The Reviews Are In

Arup's Kauffman Center For the Performing Arts

Headlines Remarkable 2013 Class of EEA Winners
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Cover Feature

2013 ENGINEERING EXCELLENCE AWARDS
Honoring the year’s most remarkable engineering achievements.

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Robust Convention Lobbying Effort Right on Time

The Annual Convention’s record-breaking 1,300-plus turnout translated into an aggressive “citizen lobbyist” effort on Capitol Hill to support new water infrastructure funding mechanisms, a national energy policy and the next surface transportation program.

The timing of the effort couldn’t have been better. The Senate is considering a new Corps of Engineers water bill, the House is expected to vote soon on the Keystone XL Pipeline, and the House Transportation and Infrastructure Committee is deeply immersed in paving the way for a new transportation bill.

At a Convention fundraiser for House Transportation and Infrastructure Committee Chairman Bill Shuster, the Pennsylvania lawmaker emphasized that all funding options were “on the table” in the reauthorization of MAP-21. However, he also noted that more work needs to be done to build public support for greater investments in infrastructure.

The Convention also included a new international business focus highlighted by a joint ACEC/National U.S.-Arab Chamber of Commerce program that brought U.S. engineering firm leaders, Arab ambassadors and embassy officials together to discuss infrastructure opportunities in the Middle East and North Africa.

The Engineering Excellence Awards (EEA) Gala had more international attendees this year than ever before. EEA winners included Arup, which received the 2013 Grand Conceptor Award—signifying the year’s most outstanding engineering achievement—for its design of the Kauffman Center for the Performing Arts in Kansas City, Mo.

For complete coverage of the 2013 Engineering Excellence Awards and the Annual Convention, see pages 8 and 25.
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Slow but Steady Increases for Water/Wastewater Market

For firms in the water/wastewater market, the projected 3 percent annual growth in 2013 is cause for enthusiasm.

“I’ve been in the water business for 35 years and this has been the longest flat period I’ve ever seen,” says Rob Andrews, chief executive of water at AECOM. “Indications are since it’s not getting worse, it’s going to get better.”

In the four years following the 2008 global economic crisis, the water supply market failed to grow in three of them (2009–2011), according to a report by industry consultants FMI Corp. Two of those years saw declines, including an 11 percent drop in 2011.

Economic indicators suggest the tide, at long last, has begun to turn. FMI forecasts 4 percent annual growth in 2014 and 5 percent in both 2015 and 2016.

“Water is one of those industries that we can’t do without,” says Ralph Eberts, executive managing director of professional services for Black & Veatch’s global water business. “We have to invest and continue to invest.”

Necessary Growth

“The main driver in the water business is replacing aging infrastructure,” says Andrews. According to the American Water Works Association’s recent Buried No Longer report, more than 1 million miles of water and wastewater pipes run underground in this country, and “much of it is reaching the end of its useful life and approaching the age at which it needs to be replaced.”

Climate change is also affecting the industry. “We have severe drought in some places, like Texas and parts of California, while at the same time we have severe flooding in others,” explains Eberts. “The infrastructure is being stressed. Up to now we’ve tended to react to disasters. We’ve got to address these things before they hit us hard.”

A third factor is the expansion of the water utility’s traditional scope of service. Rather than focus solely on treatment and distribution, many utilities are now involved in reclaiming and reusing water, finding commercial uses for the nutrients and latent energy in wastewater and using green infrastructure to manage stormwater, for example.

“We see good opportunities in helping utilities create robust asset management plans, put together risk plans and prioritize where to invest their limited amounts of money,” says Eberts.

Federal and state regulation will also likely force significant investment. “On the wastewater side, many clients are still dealing with consent orders so we expect to see a lot of activity,” says Michael MacPhee, president of the water division for ARCADIS U.S.

Falling Behind

The United States Conference of Mayors recently estimated that water and wastewater investment needs could total as much as $80 billion annually for the next 20 years.

Current funding levels are less than half that. FMI projects the water sector will reach $39 billion in funding in 2013 and $45 billion by 2016. A gap between what is spent and what is needed each year pushes those costs into the next year.

“When it comes to water, you can only defer investment for so long,” says Eberts. “At some point, you have to do it.”

The federal government was once a robust source of funding for the water industry, but no longer. In the wastewater sector, federal funding has decreased by more than 90 percent since the 1980s to just $1.4 billion in 2013. Drinking water appropriations in 2013 totaled only $908 million.

Congress appears to have taken note. The House is working on extending the Clean Water State Revolving Fund and doubling funding for wastewater projects to $13.8 billion over five years. Other legislative efforts include the Water Infrastructure Finance and Innovation Act, which would provide low-interest federal loans and loan guarantees for water projects and exempt water and wastewater projects from the state volume cap on private activity bonds.

Ratepayers will continue to account for the largest share of utility funding, but they are constrained by local politics.

“Many of the big enterprise water authorities have full-cost pricing, giving them the rate structure to replace their aging infrastructure, but there’s a lot of resistance in the smaller and medium-sized cities and they are gridlocked,” says AECOM’s Andrews.

According to a 2012 USA Today analysis of water rates in 100 municipalities, average monthly bills have climbed 75 percent since 2000, but most of that increase has come in larger cities. In Atlanta, for example, rates are up 233 percent in both 2015 and 2016. A gap between what is spent and what is needed each year pushes those costs into the next year.
percent and in San Francisco 211 percent, while smaller municipalities, such as Portland, Maine (14 percent), and Orange County, Fla. (16 percent), have not even kept up with the annual rate of inflation.

The reluctance to raise rates could also affect municipalities’ ability to raise funds through bonds. Standard & Poor’s Ratings Services issued a report last year that said that “the willingness to make tough decisions regarding rates” is an important factor in credit quality.

Private capital is a largely untapped resource. In its 2012 Strategic Directions in the U.S. Water Utility Industry report, Black & Veatch estimated that $200 billion in private funding is available for water infrastructure projects, though it noted that “private investment in municipal water assets is still viewed with suspicion.” More than half of utility leaders surveyed for the report said they had not considered private financing.

New Opportunities
Despite these challenges, experts say the water sector harbors good opportunities for engineering firms. “The kinds of skills our clients need is shifting,” says ARCADIS U.S.’s MacPhee. “They need more management consulting support. They’re asking us to help them make decisions about what an upgrade program should look like, how it should proceed and how it should be managed. We’re partnering with them in a way we weren’t doing a decade ago.”

Sustainability is also expanding the scope of work. Black & Veatch is currently working with a client to extract phosphorous from the wastewater stream for reuse as fertilizer. “Utilities are starting to look at wastewater as a resource,” says Eberts.

Instead of moving stormwater through a traditional tunnel and pipe system, officials in Detroit asked ARCADIS U.S. to develop a system of porous surfaces and grassy areas. “They want to encourage infiltration rather than move stormwater over vast distances,” says MacPhee.

Private clients in the chemical and oil and gas industries have also begun to show interest in these innovations, says MacPhee. “This has been an important shift for our firm,” he says. “We’re balancing our portfolio much more with public and private clients as opposed to almost exclusively public clients.”

Gerry Donohue is ACEC’s senior communications writer. He can be reached at gdonohue@acec.org.

Water Sector Spending—Total Dollars and Year-to-Year Percent Change (in billions)

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<tbody>
<tr>
<td>Wastewater</td>
<td>25,696</td>
<td>24,830</td>
<td>26,263</td>
<td>23,225</td>
<td>23,941</td>
<td>24,629</td>
<td>25,733</td>
<td>27,140</td>
<td>28,561</td>
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<tr>
<td>% Change</td>
<td>3.3</td>
<td>-3.4</td>
<td>5.0</td>
<td>-10.9</td>
<td>3.1</td>
<td>2.9</td>
<td>4.5</td>
<td>5.5</td>
<td>5.2</td>
</tr>
<tr>
<td>Drinking Water</td>
<td>16,752</td>
<td>15,471</td>
<td>15,305</td>
<td>14,015</td>
<td>14,258</td>
<td>14,470</td>
<td>15,301</td>
<td>16,020</td>
<td>16,788</td>
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<tr>
<td>% Change</td>
<td>6.0</td>
<td>-7.7</td>
<td>-1.1</td>
<td>-8.4</td>
<td>1.7</td>
<td>3.4</td>
<td>3.8</td>
<td>4.7</td>
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<td>Combined</td>
<td>42,448</td>
<td>40,301</td>
<td>41,368</td>
<td>37,240</td>
<td>38,199</td>
<td>39,369</td>
<td>41,034</td>
<td>43,160</td>
<td>45,349</td>
</tr>
<tr>
<td>% Change</td>
<td>4.8</td>
<td>-5.1</td>
<td>2.65</td>
<td>-10.0</td>
<td>2.6</td>
<td>3.1</td>
<td>4.2</td>
<td>5.2</td>
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Source: FMI
ACEC submitted a statement of tax principles to the House Committee on Ways and Means in April, calling for comprehensive reforms that treat C corporations and pass-through businesses—such as S corporations and partnerships—equally.

