpayers. "The reason that public-private partnerships aren't used more frequently is that it's politically difficult to change the way government conducts business," he says.

State and National Infrastructure Banks

Another possible solution is the use of state and national infrastructure banks. Such programs use federal dollars to finance large public works projects. The Obama administration has included a national infrastructure fund in its budget proposals, but the idea has not gained



much traction in Congress. Lawmakers in the House and Senate have instead turned to an expansion of the Transportation Infrastructure Finance and Innovation Act (TIFIA) program, which has provided federal credit assistance to large-scale highway, transit and rail projects since 1998. Administered by the U.S. Department of Transportation, it aims to fill market gaps and leverage private co-investment by providing advantageous lending terms, including flexible repayment options, loan guarantees and standby lines of credit for local and state agencies.

"We have seen how effective federal offerings of low-cost financing can accelerate the delivery of qualified projects. These projects generate significant economic benefits, implement new technologies and attract private and nonfederal investment," Yarema says. He estimates that \$1 of every

TIFIA credit subsidy

25% Amount that can be saved on the lifecycle of a project through publicprivate partnerships

Source: Geoff Yarema, Nossaman LLP

creates \$10 in the face amount of a loan, which, in turn, finances \$30 worth of a project. This, he says, is a "relative bargain price to the federal government."

To be sure, the road to progress will be paved with more than a few economic and political potholes. "The interstate highway system is in crisis and the longer we postpone improvements and maintenance, the bigger the price we will pay," says Schenendorf. "Without additional investment, the U.S. economy will suffer."

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



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Mission: Increase business prospects for small and mid-size firms through customdesigned forums, advocacy, tools and processes.



Gregg Hughes

The Entrepreneurial Myth contends that a brilliant engineer doesn't necessarily make a brilliant businessperson. Successful business leadership comes from trial, error and learning from others' experiences. The SFC helps business owners do just that by providing a forum for sharing advice on business topics including liability, health insurance, licensing, hiring, information technology and business growth.

About 80 percent of ACEC Member Firms fit in the small or medium size category. With many small firms struggling to stay afloat, this type of networking is more important than ever, says SFC Chair Gregg Hughes. "There has not been a single SFC event from which I didn't bring back a valuable piece of information that helped me either increase my revenue, decrease my costs or just run my business more effectively," says Hughes, principal at Palmetto Engineering and Consulting in Greenville, S.C. "Other SFC members have been doing this a lot longer than I have. It has really been eye-opening."



Hughes foresees a fundamental shift over the next five years in the way small firms operate. For starters, he says, young Millennial workers will create a "freestyle landscape" by choosing to work remotely or on more flexible hours—all while continuing to churn out quality work.

Client-vendor interaction will also evolve with more brainstorming and cohesiveness between the two parties, he says. "That's a good thing, anytime the client sees value and they're willing to pay you for that value," he says.

Council of American Structural Engineers (CASE) Member Firms: 183

Mission: Improve structural engineering firm success by reducing claims, increasing profitability, improving quality and enhancing management practices.



John Mercer

John Mercer, president of Mercer Engineering, P.C., in Minot, N.D., doesn't "blow his nose without a contract." The chair of the Council of American Structural Engineers jokes that he adopted this practice after the professional liability insurance crisis of 1988 threatened to eat up 10 to 15 percent of his firm's gross revenues.

Today, CASE provides a comprehensive list of contracts—developed by practicing engineers throughout the country—that address the changing needs and conditions of the structural engineering business, says Mercer.

"CASE members are continually working on the suite of contracts for structural engineers to address current and new project delivery methods, as well as improving our practice guidelines," Mercer explains.

The CASE Toolkit Committee develops tools intended to help structural engineering firms avoid, minimize and/or avoid risk. The tools are based on CASE's Ten Foundations of Risk Management, which include evaluation, contract planning, communication and education.

"CASE gives members a shortcut to best business practices," Mercer says. "Otherwise it might take them years to develop on their own the tools that we have available."



Mercer predicts that over the next 10 years, the structural engineering field will become more granular. "You're going to find more specialty niches developing because of new construction technologies," he says. As a result, structural engineers will find themselves challenged to keep up with new technologies and building codes. "There will probably be a lot more specialists," he says.

Design Professionals Coalition (DPC)

Member Firms: 50 **Mission:** Promote action that advances the interests of ACEC's larger firms in public policy, funding and contracting with federal and state agencies.



Anthony Bartolomeo

Member Firms of DPC employ hundreds of thousands of professionals. The coalition uses its strength in numbers to lobby for more federal funding for national infrastructure initiatives and reforms in procurement and regulatory areas.

"A new business model needs to be developed so that infrastructure funding is not just Washington-based," says Anthony Bartolomeo, coalition chairman and president and CEO of Pennoni Asso-



ciates in Philadelphia. Some states pass their own bond issues for projects rather than wait for Washington. Virginia, for instance, issued bonds totaling \$4 billion for transportation projects that will further its own economic development.

The coalition wants to tap into more than \$2 trillion in private-sector capital, but policies and programs must first be modified to make those investments more attractive to investors, Bartolomeo says. DPC also strongly advocates against "insourcing" of federal government design projects. The U.S. Army Corps of Engineers, for example, which often outsources engineering to private firms, has started keeping more of it in-house. "That's a pretty big threat to our business," Bartolomeo says.

DPC advocates for design professionals by preparing position papers, collaborating with groups of similar interests, making presentations to legislators and holding semi-annual meetings where executives share their knowledge.

These meetings "are the best kept secret in the industry."

Council of Professional Surveyors (COPS)

Member Firms: 120

Mission: Provide Member Firms best practices in geomatics, primarily in the form of products and information on legal issues and government affairs.



Tim Cawood

Across the rapidly changing land development industry, surveyors are in search of niche businesses and ways to cut costs. That's where COPS comes in, with its vast array of networking opportunities and business products, including contracts, contract language and spreadsheets for QAQC checking, to name a few.

"With the stress on the economy, people have right-sized and cut out nonessential staff. So the person who would write a health and safety manual, for example, which is a big deal in the energy sector, is gone," says Tim Cawood, COPS chair and a senior vice president at McKim & Creed in Wilmington, N.C. "COPS provides this service to our members in an editable Word document. It's pretty much ready to go in an RFP."

Perhaps most important, Cawood says, are the networking opportunities that COPS provides. "The exposure to the surveying profession nationwide is exciting to me," he says. And as part of ACEC, "when there's an issue that surveyors need support on, we get a lot of support."

Looking ahead, COPS foresees continuing opportunities in the energy, gas,



oil and electric sectors, but in few other places. Even the federal government, once a reliable revenue stream, has turned off the spigot under pressure to cut costs.

In response, COPS has turned its attention to creating inroads with new businesses. "We want to expand our branding and our offerings to the geospatial sciences," such as photogrammetry, remote sensing and scanning, Cawood says.

"You don't have to be big," Cawood says. "You just have to find your own niche and do it well."

Land Development Coalition (LDC) Member Firms: 35

Mission: To strengthen the land development business environment with an emphasis on quality services in the global marketplace.





Land development

projects have become more complicated due to growing wetland regulations, environmental concerns and stormwater issues. Wetlands permitting requirements can prove a seemingly endless process with the potential to devour profits. Violating or ignoring wetlands permit requirements can lead to significant penalties and onerous restoration obligations.

LDC helps coalition members make sense of these and other challenges by assimilating best practices and networking opportunities with developers across the country.

Hot topics include automated machine

technology that is transforming the surveying process. "Land development is going to become far more technical and less of an art," says Ed Parrone, LDC chairperson and president and CEO of Parrone Engineering in East Rochester, N.Y.

The coalition also distributes pertinent land development information related to the Institute for Sustainable Infrastructure's sustainability infrastructure rating system, envision,[™] which is due out later this year. The coalition also collaborates with the National Building Council "to provide clients with the best product and most affordable prices," Parrone says.

After five years of tough sledding, Par-



rone sees brighter days for land developers. Apartment home development has picked up, with 63 percent increases over the previous year in the South and West, he says. Housing construction is also showing signs of life.

"I would suspect that at the end of this year and 2013–14, you're going to see more housing developments," Parrone says. "Not at 2005 and 2006 levels, but certainly it's going to be an improvement over what we've had in the last few years."

Council of American Mechanical and Electrical Engineers (CAMEE) Member Firms: 74

Mission: Help members serve their clients and run more effective and efficient businesses.



Robin Greenleaf

Sustainable design and energy conservation are mantras that underlie most

of today's design projects. Much of the responsibility to make it happen falls squarely in the laps of mechanical and electrical engineers.

"It's something that is very appealing to us as engineers—to roll up our sleeves and come up with good solutions—but



it's also an intensive service to offer," says Robin Greenleaf, chair of CAMEE and president of Architectural Engineers, Inc., in Boston. "You tend to put your high-level people on it, and it's not something you can do in an hour. That's where the pressure to provide more for less, or less for more, really becomes an issue."

To address these and other concerns, CAMEE provides numerous resources, including downloadable tools to help mechanical and electrical firms improve profitability. "Say you identify a client that you value, but you're losing money on the project, there are tools that give you ideas about how to improve that," Greenleaf explains.

CAMEE has also developed an attachment to standard American Institute of Architects contracts that includes details relative to complicated Building Information Modeling work. Available in spring 2012, the attachment "can be used to get into much more detail and protect mechanical, engineering and plumbing consultants," she says.

Tax Advantages

Energy conservation and research and development provide opportunities for federal tax credits. CAMEE will sponsor a professional webinar or education session later in 2012 to help members understand all of the incentives available to them.

Looking ahead, Greenleaf says MEP firms will play an increasingly important role in design projects. "I see us moving into a key and trusted position in the design industry," she says.

Stacy Collett is a business and technology writer based in Chicago.



Annual Convention & Legislative Summit

oin ACEC at its Annual Convention and Legislative Summit—an opportunity to lobby Congress on critical industry issues, gain valuable insights from industry leaders, and participate in firstclass business forums to boost your firm's profitability.

DISTINGUISHED SPEAKERS

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Ed Rendell Former Pennsylvania Governor on **Infrastructure Politics**



Haley Barbour Former Mississippi Governor on Run-Up to the 2012 Election

INSIGHTS FROM INDUSTRY LEADERS

- Keynote by CH2M HILL CEO Lee McIntire on State of the Industry
- CEO Panel with Steven Blake, ARCADIS; Andrew Buckley, Cardno; and George Little, HDR
- CEO Roundtables for all types of firms
- New CFO and CIO Councils
- Leading-Edge Business Forums and seminars





Lee McIntire



Steven Blake



Andrew Buckley

George Little

PREMIER LEGISLATIVE SUMMIT AND FEDERAL MARKETS CONFERENCE

- Lobby Congressional Members on Transportation, Water, Infrastructure and Other Key Business Issues
- Congressional Issues Briefing
- Federal Business Opportunities From Top Agency Officials at the U.S. Army Corps of Engineers, NAVFAC, General Services Administration, Department of Energy, Veterans Administration, State Department, Homeland Security and other agencies

SMALL/LARGE FIRM TEAMING FAIR

- Member Firms will focus on subcontracting opportunities on federal contracts
- Small firms will participate in one-on-one interviews with large firms based on pre-scheduled appointments





ENGINEERING EXCELLENCE AWARDS GALA

- Known as the "Academy Awards of the engineering industry," this annual black-tie reception, dinner and awards ceremony celebrates the year's most outstanding engineering achievements.
- New EEA "Champagne After Party" follows the dinner and awards program and is free to all Gala registrants.



Emmy Award-Winning Gala Host Ross Shafer

CONVENTION INFORMATION/ EARLY REGISTRATION FEES

| FULL CONVENTION | EARLY BIRD | AFTER 3/7 |
|----------------------------|------------|-----------|
| Member | \$995 | \$1,075 |
| 2nd + Member, same firm | \$850 | \$950 |
| Non-Member | \$1,350 | \$1,450 |
| Spouse/Guest | \$350 | \$350 |

HOTEL INFORMATION

ACEC's Annual Convention will be held at the Grand Hyatt Washington, located in downtown D.C. between the White House and Capitol Hill and easily accessible by Metro. The ACEC room rate is \$295, single/double occupancy, plus 14.5 percent tax. The hotel reservation deadline is Wed., March 7. After this date, rooms may be unavailable or no longer offered at this rate.