The Council also recommended that the tax code support innovation and the competitiveness of American firms in the global marketplace by encouraging research and development, as well as investment in new equipment and technologies. ACEC also stressed that the tax code should promote the development of the nation’s critical infrastructure, including highways, bridges, energy, transit systems, water and wastewater.

Ways and Means will develop tax reform legislation this year based in part on the input it receives from stakeholder groups. The Senate Finance Committee is also analyzing tax reform options with the goal of producing legislation.

One tax change under consideration by Ways and Means Committee Chairman Dave Camp (R-Mich.) is limiting the use of the cash method of accounting to sole proprietors and firms with less than $10 million in revenues. ACEC has alerted the committee that the proposal would create serious cash-flow problems for many engineering firms if they were required to switch to accrual accounting. The committee has asked for additional information on this issue.

President’s Budget Proposes National Infrastructure Bank

President Obama’s FY 2014 budget proposal includes $50 billion in new infrastructure investments and new tax revenues to reduce the deficit. The plan would fully fund MAP-21 programs and allocate an additional $25 billion for highways, $9 billion for transit, $5 billion for passenger rail and $3 billion for aviation infrastructure. The reauthorization of the passenger rail program would provide $40 billion over five years to improve existing service and develop new high-speed rail corridors. To leverage private and public sources of capital, the president would create a National Infrastructure Bank and the America Fast Forward tax-credit bond program.

ACEC strongly backs fully funding MAP-21 and continues to support innovative financing mechanisms—including the National Infrastructure Bank—to supplement traditional funding streams for transportation projects.

Funding for airport projects under the Airport Improvement Program is reduced from $3.35 billion to $2.9 billion in 2014, but the budget proposes raising the cap on Passenger Facility Charges from the current $4.50 per ticket to $8.

The budget submission proposes cuts to federal water programs, reducing funding for the State Revolving Fund programs by $472 million. The budget does, however, propose lifting the cap on Private Activity Bonds for water and sewage projects, a policy long advocated by ACEC.

The president proposes numerous tax changes, including business incentives for new investment and making permanent the tax credits for research and development, renewable energy and energy efficiency. The package would raise nearly $600 billion in new tax revenue through requiring households with annual incomes of more than $1 million to pay at least 30 percent in taxes, limiting the value of tax deductions and other tax benefits for upper income households, and raising new revenues from various business sectors.

One tax change has raised concerns among state and local governments, including the National League of Cities, as well as ACEC and other stakeholders. The budget proposal seeks to limit tax deductions for higher-income Americans, which in turn will impact investments in tax-free municipal bonds and limit the ability of local governments to raise revenues for infrastructure projects. ACEC is working with these organizations to protect municipal bond financing.
House Committees Approve Keystone Pipeline Legislation

Three House Committees (Energy and Commerce, Natural Resources, and Transportation Infrastructure) have approved H.R. 3, the Northern Route Approval Act, which would ease approval of the Keystone XL Pipeline.

The Keystone XL Pipeline will link new sources of oil in Canada to refineries in the Midwest and Texas and is essential to achieving a more stable energy supply. The pipeline is a $7 billion private-sector infrastructure project that will bring thousands of jobs and greater energy security to America.

The ACEC-backed legislation declares that TransCanada Corporation does not need a presidential permit for the pipeline application for the northern portion of the Keystone XL Pipeline, which extends from the Canadian border to Steele City, Neb. The measure deems that the final environmental impact statement issued by the U.S. Secretary of State in August 2011 satisfies all requirements of the National Environmental Policy Act of 1969 and the National Historic Preservation Act. This also takes into consideration the Nebraska Department of Environmental Quality’s evaluation of the Nebraska reroute in the Final Evaluation Report in January 2013.

In a letter to Energy and Commerce Committee Chairman Fred Upton (R-Mich.) recommending passage of the bill, ACEC President Dave Raymond stated, “The Keystone XL Pipeline will help to address our energy needs over the long term and will also create significant job growth at an important time in our country.”

ACEC Testifies on Immigration Reform; Bipartisan Proposal Unveiled in Senate

The president of a small engineering firm from upstate New York testified on the need for visas for engineers before the House Small Business Committee in April. Nagappa “Ravi” Ravindra, president of Ravi Engineering & Land Surveying in Rochester, N.Y., related his own experiences in recruiting and hiring engineering professionals, urging committee members to support increases in the availability of H-1B visas.

In related news, a bipartisan group of eight senators introduced comprehensive immigration reform legislation (S. 744). Among the various reforms in the bill, the Senate measure would increase the annual cap on high-skilled visas from 65,000 to 110,000, with potential for the cap to go as high as 180,000 depending on economic need. The legislation would also require all employers to use an e-verify system to ensure that their employees are in the United States legally.

The Senate is expected to consider immigration reform legislation this summer. A separate House group is working on a similar bill.

Senate Poised to Clear ACEC-Backed Water Legislation

The Senate is close to completing action on S. 601, the Water Resources Development Act of 2013 (WRDA). The bill authorizes new U.S. Army Corps of Engineers (USACE) water projects to address critical navigation, flood control, water supply and hydropower needs.

Several ACEC priorities are included in the bill, including accelerated project delivery, innovative financing alternatives and a levee safety program. In response to the USACE/FEMA levee task force report and ACEC’s concerns, the bill tasks the assistant secretary for civil works with examining and reporting problems facing communities when securing engineering services for levee inspection and certification work.

The act also proposes a pilot program for the Water Infrastructure Finance and Innovation Act (WIFIA) modeled after the successful Transportation Infrastructure Finance and Innovation Act program administered by the U.S. Department of Transportation. The Senate’s version of WRDA would establish two five-year WIFIA pilot programs run by the USACE and the Environmental Protection Agency, each authorized at $50 million per year for five years. Under WIFIA, each agency could offer direct, low-interest loans for major water infrastructure projects expected to cost more than $20 million.

The Senate is expected to consider immigration reform legislation this summer. A separate House group is working on a similar bill.

For More News

For weekly legislative news, visit ACEC’s Last Word online at www.acec.org.
The 2013 Engineering Excellence Awards Gala—known as the “Academy Awards” of the engineering industry—showcased 146 ACEC Member Firm projects from the United States and throughout the world.

A panel of 30 judges from across the nation representing a variety of built environment disciplines selected 24 top award recipients—16 Honor Awards, seven Grand Awards and the Grand Conceptor Award for the most outstanding engineering achievement—based on criteria such as uniqueness and originality, technical complexity, social and economic value, and public awareness.

Emmy Award-winning comedian Ross Shafer once again hosted the sold-out black-tie extravaganza, which was attended by more than 600 members and guests.
Kauffman Center for the Performing Arts, Kansas City, Mo.
Arup—New York, N.Y.

The gleaming, new 356,000-square-foot entertainment complex achieves new heights in structural design excellence and optimal acoustics. The architecturally intricate facility features a four-story, wide-angled glass wall front façade, topped by slightly concave sloping roofs. The project team custom designed a pioneering tensile system and high-strength rods on the exterior to support the roof and eliminate the need for cross bracing on the curtain wall. The facility features two performance halls—a 1,600-seat concert hall and an 1,800-seat ballet/ opera house—both have long-span, tapered-in-depth steel trusses that create wide, column-free spaces and support sound-reflecting concrete ceilings. The result is an exciting new focal point for the region’s art and entertainment community, and a dazzling addition to the downtown Kansas City skyline.
GRAND AWARDS

National Synchrotron Light Source II, Long Island, N.Y.
HDR Engineering—Alexandria, Va.