To make your hotel reservation online, visit www.acec.org/ conference/annual-12 and click on "Hotel and Travel." A reservation confirmation will be sent to you directly from the online reservation agent. Or call toll free, 888-421-1442 and reference ACEC Annual Convention.

To register, or for more Convention information, email meetings@acec.org or visit www.acec.org.

INTELLECTUAL

Member Firms incorporate innovative solutions for sustainable education facilities

By Darlene Bremer

A Higher Standard For Music Education



PROJECT: Academic II, Onondaga Community College, Syracuse, N.Y.

FIRM: C&S Companies, Syracuse, N.Y. nondaga Community College (OCC) in Syracuse, N.Y., broke ground in fall 2011 on its new Academic II building, designed to provide additional space for student enrollment, which has increased 65 percent over the past decade.

With two stories, the 45,000-square-foot facility

DESIGN

facilities at the best four-year state colleges and universities."

The C&S Companies design team is responsible for HVAC, lighting, power, plumbing, fire detection and protection, security systems, civil and site design, stormwater retention, drainage, environmental impact studies and mitigation recommendations, and landscape architecture.

To achieve the ambitious acoustical goals spelled out by the college, and meet U.S. Green Building Council LEED Silver-certified criteria, C&S used cutting-edge HVAC design techniques to minimize noise, including oversized lowvelocity ductwork, acoustical duct liners, in-line sound attenuators, low-speed air handling units, variable air volume boxes and under-floor displacement ventilation in the recital hall.

C&S also is using Building Information Modeling (BIM) to coordinate design of the high-efficiency mechanical, engineering and plumbing systems, including T5 and LED luminaire-based lighting. BIM allows project owners and contractors to visualize the final building spaces and evaluate design concepts quickly and efficiently, including the audiovisual, theatrical lighting and acoustical treatments that will help the facility serve as a multiuse performance space.



features eight smart classrooms, a 150-seat recital hall, storage, three large rehearsal halls and 34 dedicated office and practice spaces. It is being built, amazingly, across a 200-footwide and 80-foot-deep gorge and will link existing buildings on both sides when it is completed in late 2012. The gorge presented many challenges. Designers had to install the glass curtain wall on the face of the building after the structure was loaded to its final deflection in order to meet installation tolerances. To ensure owner access to important plumbing and mechanical systems, all bathrooms and rain leaders are on grade sides of the gorge and exit in separate feeds.

The project's goal, according to Maureen Clegg, education

The Academic II building on the campus of Onondaga Community College is being built over a 200-foot-wide, 80-foot-deep



and health care service group manager for C&S Companies, "is to create a premier music building that sets a benchmark for quality in higher education that can be measured against

MULTI-PROJECT FEATURE

PROJECT: Boca Ciega High School Replacement, Gulfport, Fla.

FIRM: George F. Young, Inc., St. Petersburg, Fla.

hen administrators at the Pinellas County School District in Florida decided to replace the 50-year-old Boca Ciega High School, the goal was to build a flexible, sustainable building that could better serve the needs of its 2,000 students.

"In addition, the school district wanted to fix the frequent summertime flooding and to upgrade the internal technology and site infrastructure to comply with current standards, including LEED Gold certification," says Jonathan Gotwald, vice president of engineering for George F. Young, Inc., the St. Petersburg-based engineering firm retained to provide design, site planning and environmental impact and other ecological services for the project, slated for completion in March 2012.

The new campus features 246,000 square feet of replacement classrooms, a new cafeteria and administrative and mechanical support facilities across 37 acres. "Twelve additional acres adjacent to the original campus were purchased for the school's athletic fields and student parking," Gotwald says.

The district and the engineering firm were forced to change plans on the fly when a state mandate required that a few buildings on the original site, both of which were less than 20 years old, be maintained.

"These existing buildings complicated construction sequencing because they are spread out across the site," Gotwald says.

Engineers and planners met

capt on the F

the challenge by breaking construction out into four separate phases over 54 months. The first phase added a three-story classroom building, and included design and construction of a new energy plant, temporary parking and bus drop areas. The second phase included renovating existing classrooms, the auditorium and gymnasium; relocating the City of Gulfport recreational trail; and ensuring no net loss of flood storage in the 100-year floodplain. The final two phases called for the demolition of old buildings and building new space for administrative and support services, permanent parking, bus loops and sports fields. "In addition, each phase required that construction activities remain separate from school functions and maintain full student capacity at all times," Gotwald says.

The project team also had to contend with several environmental issues, including an adjacent bald eagle nest and an osprey nest onsite. "We coordinated with the Florida Fish and Wildlife Conservation Commission to ensure the eagle was not affected and the osprey nest was safely relocated," says Gotwald. In addition, unforeseen soil conditions, including 10 to 15 feet of organic soils over approximately 40 percent of the site, required remediation prior to installing new infrastructure. "By consistently meeting with stakeholders, such as the City of Gulfport, Pinellas County Schools and the Southwest Florida Water Management District, we were able to immediately address any changes during construction and create the plans necessary to implement them," Gotwald explains.



Jona Gotw

Slated for completion in March 2012, the Boca Ciega High School Replacement campus in Gulfport, Fla., features 246,000 square feet of classroom and other educational space.

Before

Reborn From the Ashes



PROJECT: Whatcom Middle School Replacement, Bellingham, Wash.

FIRM: Reid Middleton, Inc., Everett, Wash.

Built in 1903, Washington's Whatcom Middle School is the oldest school building in the Bellingham Public School District. When officials retained Reid Middleton, Inc., as prime consultant and structural engineer for a seismic evaluation in 2007, the goal was to upgrade the school for a new generation of learning.

Then, in 2009, with construction 90 percent complete, a devastating fire struck. The fire did not entirely destroy the school, but did substantial damage to the historic building and enough to displace the students.