The new 600,000-square-foot research facility allows scientists to view a single atom with more clarity than ever before, helping to advance research in biology, chemistry, materials science and medicine. The facility generates light by accelerating a beam of electrons around a huge energy storage ring building at 99 percent of light speed. Through pioneering engineering design—and more than 41,000 cubic yards of concrete—the accelerator tunnel achieves precise vibration and temperature-fluctuation requirements. Nearly a half-mile in circumference and large enough to encircle Yankee Stadium, the storage ring produces the brightest and most intense X-rays in the world—more than 10,000 times brighter than its predecessor. The new research facility will play a critical role in new scientific discoveries.

Lake Champlain Bridge Replacement, Crown Point, N.Y., to Chimney Point, Vt.
HNTB Corporation—New York, N.Y.

Designed in just 10 weeks, this new 402-foot-long network tied arch bridge replaces an 80-year-old deteriorating bridge and reestablishes a critical connection between Crown Point, N.Y., and Chimney Point, Vt. The emergency closure of the old Lake Champlain Bridge necessitated a 100-mile detour in some cases, and adversely affected economic conditions and commerce in the surrounding New York and Vermont areas. The new bridge features a center arch span that was built off site, floated in, then lifted 75 feet and connected—two years to the day after preliminary engineering began. The new bridge is more efficient, safer and marks a significant improvement to the region’s infrastructure and economy.

Catskill-Delaware Ultraviolet Disinfection Facility, Mount Pleasant, N.Y.
Hazen and Sawyer/CDM Smith—New York, N.Y.

The world’s largest ultraviolet disinfection facility replaces an outdated, century-old water treatment system and serves more than 9 million consumers in and around New York City. The new facility treats more than 2 billion gallons of water per day, providing protection from organisms that can cause gastrointestinal illness. The plant features 56 new UV vessels—more than at any other installation. The design also includes the largest flow-control and energy-dissipating valves of their type. The project demonstrates the feasibility and effectiveness of large-scale water treatment applications.

Marlins Park, Miami, Fla.
Walter P Moore and Bliss & Nyitray, Inc.—Tampa, Fla.

This breathtaking retractable-roof design can withstand the most intense hurricane-force winds and has raised the standard of excellence for Major League Baseball stadiums. The new $515 million home of the Miami Marlins features a three-panel retractable roof, spanning up to 560 feet, mounted on a 150-foot-tall concrete support structure and weighing nearly 7,700 tons. The roof and support structure were designed to safely resist wind speeds up to 146 mph. Detailed wind studies conducted during the design process showed that keeping the panels slightly open during a wind event, rather than completely closed, reduced pressure by 25 percent, saving more than 1,000 tons of structural steel and more than $4 million in costs. The ballpark also achieved LEED Gold certification, making it the world’s first retractable-roof stadium to achieve this distinction.
GRAND AWARDS

**FDR Four Freedoms Park, Roosevelt Island, N.Y.**
*Egan Engineering and Environmental Services, Inc.—Elmwood Park, N.J.*

Four Freedoms Park is an innovative tribute to President Franklin D. Roosevelt’s historic 1941 Four Freedoms speech, highlighting freedom of speech, freedom of worship, freedom from want and freedom from fear. The four-acre park is a combination of gleaming white granite, elegant open-air spaces and finished broad riprap shorelines and seawalls. It culminates in a 3,600-square-foot plaza surrounded by 28 blocks of 36-ton granite. Located on Roosevelt Island, in the middle of the East River, the park land was created with surplus shot rock from on-island construction. Ten-inch-diameter mini-pile caissons were drilled into bedrock to support a below-tide-level room, avoiding reliance on unstable loose rock fills. The park’s historic, cultural and design significance will be treasured by visitors for decades to come.

**Volkswagen Automotive Assembly Plant, Chattanooga, Tenn.**
*SSOE Group—Toledo, Ohio*

The $1 billion Volkswagen automotive assembly plant sets a new standard for sustainable engineering. The plant uses 42 percent less energy for building systems and manufacturing than similar facilities. Air handling systems reuse heat energy prior to releasing it, rainwater harvesting reduces overall water usage by 653,000 gallons per year and an advanced lighting system cuts energy use by 68 percent. The plant, which performs such primary manufacturing operations as welding, painting and assembly, was designed to produce more than 150,000 vehicles annually, and is the first LEED Platinum automotive assembly facility in the world.

**Truss Bridge Roll-In: 130th & Torrence Avenue, Chicago, Ill.**
*Alfred Benesch & Company—Chicago, Ill.*

A massive steel superstructure was completely constructed next to its deteriorating predecessor, transported more than 800 feet and then rolled into place. The project team accomplished the transport and roll-in of a new 2,375-ton railroad truss span using four high-load capacity platform vehicles, or self-propelled modular transporters, each equipped with 96 individually computer-controlled wheels to distribute weight and safely and accurately steer the truss. The vehicles transported the truss, which was rolled over the existing Norfolk Southern Railway tracks. The unique procedure helped minimize disruption of nearby rail traffic and achieved a record-breaking installation of the longest steel railroad truss using modular transporter technology.
HONOR AWARDS

**Toyota Elephant Passage**, Denver, Colo.
*The RMH Group, Inc.*—Lakewood, Colo.

An outdated pachyderm zoo exhibit was replaced with a state-of-the-art, sustainable habitat that reduces costs while enhancing the quality of life for the elephants. Denver Zoo’s new 10-acre Toyota Elephant Passage features an on-site biomass cogeneration plant that converts more than 1.5 million pounds of annual animal solid waste and other zoo garbage into power and heat for the zoo. The combination of advanced water filtration and recycling systems, central energy recovery ventilators, evaporative cooling and exhaust heat recovery enhances animal comfort and saves the zoo approximately $150,000 a year in energy and waste-hauling costs. The Elephant Passage is the first zoo exhibit in the country to receive LEED Platinum certification.

**City Creek Center**, Salt Lake City, Utah
*Magnusson Klemencic Associates*—Seattle, Wash.

Visionary engineering design has transformed a deteriorating 23-acre section of downtown Salt Lake City into a spectacular and sustainable multiuse complex. The project features 5.5 million square feet, or the equivalent of 14 city blocks, of new office, residential, retail, parking and public space in 20 structures that range from two- to 30-stories tall. The project team overcame several structural challenges ranging from design of three new high-rise towers; basement excavations as deep as five stories; a 446-foot-long, first-of-its-kind retractable glass roof; and a 140-foot-span signature pedestrian sky bridge. A 1,225-foot-long, 28-foot-wide re-creation of the historic “City Creek” features three waterfalls and 420 tons of boulders—all supported by a below-grade, long-span parking structure. The project is a key component to downtown Salt Lake City’s rebirth, with far-reaching benefits for both the city and the state of Utah.

**Lowry Avenue Bridge over the Mississippi River**, Minneapolis, Minn.
*SRF Consulting Group, Inc.*, and *T.Y. Lin International*—Plymouth, Minn.

A new 1,600-foot-long bridge replaces a vital link over the Mississippi River and includes a groundbreaking filtration system to improve the quality of urban stormwater discharged into the river. The upgraded bridge better serves auto and heavy commercial roadway users, bicyclists and pedestrians and improves Mississippi River navigation. The project team incorporated a steel-tied arch main span with “basket handle” design and precast, 500-ton main span edge girders outside the channel, which were lifted into place from barges. The design included a 100-foot-long, 40-foot-wide underground sand filter to treat stormwater from the Lowry Avenue corridor and surrounding 127-acre drainage area. The filter is expected to prevent more than 14,000 pounds of suspended solids from reaching the river annually.

**Hurricane Storm Damage Risk-Reduction System**, Chalmette, La.
*Bioengineering ARCADIS*—Folsom, Calif.

A new 23-mile-long, $1.06 billion floodwall project in St. Bernard Parish aims to prevent a recurrence of the Katrina-scale devastation that flooded more than 90 percent of the community’s structures in 2005. New facilities include six levee reaches, two 56-foot sector gates, five highway/railroad closure gates, a pump station and ties to the Mississippi River levee system. To raise and strengthen the existing levee system, the project team used reinforced concrete T-walls supported by steel foundation piles. The process used more than 115,000 linear feet of steel sheet pile and 5 million linear feet of steel H-piles—28 times the amount of metal used in the Eiffel Tower—that were driven through the existing levee tops. The new system can withstand a 100-year storm surge event and is now the main line of defense for some 40,000 residents and numerous businesses.
HONOR AWARDS

Taijiang Bridge, Sanming, Fujian Province, China
T.Y. Lin International–San Francisco, Calif.

A new iconic landmark for Sanming, Fujian Province, in China, the Taijiang Bridge is only the second of its kind in the world to incorporate a rare partially cable-supported girder bridge concept. The design uses the capacity of both the cable-stayed system and the bridge girder, in contrast to more conventional bridge designs, which often ignore the capability of the girder to carry loads in a cable-supported structure. The signature steel arch-shaped tower is tied with horizontal cables and a vertical cable connected at midpoint. The bridge also features two 360-foot-long main spans, as well as 164-foot-long and 196-foot-long side spans. The concept challenges conventional bridge development methods while providing a new model for future designs.

CSO Treatment Wetland System,
Washington, Ind.
Bernardin, Lochmueller & Associates—Evansville, Ind.

Engineers used inventive techniques to solve a growing problem of combined sewer overflows in Washington, Ind. The previous stormwater capacity for the city of Washington was so limited that one-tenth-inch of rain would produce CSOs. The design solution combined a 5-million-gallon storage tank and a 27-acre constructed wetland—the second of its kind in the country and 3.5 times larger than the first—to treat the runoff. Wetland plants filter out contaminants before the effluent passes through an ultraviolet-disinfection system and finally into a creek. The EPA highlighted the project as part of an “innovative solutions” webinar. The scalability, wetlands application, low-cost and water-quality improvements make the system a cost-effective, low-maintenance option to combat CSO problems in similar-sized communities.

IHNC Seabrook Sector Gate Complex,
New Orleans, La.
Bioengineering ARCADIS–Baton Rouge, La.

A new 230-ton navigable channel gate is a cornerstone of the Hurricane Storm Damage Risk-Reduction System surrounding the areas of New Orleans hardest hit by Katrina. The gates close during a major storm event to form a continuous barrier tied into the existing T-wall and levee system. This restricts water from entering the Inner Harbor Navigational Canal up to an elevation of more than 16 feet—a 100-year flood water elevation. Each gate leaf forms a steel-plated wall more than three stories high and 95 feet wide. Because of its proximity to downtown New Orleans, and its connection to the Lake Borgne Surge Barrier, the $165 million Seabrook Complex is the highest profile, most visible flood protection project ever built by the U.S. Army Corps of Engineers.

Grandville Clean Water Plant Expansion & Renovation,
Grandville, Mich.

Creative upgrades to an outdated water treatment plant have more than doubled its capacity and have allowed the re-use of biogas for electricity and heating. The project team increased plant capacity to 10 million gallons a day from the previous 4.4 million gallons; constructed a new 7,500-square-foot operations and lab facility, complete with a cogeneration engine; and installed an innovative egg-shaped anaerobic digester—the first of its kind in Michigan. When running on biogas generated by the digester, the cogeneration engine produces 280 kilowatts of electricity and 1.6 million BTUs of process heat per hour. The production of heat and power will offset as much as $142,000 per year in utility costs.
HONOR AWARDS

North Shore Connector, Pittsburgh, Pa.
HDR Engineering, Jacobs Project Management, Kwame Building Group (joint venture)—Pittsburgh, Pa.

Resourceful engineering was critical to completing a new 1.2-mile light-rail extension that connects downtown Pittsburgh to the city’s thriving North Shore area. The $523 million North Shore Connector includes dual-bored tunnels, each 2,240 feet long and 22 feet in diameter, along an extremely complex route featuring tight turns and steep grades. Innovative design solutions were used to bore through bedrock under the Allegheny River and navigate around numerous underground support structures, such as concrete underpinnings to completely lift the State Route 65 Bridge from its original steel pile foundations. The project significantly enhances resident access to the North Shore, expands the Central Business District and helps spur further development of the regional economy.

Purple Line Viaduct Replacements, Evanston, Ill.
Jacobs Engineering Group, Inc.—Chicago, Ill.

Three 100-year-old, deteriorating viaducts were demolished and replaced with new 200-ton steel bridge spans—each within a 55-hour period on weekends to minimize service disruptions to an important commuter line. To accelerate installation, the project team constructed new 90-foot single-span, double-track and steel girder structures behind existing concrete abutments. During outage weekends, the existing viaduct was demolished and a 550-ton hydraulic crane lowered 70-ton precast concrete abutments onto 80-foot-deep belled caissons. Each 200-ton steel bridge was then quickly moved into precise position using two self-propelled modular transporters. The weekends-only schedule accommodated full demolition, installation of new supporting abutments, roll-in of the new 90-foot steel bridges and realignment of the track and supporting systems—all in time for the Monday morning rush hour.

Bridging from Land to Light, Golden Gate National Recreation Area, Calif.
HDR Engineering—Denver, Colo.

Hovering more than 100 feet above rocky cliffs and the Pacific Ocean, the new suspension bridge reestablishes access to the historic Point Bonita Lighthouse, a popular Golden Gate National Recreation Area attraction. Lighthouse access was closed in 2008 when the 54-year-old suspension bridge was deemed unsafe. The project team reinforced highly fractured support rock with anchors and wire mesh. Hardwood from Cameroon known for its strength, durability and weather resistance was used to stiffen the truss and the 156-foot main span. The only access to the site was a half-mile-long, steep and narrow pedestrian trail with a 6-by-6-foot hand-carved tunnel of several hundred yards, which meant equipment and materials had to be transported by foot or ATV. Beautifully replicating the original, the new bridge renews access to the lighthouse with a safer and more sustainable structure.

Hartland Dam Fish and Boat Passage, Delta, Colo.
Merrick-McLaughlin Whitewater Design Group—Aurora, Colo.

This project is a shining example of how a hazardous dam can be redesigned to promote river recreation and fish passage. The design removed a vertical drop at an existing diversion dam on the Gunnison River in western Colorado and integrated an environmentally sensitive, multichannel river system. The original design prevented upstream and downstream movement by fish, and was hazardous to river users. The state-of-the-art fish passage facility allows native Colorado endangered fish to negotiate the diversion dam and promotes the recovery of native species. A new boat passage channel provides a safer whitewater recreational experience for kayakers and rafters.
HONOR AWARDS

North Bank Bridge and Park, Boston/Cambridge, Mass. Greenman-Pedersen; Carol R. Johnson Associates; Stantec; Ammann & Whitney—Wilmington, Mass.

A former brownfield site has been transformed into a breathtaking new park along the Charles River Basin. Constructed on contaminated materials that were too expensive to remove, the project team used hard landscape fill materials to create a safe separation barrier for the public. The park features waterfront esplanades, multiuse pathways, passive open space with iconic views and special treatments at the base of the north and south pylons of the nearby Zakim Bridge. The showpiece is a 700-foot sinusoidal tubular truss pedestrian bridge that connects Paul Revere Park in Charlestown to Cambridge's North Point Park and spans commuter rail tracks, a boat ramp and Miller's River. The third park to be completed as part of Big Dig mitigation efforts, the project provides thousands of pedestrians with a safe, accessible and attractive route between Cambridge and Charlestown.

Nueva Providencia Pedestrian Bridge, Nueva Providencia, Guatemala CH2M HILL—Milwaukee, Wis.

A new pedestrian bridge in Guatemala demonstrates more than excellence in design. When Hurricane Agatha destroyed a suspended foot bridge across the Rio Santo Teresa in Guatemala, the community of Nueva Providencia had no alternate way to access schools, clinics and markets during the six-month rainy season. A project team featuring engineering interns designed a 280-foot replacement bridge and trained local masons on bridge-building techniques. The design included an innovative stabilization system to reduce bridge movement. In lieu of a cash contribution, local residents washed 15 cubic yards of sand and the same amount of gravel and collected nearly 100 cubic yards of stones for the project. The project demonstrates not only the value of engineering, but also the importance of sharing engineering knowledge with local maintainers of the bridge.