The focus on the project suddenly shifted from a traditional upgrade to emergency repair and upgrade—and one that would get students and teachers back in the building as quickly and cost effectively as possible.

Reid Middleton's first task as the civil and structural engineer for the project was to determine the extent of the damage and develop a stabilization plan that would allow the fire investigation and recovery teams to safely enter the building.

Dave Swanson, principal and director of Reid Middleton's structural group, says it was during a collaborative discussion with the contractor and owner that Reed Middleton's engineers suggested an innovative approach. "A new concrete shell wrapped the perimeter of



the existing building, so once we put the new building outside the old one, we could basically scrape out the old building like you would a jack-o'-lantern," Swanson explains. The approach enabled the team to meet the project's three critical objectives: preserving the historic character of the building; allowing construction to begin immediately to meet the aggressive September 2011 completion schedule; and doing it all within the insurer's budget.

The Whatcom Middle School Replacement project in Bellingham, Wash., was interrupted by a fire.

> With design and construction occurring simultaneously, Reid Middleton used Building Information Modeling (BIM) technology to create a 3D visualization of the plans, enabling all stakeholders to quickly understand the project's vision and allowing faster generation of design drawings. "Using BIM also helped determine what items required the longest lead time, such as generators, doors and doorframes and HVAC system components, so they could be ordered even before



construction drawings were distributed," Swanson says.

The result was a new facility that meets the needs of a modern school while preserving the architectural character of the original 100-year-old building. In addition, the existing auditorium and gym buildings were seismically retrofitted and united with a new classroom wing. "Through an uncommon level of collaboration between the owner, the design team and the contractor, the fast-tracked project was completed in time for Whatcom Middle School to reopen in less than two years," Swanson says.

PROJECT:

South Campus Union, University of Wisconsin-Madison

FIRM: Arnold & O'Sheridan, Madison, Wisc.

he University of Wisconsin system has embraced sustainable design and practices as a core institutional value. The strength of that commitment is demonstrated in its new 200,000-squarefoot South Campus Union in Madison, completed in spring 2011.

"The school's goal was to provide a sustainable building that would be attractive to students, faculty and staff," explains Brad Hanson, director of plumbing for Arnold & O'Sheridan, the consulting engineer responsible for designing the project's plumbing, mechanical, electrical, and information technology systems. "As the plumbing consultant, it was understood that reduced water usage was to be a hallmark feature of the building's sustainable design profile," Hanson says.

The incorporation of lowflow lavatory features resulted in a 32 percent reduction in water use. Other sustainable design features include a green roof that filters rainwater before diverting it to irrigation purposes, latest lighting technologies in conjunction with programmable controls and daylight harvesting to produce less than 0.7 watts per square foot lighting power density, mechanical system controls that enable natural ventilation in some areas and carbon dioxide monitoring to maximize outside air requirements. "Sub-metering installed on the electrical and steam systems measures energy use and ensures performance levels are being reached. A digital

kiosk display allows visitors to see how much energy is being used in the building at any given time," says Hanson.

One of the greatest challenges was where to place the holding tank for the kitchen's large-capacity grease interceptors, which were installed to reduce pollution loads and sewer backups in the surrounding neighborhoods' sanitary sewers. The solution, according to Hanson, was to bury a highly durable pre-cast concrete holding tank under the building's loading dock that would be accessible as needed.

Another challenge was designing a lighting system in the main ballroom that could serve the area's numerous functions, including conferences and meetings, weddings and dances, performances and, eventually, concerts. "We used a number of different lighting concepts and energy-efficient programmable controls that offer various lighting levels,

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including theatrical lighting," explains Hanson.

As is often the case, the timeline was also a concern, particularly since the university had committed to hosting the National Science Olympiad in the space in May 2011. Arnold & O'Sheridan, along with the rest of the design and construction team, created multiple bid packages to get an early start on some of the construction components and worked closely with the construction manager to address and solve issues as they arose.

"With its focus on sustainability, this building will provide an energy-efficient system and enhance operational efficiency," Hanson says.



Completed in spring 2011, the 200,000-square-foot South Campus Union at the University of Wisconsin-Madison is a model of sustainable design.

On Time and Energy Efficient

Advance Jugarself and your FIRM with ACEC's educational programs & publications!



UPCOMING ACEC COURSES:

Applying Expertise as an Engineering Expert Witness (with ACEC GA) May 3-4, 2012–Atlanta, GA

Business of Design Consulting (with ACEC LA) May 16-19, 2012–New Orleans, LA



For more information on these and other upcoming seminars and webinars, go to www.acec.org/education and to check out products at the ACEC Bookstore, go to www.acec.org/publications

Record-Breaking Support for ACEC/PAC

State leadership commitment makes political program one of nation's strongest

CEC members raised \$710,000 for ACEC/PAC in 2011—an increase of more than \$100,000 over 2010 and far and away the PAC's best fundraising year ever. That puts ACEC/PAC among the top 3 percent of all federal trade/ membership PACs nationally.

The accomplishment is even more remarkable considering that it occurred despite the continued sluggish economy and financial uncertainty faced by Member Firms.

The achievement, however, comes at a critical time, as ACEC will need all the political resources it can generate for what promises to be a difficult but important political climate and election season. There will be numerous elections and candidates to consider over the next nine months, including the general election on Nov. 6 that will ultimately determine control of the House, the Senate and the White House.

Congress also is poised to address several industry priorities this year, including a long-term, fully funded surface transportation bill; multiyear legislation and adequate funding for water and wastewater infrastructure; a comprehensive energy bill; and regulatory reforms for greater outsourcing and more streamlined, efficient ways of delivering projects.

Last year, the Council scored several noteworthy legislative victories—repeal of the 3 percent withholding mandate, repeal of the onerous IRS 1099 filing mandate, and the extension of current federal highway and transit funding levels—which would not have been possible without the strong support of ACEC/PAC.

ACEC/PAC will need to continue the momentum begun last year to adequately

support pro-business and pro-engineering candidates in 2012.