Sandia National Laboratories, Molten Salt Test Loop, Albuquerque, N.M. Bridgers & Paxton Consulting Engineers, Inc.—Albuquerque, N.M.

This first-of-its-kind concentrated solar power (CSP) testing plant will one day allow CSP power plants to be constructed on the same scale and magnitude as fossil-fuel-powered-generation plants. The CSP industry currently operates with lower temperature/pressure components than the standard electrical utility industry. The new Molten Salt Test Loop (MSTL) facility tests plant-sized components at higher temperatures and pressures to achieve a higher efficiency power cycle. The MSTL technology involves pumping molten salt through various types of solar collectors, which convert sunlight into thermal energy for use in a heat-driven turbine that generates electrical power. The system will one day allow accelerated lifecycle testing of prototypes of various solar receivers or subcomponents prior to large-scale development.


Resourceful engineering has transformed a 154-acre pig farm into a model of environmental stewardship and renewable energy production. The farm’s nearly 9,000 hogs produce more than 400,000 gallons of manure each week. The manure’s high nitrogen content makes it unsuitable fertilizer. The waste was previously discarded into a nearby lagoon, which allowed for the release of methane, ammonia and “an unholy stink.” The project team incorporated a new anaerobic digester, a nitrification/denitrification system, a biogas collection and conditioning system, and an electricity generation system to produce biogas from the pig waste. That waste now fuels a 65-kilowatt micro-turbine generator and provides half the farm’s power. The system also eliminates the release of 5,000 metric tons of carbon dioxide per year—the emission equivalent of 900 cars. The project is a model for managing farm animal waste in a cost-effective, sustainable manner.
### 2013 EEA NATIONAL RECOGNITION AWARD WINNERS

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New World Center, Miami Beach, Fla., designed by Gilsanz Murray Steficek, New York City, is a 2013 EEA National Recognition Award winner.
2013 ACEC National Recognition Award Winner

DFW Connector – QESTField

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2013 EEA National Recognition Award winners Palomar Medical Center West, Escondido, Calif., designed by M-E Engineers, Inc., Culver City, Calif.
Innovative solutions to support communities impacted by extreme weather events.

When a storm surge or flood threatens, the solutions are never simple. Today’s coastal communities need integrated solutions with multiple layers of defense and a comprehensive approach that leverages natural features and forces to create resilient and sustainable environments.

At ARCADIS, we create solutions that are balanced, adaptable and sensitive to the environment. Whether your community needs hardscape structures like levees and barriers, or softscape options like wetlands, marshes and barrier islands, or a combination of all of these, we can help you better manage the risk of coastal living.

The result? Resilient, attractive shorelines, sustainable urban waterfronts and, most importantly, peace of mind.

Together we can do a world of good.
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Modern Woodmen Park Flood Protection, Davenport, Iowa, designed by Stanley Consultants, Muscatine, Iowa, is a 2013 EEA National Recognition Award winner.
Project Team Results

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Realizing Safdie Architects’ vision for Kansas City’s Kauffman Center for the Performing Arts required close collaboration between our structural engineers and the full design and client team.

Congratulations to all who were involved in the project for helping earn the honor of being named ACEC’s best project of 2013.
Be better at it.

At URS, we believe that a successful result seldom comes about by chance. So whether it's an airport, bridge, light rail line, reservoir, or wastewater treatment plant, our determination never changes. To do it better. Which is why, when it comes to the Infrastructure sector, more people are turning to us to get it done. We are URS.

Proud recipients of 2013 ACEC National Recognition Awards:

Wadhams Road Bridge over Black River
Falls Street Tunnel Inflow Reduction
South IH 35 Water/Wastewater Infrastructure Improvements
Platt Street Bridge Restoration
Gravity Sewer Line Rehabilitation
Los Vaqueros Reservoir Expansion
More than 1,300 members participated in the ACEC 2013 Annual Convention and Legislative Summit in Washington, D.C., April 21–24—the highest-ever Convention attendance.

The turnout fueled a strong advocacy effort as several hundred ACEC “citizen lobbyists” converged on Capitol Hill to urge lawmakers to support new water infrastructure funding mechanisms, a national energy policy and the next surface transportation program.
Attendees also took advantage of the Convention’s comprehensive business focus, which included the CEO panel, CEO roundtables and nearly 30 targeted education sessions. Seminars on A/E firm financial metrics, employee engagement and profits and strategic decision-making were among several standing-room-only sessions.

“The Hill visits and the Congressional Issues Briefing were most useful,” said Marlin Knowles of American Structurepoint, Inc., in Indianapolis. “The CEO Roundtables are a great idea. Working and talking with your peers concerning both problems and victories is very helpful.”

“I enjoyed Geoff Colvin’s presentation and his thoughts on flexibility in business and innovative business planning,” said Peter Mesha of Wight & Company in Darien, Ill. “I also thought the CEO Panel was informative—it spoke to me.”

“I am very glad I came,” said Charles Gonderinger of SRF Consulting in Plymouth, Minn. “The variety of the discussion topics was so diverse, it was hard to choose which one to go to.”

NBC’s Todd: Infrastructure Politics Stumbles After ‘Bridge to Nowhere’

NBC News Chief White House Correspondent Chuck Todd told a packed ACEC Annual Convention audience that the infamous "Bridge to Nowhere" forever changed the politics of federal infrastructure funding.

The proposed $320 million Alaskan bridge became a symbol of congressional irresponsibility, leading to the elimination of earmarks. “Earmarks used to be political assets” for getting infrastructure bills passed, Todd said, “but that asset no longer exists.”

He added that the nation’s deteriorating infrastructure might soon force Congress to act. “Is there going to be a big infrastructure bill? Two years ago, most legislators were afraid to commit to any substantial funding. Now, we’re starting to see a softening in their attitudes.”

FORTUNE’s Colvin: Shale Gas Will Be Boon For Economy

FORTUNE Senior Editor-at-Large Geoff Colvin gave an optimistic forecast for the economy and the engineering industry during the ACEC Convention’s Opening Session.

“The impact of shale gas on the U.S. economy is going to be fantastic,” Colvin said. “Most people don’t understand how huge it’s going to be.”
He also said that government austerity will lead to more contracting out, which “will be a good solution for both government and private industry.”

**Middle East, N. Africa Ambassadors Promote Regional Opportunities**

ACEC and the National U.S.-Arab Chamber of Commerce co-hosted two Convention events to promote business opportunities for U.S. engineering firms in the Middle East and North Africa.

At a dinner, ambassadors of Egypt and Morocco and the deputy chief of mission from Algeria briefed 25 ACEC Member Firm leaders on recent developments within the region. During a next-day roundtable, commercial attaches from Algeria, Bahrain, Egypt, Iraq, Oman, United Arab Emirates and Yemen briefed members on specific opportunities for U.S. engineering firms in their countries.

The international business focus also included Department of Commerce Assistant Secretary for Manufacturing and Services Nicole Lamb Hale and EPA Assistant Administrator Michelle DePass, who introduced the U.S. Environmental Technologies Export Initiative at a meeting of the ACEC International Committee. The interagency effort is designed to promote U.S. exports of environmental goods and services—including engineering services.

**ACEC/PAC Tops Record; Jeffry Volk Wins $10,000**

ACEC/PAC collected a record $163,000 during the ACEC Convention and co-hosted a fundraising event for House Transportation and Infrastructure Committee Chairman Bill Shuster (R-Pa.).

In the ACEC/PAC Spring Sweepstakes, Jeffry Volk of Moore Engineering in West Fargo, N.D., won the $10,000 grand prize. Paul Hummel of Lawson-Fisher Associates in South Bend, Ind., won $5,000 and Mary Hall of GZA GeoEnvironmental in Boston, won $2,500.