ACEC/PAC intends to build upon last year's fundraising success by focusing on what went right in 2011 and exporting those programs and concepts to all 50 states in 2012. One reason for the record year was a dramatic increase in PAC fundraising by

some of ACEC's largest Member Organizations, particularly ACEC/California, ACEC/Colorado, ACEC/Florida and ACEC/Texas. Leaders in those states attribute the success mostly to a commitment by leadership to make reaching respective ACEC/ PAC goals a strategic priority.

Three other states— ACEC/Illinois, ACEC/ Indiana and ACEC/ Washington State provided a compelling blueprint for success for other states to follow, featuring a demonstrated top-down, leadership-driven approach.

ACEC/Illinois raised \$58,000 in ACEC/PAC funds in

2011-127 percent of its goal-and the largest amount ever generated by a single state in a calendar year. Phil Houser, president of ACEC/Illinois from the Farnsworth Group in Bloomington, said MO leadership stressed the importance of ACEC/PAC at every meeting. He points out that every single member of its state board, including the State Executive, donates at the Millennium Club level (\$1,000 annually) or higher, and believes their theme of leading by example was central to their success. "I think we made real progress this past year because we raised the expectations of everyone who wants to be active in the association," Houser said.

2011 ACEC/PAC State by State Numbers









Phil Beer ACEC/Indiana



Chris Robertson ACEC/Washington

ACEC/PAC Fundraising 2005–11



Source: ACEC

ACEC/Indiana sets its own fundraising goal each year, which was one reason it raised 123 percent of its PAC objective (\$16,500). PAC Champion Phil Beer of USI Consultants in Indianapolis noted, "We establish early on that support for political programs like ACEC/PAC are central to our mission as an organization."

ACEC/Washington raised 154 percent of its goal (\$38,000) in 2011, leading Chris Robertson of Shannon & Wilson in Seattle, a former Chairman of the Board of ACEC/ Washington, to observe, "There is no state-federal distinction. Our members see ACEC/PAC as a logistical extension of our state political programs. In our eyes, it's part of the same effort we began when we helped elect a statehouse member years ago."

ACEC/PAC National Chairman Chris Borton of Borton-Lawson in Wilkes-Barre, Pa., agreed that getting states more vested in every aspect of the program—including the selection and approval of ACEC/PAC candidate contributions—is central to the continued progress of the PAC's fundraising efforts. Said Borton, "The raising of money, electing good candidates, passing better legislation: It's all up to us."

BEST PRACTICES: Strategies to Increase ACEC/PAC Support

ACEC/PAC increased receipts by more than \$100,000 (22 percent) from the previous year, fueled by Member Organizations mastering several fundraising best practices, including:

State Ownership Of the Goal

"If you want to be active with ACEC/ Illinois, we expect you to invest in the association, especially ACEC/PAC." -Phil Houser, ACEC/Illinois President

"We've created a culture where everyone understands we are all in this together, and each of us has to carry our share of the load. If you want to be seen as a leader here, you have to demonstrate a commitment to ACEC/ PAC—that means giving personally and asking others to give."

-Rose Morgan, Wisconsin PAC Champion

Ask Early, Ask Often ACEC/Washington

had no less than four fundraising events during the year (a barbecue, golf tournament, wine tasting and auction). "We try to make it as easy to give as possible, while also keeping ACEC/PAC visible among our members every few months." –Bill Garrity, ACEC/Washington President/CEO

Be Creative ACEC/Texas insti-

tuted an entirely new fundraising mechanism: a joint state-federal PAC campaign to allow ACEC members in Texas to support both ACEC/PAC and CEPAC with a single personal political contribution. "We decided we needed a new approach, something less confusing to members. Now with a single check, an individual is supporting both ACEC/PAC and our state PAC." -Steve Stagner, ACEC/Texas **Executive Director**

Special Events

In addition to raffle and golf tournaments, many states, including ACEC/ Hawaii, ACEC/New York and ACEC/ North Carolina, employ auctions of member-donated merchandise or offers (i.e., use of a vacation condo) to raise PAC funds. ACEC/South Dakota holds a wine-themed fundraiser and ACEC/ Idaho has an annual Trap and Skeet shooting fundraiser.

Effective Peer-to-Peer Solicitations ACEC/Indiana

and **ACEC/IIInois** both raise the bulk of their PAC funds through direct, personal appeals—one member at a time. "Call, don't email. It's a lot tougher to say no over the phone."

-Phil Beer, Indiana PAC Champion

ACEC/Illinois leadership emphasizes getting to goal, not explaining legislative specifics. "It's just now we have complete buy-in of our leadership and our Board of Directors; people give because we want to achieve an important objective for the association." -Dave Kennedy, ACEC/Illinois **Executive Director**

66 The raising of money, electing good candidates, passing better legislation: It's all up to us. 97 Chris Borton

Chris Borton National Chairman, ACEC/PAC

Building a Culture of Giving

"You have to build a culture that stresses the value of PAC giving at the state and the federal level. I hear some states fear that a dollar raised for ACEC/ PAC is one less for their state PAC. For us, it's the opposite approach; we know once an ACEC member is able to connect the dots and understand the process, we've got someone who is committed to both programs." -Chris Robertson, **ACEC/Washington**

Involve Large Firms, as Well As Small and Mid-size Firms

"Building a strong political program like ACEC/PAC helps every firm become more profitable. Every dollar we raise, every PAC contribution we make to a candidate, every congressional event we host creates a better economic environment for all engineering firms, regardless of size or focus. That message is important." -Darcie Gabrisko, **ACEC/Illinois President-elect**

Business Insights

How to Master the **Business Side of Engineering**

Engineering business management requires technical know-how and a broad awareness of business disciplines.

Firm managers also must be familiar with the various principles of finance, from reading straightforward income statements to making complicated investment decisions.

Five essential engineering management tools are:

- Understanding the intricacies of human relations and its legal elements;
- · Creating and managing client relationships and client expectations;
- Managing risk and drafting/adapting contracts;
- Knowing the fundamentals of business development; and
- Understanding factors of ownership transition and employee satisfaction.

ACEC's highly regarded Business of Design Consulting course provides a comprehensive 2012 update on the primary functions of the successful A/E business, and serves as a playbook for managing your firm at the most effective levels. Scheduled for May 16-19 in New Orleans, ACEC's expert and experienced faculty of industry practitioners will review state-of-the-art best practices and updates to critical operational management methods.



Expert Witnesses Represent a Lucrative New Business Line

Engineers are experts in a variety of technical arenas and, as a result, are often called upon to provide expert witness testimony in court settings or at administrative hearings.

Being an expert witness, however, requires more than simple technical knowledge. A good witness has enough field experience to provide credibility and substantiate any testimony, is able to determine what is the right information to convey without getting sidetracked or bullied by opposing counsel, and needs to be sufficiently familiar with court or agency procedures and protocol to be comfortable on the witness stand.

Think you or someone at your firm qualifies to serve as an expert witness? ACEC presents an important opportunity to develop courtroom savvy and confidence with the May 3-4 course, Applying Expertise as an Engineering Expert Witness, in Atlanta.

This unique program offers a look at the expert witness from the engineer's, judge's and attorney's perspectives. Whether it's acting as an expert



on behalf of your own firm or to promote specialized skills as another of your firm's product offerings, this course is a valuable personal and professional investment. For information and to review course highlights, visit www.acec.org/education.

Are You Prepared for 21st-Century A/E Leadership?

The 21st century demands that successful engineering firms expect change and work toward greater marketplace agility and leadership amid a rapidly evolving environment. Innovation is a modern must, as is strategic thinking.

To better prepare industry leaders for present and future challenges, ACEC presents the Senior Executives Institute

(SEI)—an 18-month leadership development program designed to enhance interactions, communication and innovation among industry professionals.

SEI has helped unleash powerful leadership and personal mastery skills in more than 300 engineering executives since 1995. Each fall, your firm has an opportunity to reap the benefits of SEI by enrolling up-and-coming or currently placed executive leaders.

Visit www.acec.org/education/sei/index. cfm or contact Deirdre McKenna at dmckenna@acec.org or 202-347-7474 for more information.

"Most people think of the future as the ends and the present as the means, whereas, in fact, the present is the ends and the future the means.'

-Surfing the Edge of Chaos, Linda Gioja, Mark Millemann, Richard T. Pascale

The ACEC Institute for Business Management provides comprehensive and accessible business management education for engineering company principals and their staffs.

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Guest Column

By Jeff Connelly

Is Your Firm Prepared For a Data Breach?



ata breaches occur in engineering firms in a variety of ways, both intentional and accidental: Laptops get stolen, emails are unencrypted, computers get infected with a virus, hackers hack into systems, security software fails, former employees intentionally distribute information. The reasons are endless.

The results, however, are almost always the same. Sensitive information, such as customer or employee Social Security numbers, is exposed. The data breach can lead to identity theft, damage to company reputation, even lawsuits. There are significant expenses, including paperwork and time, involved in complying with state and federal notification regulations.

No company is immune to data breach, not even the U.S. Securities and Exchange Commission (SEC), which in May 2011 accidentally exposed the Social Security numbers and payroll information of approximately 4,000 SEC employees. In this case, an email sent by a contractor at the department's National Business Center, which manages payroll, human resources and financial reporting for dozens of federal agencies, was not properly encrypted, and the software in place to catch such errors failed.

Not only is the number of data breaches nationwide on the rise, so too is the average cost associated with each breach. According to Ponemon Institute annual studies, the per-record cost of a data breach rose by more than 47 percent from 2005 to 2009.

Though organizations of all sizes are at risk, 85 percent of breaches occur within small businesses, according to credit company Visa. Unfortunately, smaller organizations are often least prepared to handle the fallout from a data breach.

If a data breach happened at your firm, what would you do? Does your firm have a procedure in place for complying with federal, possibly state, notification laws? Can you spare the expense and time required to deal with the breach and its effects?

Prevention

Many cases of lost or stolen data could have been prevented with simple security measures, such as:

- Laptop Security: Laptops are targets because they're easy to move and hide. To guard against laptop theft, keep laptops locked up at all times. Don't leave them in an unlocked car, or even in a meeting room. Never check a laptop in your baggage, and consider purchasing a theft alarm system specifically made for laptops.
- Security for Physical Backup Media: Backing up files is a critical security step. If your firm uses physical media as a backup, make sure it's secure. Identify data on backup media to determine what security measures are appropriate. Establish security procedures for moving backup media to a secure storage site, including a sign-in/sign-out procedure and two-person control.

• Electronic Encryption Programs: Data encryption programs can improve information security. Encryption programs can be used with physical media, such as tapes or memory sticks, as well as at the application, database and operating system or network level. Data can also be encrypted via backup software.

Data Breach Insurance

The increase in data breaches and their associated costs has caused many engineering firms to purchase data breach insurance. Most often, this coverage is part of business owners' liability insurance.

Data breach coverage can help your firm:

- Comply with state and/or federal regulations by paying notification expenses;
- Quickly restore a firm's reputation and trust by covering public relations and good-faith advertising expenses;
- Protect a firm's viability if sued and found liable for damages as a result of a data breach; and
- Bolster confidence and control by providing valuable advice about preparing for and reducing the potential for data breach.

When researching providers of data breach insurance, engineering firms should seek an insurer with an established track record serving the industry. The ACEC Business Insurance Trust team, for instance, offers data breach coverage designed specifically for engineers through The Hartford Insurance Company.

Don't Wait Until It's Too Late

Regardless of the source, a data breach can be devastating to a firm and its reputation. Don't wait until after a problem arises to manage your exposure. Protect yourself and your organization today with data breach coverage from a trusted, reputable insurer.

What Is a Data Breach?

A data breach is a loss, theft, accidental release or accidental publication of personally identifiable information, such as:

- Full name
- Social Security number
- Salary information
- Bank account number(s)
- Email address
- Driver's license number
- Credit/debit card numbers

Jeff Connelly is program manager at ACEC/BIT. To learn more about data breach coverage, contact him at 800-338-1391, or visit www.acecbit.com.