Winners of $1,000 prizes included Paul DeBruyne, McClure Engineering Associates, Rockford, Ill.; John Boldt, Clark Dietz, Kenosha, Wis.; Phil Beer, USI Consultants, Indianapolis; John Atz, Kimley-Horn and Associates, West Palm Beach, Fla; Jon Nishimura, Fukunaga & Associates, Honolulu; Gary Powell, Stantec, Chicago; and John Kissinger, GRAEF, Milwaukee. (continued on page 28)
Client Expectations of Perfection: Shifting a Perilous Paradigm

Karen Erger, Lockton Companies; Janice Marsters, Kennedy/Jenks Consultants; Christine E. Drage, Weil & Drage; Albert Rabasca, XL Insurance Design Professional Group

To avoid disappointed clients and potential lawsuits, engineering firms should fine-tune the Standard of Care language in their contracts to eliminate unrealistic expectations. Session panelists emphasized that while boastful marketing language wins projects, Standard of Care contract language, needs to be ordinary. The legal system requires only that a firm performs as others in similar circumstances would have performed, unless its contract states or implies that it will perform better.

Firms would also be well served to have “The Talk” with their clients early in the process, telling them that perfection is not achievable, change orders are a fact of life and there are no guaranteed results.

Ten-Plus Years of ESOP Ownership—Pros and Cons

J. Chuck Hollingsworth, Engineering & Environmental Consultants, Inc.

After 13 years under an Employee Stock Ownership Plan (ESOP), Engineering & Environmental Consultants, Inc., and its founder, Chuck Hollingsworth, are 100 percent committed to the concept. Hollingsworth said the ESOP has enabled him to put in place an ownership transition plan that ensures the continuity of the firm and has provided employees with both a retirement plan and a reason to take more responsibility for the long-term success of the firm.

Starting and operating an ESOP is a complicated process that includes company valuations, legal filings and regulatory requirements. It also requires changes to the corporate culture. When employees feel they are part owners of a firm, they expect more transparency from the leadership on both finances and the strategic direction of the company.

Preparing Your Firm’s Next You—Leadership Transition

Mark Goodale, Morrissey Goodale

How do you prepare for your firm’s next you? Goodale said a firm needs to create a culture of ownership that occurs at all levels in the organization. “Employees need to own their own experiences in your firm, own the experiences with your clients and own the results of your company,” he said. When executives promote this type of thinking, “they are bringing about responsible autonomy in their company,” which enables leaders to better see which employees rise to the challenge and would make effective future leaders within the firm. “Become a coach,” Goodale said. “You need to set a great example and inspire employees; you also need to work on yourselves first.” He added that executives must understand their employees’ world to facilitate learning opportunities, practice and mastery.

QBS Undergoes Spirited Convention Debate


Lester Fukuda, project & CM manager at HDR, provided a broad overview of QBS principles while Bob Boyer, vice president of CH2M HILL, spoke to the future of QBS amid the growing use of alternative project delivery systems. Jim Horrocks, president of Horrocks Engineers, discussed QBS challenges within the industry, advancing the view that erosion of QBS principles within the profession should be addressed on ethical grounds.

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Save Energy, Save Electricity, SAVE MONEY

How engineers can utilize the 179D deduction to strengthen the environment, the country, and their bottom line.

Today, many engineering firms are recognizing the need for energy efficient building, and as a result, taking a “green” approach to their designs. With nearly 50 percent of all energy consumed in the U.S. coming from the building sector, as well as nearly 75 percent of all electricity stemming from this source, green building will only gain support in Congress and become even more essential to the survival of our planet. The 179D deduction is available to engineers and is a great way to save money while maintaining an energy efficient mindset.

For example, an Oklahoma based engineering client secured $725,000 in 179D tax deductions, generated from just five projects—including public schools, a government office building, and a public healthcare facility. With the major deductions offered through section 179, a modest portfolio can add up quickly. It’s critical to pursue the benefits of this deduction before deadlines and opportunities are missed.

In 2005, Congress passed a bill that gave engineers, architects, and design-build contractors the opportunity to receive invaluable tax incentives for green building. The Energy Policy Act of 2005 is significant not only because it encourages energy efficiency in the U.S., but because it is the only green building incentive targeted towards companies that do the actual design work of a building.

Through this incentive found in section 179D of the Internal Revenue Code, qualifying businesses can receive up to $1.80 per square foot in deductions for eligible projects on new, renovated, or retrofitted buildings, placed into service any time since 2006. While the 179D deduction applies to building owners and lessees who make the required improvements to their commercial buildings, it should be of particular interest to the designers of government buildings. Since government entities do not pay taxes, they can transfer the deductions allocated from 179D to those who did the design work for the building in question.

179D Requirements
There are multiple methods to securing a deduction and different levels of deductions depending on the energy efficiency levels that your project meets. Energy and power reductions of as little as ten percent, in some cases, can result in very substantial savings. It’s critically important that engineers examine and exhaust all of the partial and fractional qualification methods in order to maximize your benefit. Examples of qualified work include energy efficient lighting, HVAC systems, hot water, or building envelope systems. Schools, universities, military bases, airports, post offices, and government offices are all eligible buildings when considering entitlement to this incentive. Most of the time, for the economics of 179D to make sense, the building (or collection of buildings, for example in an office park) should be greater than 50,000 square feet.

“What’s so fascinating about 179D is that it’s an incentive for a trend within the industry that almost all companies are already moving towards,” Dean Zerbe, alliantgroup National Managing Director and former Senior Tax Counsel to the Senate Finance Committee said. “It clearly makes sense to develop new environmentally friendly technology from both a financial aspect and to be more globally responsible. The government is keenly interested in these endeavors which is why they developed this deduction.”

This deduction is claimed on amended tax returns which are only typically open for three filing years after the date of original filing, so if you have worked on any public property in the past few years, you need to consider a 179D analysis. The sooner you claim this deduction the better. For current projects, there may be multiple designers who are eligible for the deduction, so being first to act can be the difference in securing a deduction versus being left out in the cold.
“At the end of the day, the 179D deduction has provided millions of dollars in tax benefits for business owners and engineering firms, as well as providing real assistance to local, state, and federal government, while helping lower energy costs, improve energy efficiency and the environment. Unfortunately, it is an incentive that many are overlooking,” Zerbe said.

Take full advantage and strengthen your bottom line, alliantgroup is the leading provider of specialty tax services that assists companies in claiming the many government endorsed tax incentives to which they are entitled. In tough economic times, alliantgroup aims to help clients obtain the maximum benefit from every deduction they are eligible to receive.

A mechanical engineering firm that recently worked with alliantgroup is another great example of major deductions available through 179D. The firm completed a student housing project in Louisiana involving a total of 92,000 square feet and qualified for the deduction through the installation of an HVAC system, as well as energy efficient interior lighting. They received a 20.1 percent reduction in annual costs for the HVAC system and an 18.8 percent reduction for the lighting system, qualifying for a total deduction of $110,573 with an estimated tax savings of $38,700. Between 2010 and 2030, total building sector energy consumption in the United States is predicted to increase by about seven quadrillion Btu. One quadrillion Btu is the energy equivalent to 36 million tons of coal being burned at a power plant—obviously, this is not good news for our country. The Energy Policy Act of 2005 was created ensure our energy consumption was kept under control, and the 179D deduction is an available and proactive outlet for designers. The quantification and detailing of the value, and, of course, the proper substantiation for capturing the deduction requires a deep understanding of the Tax Code, the intent of the law, and an equally deep understanding of the industry being served. For this reason, alliantgroup exist to serve as the voice of small to medium-size businesses. Don’t let the statute of limitations run out on completed projects, and ensure your firm is the first to claim the benefits of current ones. The time to act is now!
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If laptop computers gave engineers and other business leaders a taste of what it might feel like to finally cut the cord on information technology (IT), the evolution of powerful handheld devices, from smartphones to tablets, has, at long last, set them free. 

By Bob Violino
“Engineering firms typically go where the work is, and it can be anywhere on the planet these days, depending on the services you’re providing.”

MIKE ANDERS
BRAUN INTERTEC

A New Business Landscape

Laptops represented a step in that direction, but engineers who rely on technology say the emergence of smartphones and multimedia-rich tablets equipped to run robust data-centric applications and graphics have changed the game entirely.

Handheld devices and smartphones can go more places than desktop computers, or even laptops, which means reduced project-based data entry and time to completion.

“An engineer can bring his or her mobile device down a sewer or into a drain and effectively record data once,” Schafer explains.

Such flexibility is invaluable. “Engineering firms typically go where the work is, and it can be anywhere on the planet these days, depending on the services you’re providing,” says Mike Anders, CIO at Braun Intertec, a Minneapolis, Minn.-based consulting and engineering firm and president of Agile Frameworks, a subsidiary of Braun Intertec that provides mobile field information management software and consulting services.

Of the company’s 600 employees, Anders estimates that 80 percent use smartphones or tablets. “We provide mobile devices to all of our remote staff,” including engineers in the field, he says. Workers use the devices for basic communications, such as email and texting; they also use the tools to access a suite of cloud-based proprietary business applications that provide field engineers with support for important off-site processes, such as testing concrete and other construction materials.

The No. 1 advantage of mobile computing: 24/7 access and collaboration among employees, says Anders, who adds, “Mobility is just table stakes now; you need it in order to work in this industry.”

But it’s the quality and speed of the content that truly sets the devices apart. With manufacturers forever learning how to pack more processing power into smaller form factors, engineers and other business users now can expect to wield desktop-grade power, quite literally, in the palms of their hands.

The latest technology lets engineers instantly download detailed graphics and schematics, as well as customized project management and construction and inspection applications.

Clients can make adjustments to documents and markups on site, wherever they are. Managers can use the devices to take and record high-quality photos and video of relevant designs—so that executives at the home office can track the progress of a project in real time.

Though the technology still is not equipped to run the most data-intensive enterprise resource planning or building information modeling software applications, it is compatible with most standard business tools.

Tailor-Made Technology

Vanasse Hangen Brustlin, Inc. (VHB), a Watertown, Mass.-based provider of planning, design, engineering and consulting services, uses mobile devices such as smartphones and ruggedized tablets for data collection and collaboration in the field, says Greg Bosworth, director of information technologies at VHB.

The firm has developed several mobile applications, including one for tracking hours worked on projects, another for expense and time sheet review and approvals, and another for mapping project locations and providing other project information.

Mobile devices, including some 550 smartphones, are tied into the firm’s Microsoft Exchange environment, so users can access applications such as email and contact listings. Perhaps the devices’ most valuable benefit is the ability to access corporate resources from remote work sites at any time, Bosworth says.

The marketing team at VHB is leveraging mobile technology for digital marketing efforts, Bosworth says. For example, the team has developed interactive PDF documents that can be uploaded on tablets for use at industry events, where representatives can present the documents to prospective clients.

In addition to promoting the firm’s services, the mobile presentations help cut down on printed documents the company uses, Bosworth says.

In one of the firm’s more unique and productive uses of mobile technology, VHB has customized an open-source application to track bicycle traffic in Providence, R.I., as part of an ongoing effort to help the city plan new bike and pedestrian trails.

The company uses the mobile application to capture information about where people are riding bikes in the city so it can recommend places to build bike paths. A user installs the app...
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on his device, starts the app while biking and then uploads the route when he arrives at his destination. The GPS information recorded on the route is then uploaded and analyzed using GIS tools.

It’s Not Plug and Play
While engineering firms can benefit from adopting mobile devices, executives and IT professionals say ease of use comes with its share of integration and network challenges—the first of which is determining how the technology will better help meet the organization’s goals.

“Firms need to make a company decision on whether or not to issue mobile devices,” Schafer says. “Questions they need to ask are, ‘How do mobile devices fit into our business?’ and ‘Who needs them and why?’”

They need to set policies around how corporate-owned devices will be deployed and managed, and how employee-owned devices can be used for work purposes, Anders says.

“A lot of firms struggle with bring-your-own-device issues,” such as how to keep business data safe on devices owned by employees and determining who should be able to access which applications on the network, Anders says. He recommends mobile device management, or MDM, solutions to help provide...
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the needed security, particularly related to accessing corporate data on the network.

To help ensure secure use of mobile devices, VHB created a policy governing the use of company-owned and employee-owned devices. Employees using mobile devices must sign an agreement stating that they will abide by the policy, which covers using passwords for network access, abiding by rules about types of company data that can be shared, using a secure PIN to access the devices, and permitting the firm to conduct remote data wipes of devices that are lost or stolen.

Personal employee devices used on the company’s network also must comply.

“If you choose to connect your device to the company’s network, we will enforce the policy,” Bosworth says. Though, he admits, given the rapid pace of technological change, it’s a challenge to keep these policies up to date.

“We’re still probably in a reactionary mode in some ways, given the rate at which these apps are coming out,” Bosworth says. “People want to do this and that with their iPhones or tablets. It’s really difficult to enforce strict policies around something like Dropbox (a cloud-based file-hosting service). If someone wants to install that on their device, there’s not a lot we can do at this point.”

Another challenge: keeping up with new and upgraded operating systems and ensuring that many different kinds of applications and devices will work well together on the firm’s existing network.

“Firms need to find the right apps and stick with them across all projects,” Schafer says. “This can be challenging with dozens of appropriate apps available. It takes solid research to ensure you are selecting something that can work across all types of jobs and will be embraced by the staff.”

One suggestion is to use a mobile offshoot of a more established desktop portfolio, such as Windows. “If people see an app as an extension of what they already know and trust, they will quickly embrace the mobile technology as an extension of that trust,” Schafer says.

Some firms go with one mobile platform, such as Android, iOS, BlackBerry or Windows. But Anders says this approach is difficult to regulate, especially in environments where employees are using their own devices on the corporate network.

Yet another challenge is training staff to use handheld technologies safely on job sites, Anders says. For example, when someone is operating machinery or driving to and from a site, they should be directed to use only hands-free devices.

Despite these and other obstacles, industry watchers say the growth of mobile devices in business will continue, especially as younger employees, many of whom grew up with the technology, enter the profession.

“Professionals of all types are using mobile devices constantly, blurring the lines between work and off-work hours,” Schafer says. “This is especially true as baby boomers retire. The generations taking over these roles are heavy consumers of mobile technology.”

Is your firm ready?

Bob Violino is a business and technology writer based in Massapequa Park, N.Y.
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Know Your Negotiating Strategy Before Signing a Personal Guarantee for a Loan

Engineering firm partners are likely familiar with personal guarantees (PGs), which banks almost always require borrowers to sign to secure a commercial loan. Enter into these agreements with confidence by following these five steps.

1. **Know What Level of Risk You Can Accept**
   This will greatly affect the amount and type of your loan. Your adviser should evaluate the business’s liquidation value, taking into account any existing liens and the priority of repayment in case of bankruptcy. This is the value of your business should a PG be called.

   Next, consider how much you can personally risk on the loan, including your equity stake. The equation should be: business liquidation value + acceptable personal risk > personal guarantee. This tells you the maximum that you’re personally willing to risk under the terms of a guarantee.

2. **Define Your Terms In Advance**
   Consider these important factors with your accountant, attorney and/or business partner(s) and know the answers before entering a bank:
   - Would you be willing to pay a higher interest rate in exchange for no PG or a limited PG?
   - Would you consider borrowing less money?
   - Would you be willing to put up a higher compensating balance (meaning a higher interest rate)?
   - Would you consider a shorter loan maturity date (meaning higher monthly payments)?

3. **Maintain Control**
   Mention the PG up front with your lender. Most banks will want to first negotiate the terms of the loan and then the PG. Be clear about not wanting to sign a PG, and then tie the PG conversation to the discussion of other key loan conditions such as amount, term, interest rate and covenants.

   Ask why the lender wants a PG so you can address their specific concerns.
directly, rather than through a blanket guarantee. Find out how big a business needs to be to avoid one. While many banks have a general policy of requiring PGs to make sure the owner is tied to the business, knowing their specific concerns will put you in a better negotiation position.