Members in the News

On The Move

Mead & Hunt, Inc., announced that Andy Platz will become president and Raj Sheth will remain CEO. Sheth had performed both roles since 1994. In addition to his role as president, Platz will also remain active in the company's aviation business.

CHA has named **Ray Rudolph Jr.** as CEO. Rudolph succeeds Raymond J. Kinley Jr., who retired in December 2011. Rudolph and CHA President and COO **Rodney A. Bascom** will lead CHA.

Donald J. Vrana joined **Terracon** as executive vice president and CFO. He succeeds Roger R. Herting, who recently retired after 25 years with the firm.

MWH Global appointed **Steve Nye** president of government and infrastructure for Asia Pacific. Nye will oversee all aspects of the firm's operations in the region, including sales, marketing, service delivery, operations and finance. **Robert Stromsted** was named a senior vice president at **Parsons Brinckerhoff**. He will be responsible for strategic planning and business development and is based in the firm's New York office.

Brian A. Stover joined **JBC Associates, Inc.**, as senior vice president. Stover will lead the firm's Construction Management Services operation.

Michael Loehr was named senior vice president and U.S. practice leader for rail and transit at Hatch Mott MacDonald. He will guide the growth of the rapidly expanding U.S. rail and transit practice and is based in Hatch Mott MacDonald's Richmond, Va., office.

Black & Veatch appointed Cindy Wallis-Lage president of its global water business. Wallis-Lage will lead the firm's efforts to address billions in global water infrastructure needs.

Woodard & Curran named the following individuals senior vice president: Mary House, senior project manager in Woodard & Curran's Portland, Maine, office; Paul Roux, senior area manager in the firm's operations and management group; and Randy Tome, civil and environmental engineering group manager. Charles "Chuck" F. King was named vice president at Urban Engineers of New York, P.C., and manager of the firm's New York City office.

RS&H named **Kevin Hoeflich** and **Jerry Ramos** vice presidents of its transportation program. Hoeflich will serve as the firm's tolls/program management market leader. He will be supported by Ramos. **Lisa Robert** was also named vice president of transportation and is based in the firm's Jacksonville, Fla., office.

Kenneth H. Hancock was elected to the board of directors of Wilson & Company, and also was appointed senior vice president. Hancock, who joined Wilson & Company in 1985, serves as the firm's rail division manager.



Andy Platz



Michael Loehr



Raj Sheth



Cindy Wallis-Lage



Ray Rudolph Jr.



Charles F. King



Steve Nye



Kevin Hoeflich



Robert Stromsted



Jerry Ramos



Brian A. Stover



Lisa Robert

Members in the News

STV Celebrates 100 Years

n 1912, Elwyn E. Seelye founded a structural engineering firm in New York City bearing his name, which over the years evolved into a multidisciplinary practice and became part of a holding company created by architectural and engineering firm Sanders & Thomas and equipment manufacturer Voss Engineering.

This year, **STV** marks its 100th anniversary while it continues to provide an array of services for transportation, infrastructure and building projects.

"We have diversified into new practices, embraced going green and used the latest technology to help us grow in new directions, while staying true to the vision of our founders," says Executive Chairman Dominick M. Servedio.

Many of STV's projects are some of today's landmark structures, including: the Thomas Jefferson Memorial in Washington, D.C. (1940s); the Connecticut Turnpike (1950s); NASA's Vehicle Assembly Building at Kennedy Space Center in Florida (1960s); and the



In 1912, Elwyn Eggleston Seelye (pictured), a graduate of Cornell University, founded Elwyn E. Seelye & Co. The small, structural engineering company is the oldest predecessor firm of STV. *Photo courtesy of the Seelye Family.*

rehabilitation of the historic Grand Central Terminal in Manhattan (1990s). In 2011,

the firm was ranked 36th overall in Engineering News-Record's list of the Top 500 Design Firms. Architectural Record ranked the firm 27th among its Top 150 Architectural Firms list. STV is a 100 percent employeeowned firm.

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Members in the News

Welcome New Member Firms

ACEC/Colorado

Briliam Engineering Services, LLC, Pagosa Springs Pacific Western Technologies, Wheat Ridge Triunity Engineering and Management, Denver ZAP Engineering, Lakewood

ACEC/Florida

Comprehensive Engineering Services, Inc., Orlando

ACEC/Georgia

Structural Evolution, LLC, Peachtree City

ACEC/Illinois DuSABLE, Inc., Chicago

ACEC/Mississippi Gibson Engineering, Inc., Jackson

ACEC/Nebraska

Gonzalez Companies, LLC, Omaha Schnackel Engineering, Inc., Omaha

ACEC/New Hampshire Resource Systems Group, Inc., Concord

ACEC/New York

Rosenwasser/Grossman Consulting Engineers, P.C., New York

ACEC/North Carolina

AME Consulting Engineers, P.C., Charlotte CallSign Engineers, PA, Fayetteville HadenStanziale, PA, Durham Mattern & Craig, Inc., Asheville Stimmel Associates, PA, Winston-Salem Triplett-King Associates, Inc., Charlotte

ACEC/Ohio

Environmental Quality Management, Inc., Cincinnati

ACEC/Oregon

Hart Crowser, Inc., Beaverton McMillen Engineering, LLC, Portland

ACEC/Tennessee

Management Solutions, LLC, Knoxville

ACEC/Texas

Bakalovic Engineering Group, LLC, Houston BDS Technologies, Inc., Dallas Compressor Engineering Corporation, Houston Drash Consultants, LLC, San Antonio DynaTen Corporation, Fort Worth Garner Fritsche Engineering, Inc., Bellaire

J. Shehan Engineering, P.C., Canyon Maldonado-Burkett Intelligent Transportation Systems, LLP, Austin Phase Engineering, Inc., Houston Ronald A. Roberts Associates, Inc., Dallas Steinman Luevano Structures, LLP, Austin Teague Nall and Perkins, Inc., Fort Worth

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Berners-Schober Associates, Inc., Green Bay

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Calendar of Events

MARCH

APRIL

Today's Business Development: These

Are Not Your Father's

How to Prepare Your

Firm for an Annual

Financial Audit

(online seminar)

Common Mature

ESOP Issues and

(online seminar)

Convention &

15-18 ACEC Annual

Planning Strategies

Legislative Summit,

Washington, D.C.

Applying Expertise

as an Engineering

Project Management

Expert Witness.

Atlanta

and Project

Market Conditions

(online seminar)

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4

10

MAY

3-4

15

- 6 Department of Energy (Environmental Management Office) Programmatic Outlook (online seminar)
- 6-7 ACEC/Wisconsin Transportation Improvement Conference, Milwaukee
- 8 Shop Drawings and Submittals: Navigating the Minefield and Minimizing Your Exposure as an Engineer (online seminar)
- 15 High-Risk Government Work: Protecting Your A/E Firm (online seminar)
- 20 Appraisals and Finance Techniques to Support Your Green Project (online seminar)
- 21 Current A/E Claims Update and Lines of Insurance Available to Mitigate Risks (online seminar)
- 29 Fast Future! Fifteen Mega-Trends and What AEC Industry Firms Must Do to Survive and Thrive (online seminar)
- **30-31** ACEC/Virginia Spring Conference, Virginia Beach, Va.

niques Delivery-Electronic bur Signatures t (online seminar) ar) **16-19** Business of Design

Consulting, New Orleans

JUNE

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- ESOPs for Engineering Companies (online seminar)
- 22-23 ACEC/Virginia 2012 Annual Conference, Wintergreen, Va.

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MARCH / APRIL 2012 ENGINEERING INC. 31

Mergers and Acquisitions

After a Year of M&A Recovery In 2011, What to Expect in 2012?

ergers and acquisitions (M&A) activity generally surges in a growing economy and slows during a recession. So what can we learn about the state of our industry from the transactions that took place in 2011?

The pace of both domestic and global consolidation increased in 2011, reflecting greater overall confidence in the industry on the part of buyers and investors. On a global basis, there were 328 industry deals for the year-an increase of 29 percent compared with 2010 and a 12-year high.

Of the 328 M&A transactions

that took place in 2011, 171

Bring It Home

7

WA

involved a U.S.-based seller, an increase of 12 percent compared with 2010 and a return to 2007 levels. Many notable national engineering firms sold or merged in 2011, including ACEC Member Firms Wilbur Smith, MACTEC, Bonestroo, **ENTRAN**, Winzler & Kelly and **RBF** Consulting, to name a few.

Not surprisingly, given the size of their respective economies, California and Texas were home to 20 percent of the year's domestic transactions, while Arizona and Wisconsin had the largest yearover-year M&A increases. Despite accounting for close to six out of every 10 transactions, growth-focused M&A across state lines remained

States by Total Activity:

21 or more Transactions

16 to 20 Transactions

11 to 15 Transactions

6 to 10 Transactions

1 to 5 Transaction

No Transactions

down in 2011 relative to prerecession levels, as a greater percentage of firms merged with or acquired local peers or, in some cases, competitors, to add resources and/or achieve greater scale and efficiencies.

While down compared with previous years, international buyers still represented more than 10 percent of domestic transactions, as firms headquartered in the U.K., Canada and Australia looked to expand in the United States. The fourth quarter of 2011 in particular featured a flurry of transactions that involved an international acquirer (almost half of the total for the year), a likely indicator of what's to come in 2012.

US vs Int'l Sellers:

US Sellers to Int'l Firms

Int'l Sellers to US Firms

171

157

19

19

Total US Sellers

Total Int'l Sellers

BY MIKE CAULEY

Rapid Globalization

Last year marked an all-time high for international M&A with 157 such transactions, driven primarily by the energy, mining, natural resources and environmental end-markets. The number of 2011 transactions that involved a U.S. firm acquiring an overseas firm reached a five-year high, indicating a heightened interest in expansion abroad in Canada, Australia and India. ACEC Member Firm Tetra Tech led the way in 2011 with three international transactions, while fellow ACEC Member Firms Jacobs, AECOM, CDM and CH2M HILL were also active.

A Look Ahead

So what's in store for 2012? Confidence is expected to remain strong domestically among institutional investors and savvy buyers encouraged by perceived market stabilization and the upward trajectory of long-term trends.

As a result, anticipate the frenzy of domestic M&A activity witnessed in the fourth quarter of 2011 to continue deep into the new year. Don't be surprised to see a 10 percent to 20 percent increase in the overall number of domestic M&A transactions. Expect a 10 percent to 20 percent increase in international M&A transactions in 2012 as well.

Mike Cauley is principal consultant at Morrissey Goodale, LLC, a strategy, M&A and human capital solutions firm serving the A/E/C industry. He can be reached at mcauley@ morrisseygoodale.com.



2011 MERGER AND ACQUISITION ACTIVITY

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Firm Sales by State through December 31, 2011

7 0 4 0 NV 0 OH UT 19 0 Ð со 0 мо KS KY 0 0 2 TN 0 0 0 OK 6 AZ NM AR 0 0 AL GA MS 15 0 © Morrissey Goodale LLC 2011 All Rights Reserved

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When the ACEC Life/Health Trust aligned with UnitedHealthcare, a long-term relationship was forged. Each year, an impressive 92% of engineering firms who choose the ACEC Life/Health Trust remain customers — one of the highest retention rates in the industry.¹ Here are just a few reasons why:

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- Satisfied employees: Chances are, employees' doctors are in UnitedHealthcare's provider network — 98% of the U.S. population has local access.²
- Easier administration through one-stop shopping: No need to look further than the ACEC Life/Health Trust for medical, dental, vision, life and disability.
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The American Council of Engineering Companies (ACEC), the ACEC Life/Health Insurance Trust and Unitedhealthcare Insurance Company are three separate legal operating entities and, as such, the organizations are governed and function independently. UnitedHealthcare's services are provided with the authorization of the ACEC Life/Health Trust. Questions related to health benefits offered through the Life/Health Trust should be directed to 1-800-573-0415. Renewal rate based on average year-over-year ACEC Life/Health Trust persistency metrics.

²Network statistic based on GeoAccess information and UnitedHealthcare standard network access mileage criteria, 2010.