4. **Negotiate the Terms**
   - Banks will always want an unconditional/unlimited guarantee. Request that the amount of the PG be limited either by the actual dollar amount or by a percentage of the outstanding loan. If there are multiple owners, seek to limit the amount of exposure by the percentage each owns. Also, ask to be relieved of the PG after a certain percentage of the loan has been repaid.
   - Lenders typically require personal financial information on at least an annual basis. Negotiate who will need to report their personal finances, how often and exactly what is required. Avoid the standard personal financial information for a loan, which gives the bank a road map to your personal assets. Have your accountant draft a personal financial statement with the minimum acceptable disclosure.
   - Suggest the PG be reduced as a key financial metric improves (e.g., debt-to-equity ratio).
   - Structure when the PG would go into effect, based on things like the number of loan payments missed, the amount of working capital or the net worth of the business falling below a specified amount.
   - Consider business days versus actual days to give yourself more reporting time.
   - Negotiate for the terms of the PG to change over time (i.e., an amount or percentage decrease after five years of spotless payment of the loan).

5. **Set Limits on the PG**
   - Ask to limit who will guarantee the obligation. If there are multiple partners, try to avoid a “joint and several” PG. Push for an indemnification guarantee.
   - Suggest that each partner carry a percentage of the guarantee rather than each carrying 100 percent; state laws may vary on the ability to do this.
   - Limit the scope and collateral of the PG by “carving out” assets such as your primary residence or your stock in the business.
   - Don’t agree to a spouse as a co-signer on the PG. This will ensure that personal assets under the spouse’s name won’t be subject to seizure.

While you won’t get all these limitations, you’ll often be able to improve the terms. The health of your business, your credit record and the strength of your relationship with your lender can impact negotiations. The lender’s current portfolio, their experience in your industry or local market, and other factors can also influence the ultimate decision. However, even when you can only make modest improvements, negotiating the PG at the same time as the loan can get you better loan terms and conditions.

**Consider Insurance**
The ability to insure your PG may influence your decisions as you balance improvements in the loan terms with modifications to the guarantee agreement. Personal Guarantee Insurance, or PGI, protects you and a portion of your assets, limiting your personal risk to a more palatable level. PGI will cover up to 70 percent of your net payment—meaning what is paid after accounting for business liquidation—depending on the coverage purchased and the terms of the policy.

As personal and business conditions evolve, especially if financial performance improves or there is increased collateral, reopen discussions with the lender over terms and conditions of your loan and your guarantee.

While it may be impossible for engineering partners to completely escape a PG, they do have options. Armed with good advisers and a carefully planned approach, you can negotiate the terms of your PG and loan together. In situations where negotiation isn’t enough or improvements to the loan terms are more valuable, guarantee insurance can help improve your partner relationships and allow you to focus on the business at hand.

**James R. Coughlin** is chief underwriting officer for Asterisk Financial, Inc. He can be reached at James.Coughlin@asteriskfinancial.com.

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**PG Basics**

**What You Need to Know to Get Started**

A signed personal guarantee (PG) allows the bank to go after personal assets in a default. Other events that may trigger a PG include additional borrowings, an asset sale, or a partner’s death or incapacitation. Sometimes the lender can obtain additional collateral on demand if they deem the loan under-secured.

The process of PG demand and collection can seem aggressive and inequitable. For instance, in “joint and several” partnership situations, banks can pursue any partner for up to 100 percent of the outstanding liability regardless of ownership stake. Because they’ll invariably pursue those with the largest, most liquid assets, those individuals are at greater risk. Additionally, incorporation does not prevent banks from pursuing savings accounts and homes via a PG.

**Ownership Transitions and PGs**

As with other businesses, changes in ownership at an engineering firm frequently involve PGs. Should a new owner be unwilling to sign a PG, it could scuttle a deal. Also, the bank may refuse to release the guarantee of exiting owners.

**Business Partnerships and PGs**

When business partnerships expand, PG terms may not seem equitable to everyone. Say there are outstanding loans that required the original partners to sign a PG. While the additional partners dilute the equity stake of the existing partners, the PG risk of that original group remains constant. Why? Because the original partners likely have greater net worth and would be pursued first by the bank.

A simple inequality of personal assets or risk tolerance among partners can make for an uncomfortable experience should the business run into trouble.
The Regional Transportation District (RTD) serving the Denver, Colorado metropolitan area is in the middle of the largest voter-approved transit system expansion in the U.S. The FasTracks program, valued at $7.4 billion, includes the following deliverables:

- 122 miles of new rail service
- 18 miles of bus rapid transit
- 57 new stations
- 31 new Park-n-Rides
- 21,000 new parking spaces
- Redevelopment of Denver Union Station, an historic landmark

The RTD FasTracks Program consists of 12 construction projects. RTD Capital Programs comprises 25 smaller projects for the maintenance and repair of existing infrastructure. The multiparty teams for these projects include hundreds of individuals across dozens of organizations.

RTD Enterprise Records and Information Manager Brian Starck said: “On a program as large as FasTracks, everyday tasks can turn into major roadblocks if project teams spread across eight counties and dozens of projects can’t collaborate effectively. We knew that we needed a combination of good teamwork and great document control practices to help us speed information transfer and resolve common communication issues.”

Project Information Challenges

With so many teams on so many projects, RTD and its teams faced a number of process and information management challenges at the outset:

- **File retention** – requirements vary by department and file type, and files for each project must be retained within each organization.
- **Funding records** – multiple public and private funding sources require up-to-date records for each project.
- **Multiple contract types** – general contractor, public-private partnership (PPP) and design-build projects have different contracts covering data ownership and workflow guidelines, all of which need to be managed for each project and across both programs.
- **Document control bottlenecks and duplication of effort** – project data from internal document management systems and contractors needs to be collected and published separately for access by appropriate members of the project team.
- **Different document control processes** – each organization on each project tends to follow a different process in sharing documents and other project information, which impacts workflows and may affect schedules.
- **Information siloes** – as a result of document control process differences and bottlenecks, project data can remain ‘silied’ within the internal systems of different parties rather than shared with the teams as needed.

RTD met these challenges by deploying the Aconex Online Collaboration Platform to capture all data for the FasTracks and Capital Programs projects.

Secure, Central Repository for Project Data

On RTD’s selection of Aconex, FasTracks/Capital Programs Document Control Manager Lisa Vallejo-Dorrance said: “With these large programs, it requires cooperation from municipalities and agencies and all the key stakeholders. Cooperation requires collaboration, and Aconex provides us with that.”

The Aconex platform enables the RTD project team to capture and manage all project data in one secure, neutral location. Built-in workflows automate essential processes such as review and approval, with an audit trail to manage version control and accountability. Using the Aconex system as a central repository for documents and correspondence allows project team members from different organizations to collaborate with each other while...
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You’ve always worked collaboratively on engineering and construction projects.

Now you can do it right.

Your projects have always been about collaboration – it’s what gets engineering and construction work done. But unlike email, spreadsheets and file sharing sites, an online collaboration platform like Aconex is collaboration done right. For your projects, it means all documents, correspondence and business can be managed in one agreed and consistent way.

Like you, Aconex works on delivering major projects every day. We’re the world’s most widely used project collaboration platform, proven on 12,000 projects worldwide so far.

From energy and resources projects, to the expansion of the Panama Canal, to RTD Denver’s multi-modal transit program, to highways, railways, hospitals and schools, we help owners, engineering firms and project managers to deliver projects on time and within budget, improving returns and reducing risk.

Aconex is pleased to participate in the ACEC 2013 Annual Convention and invites you to join our “Big Data is Everywhere” presentation at the CIO/CFO Council Symposium Luncheon on Tuesday, April 23, 2013 from 12 to 2pm.

Results and ROI

The Aconex platform saves RTD document controllers significant amounts of time that would have been spent in collecting project documentation and distributing it to other team members. Faster document management – combined with the ability to grant data distribution rights to team members – accelerates project ramp-up across FasTracks and Capital Programs.

Lisa Vallejo-Dorrance commented: “On the Eagle P3 project, we were able to implement Aconex not only for RTD, but also for the entire concessionaire team and all the stakeholders within four weeks…and that was crucial. We were able to start loading documents right after the contract was awarded. Everybody jumped on board, and we were up and running in no time.

“Formerly, we had to have three document controllers to support only a medium size project. With Aconex, we are going to support over 40 projects with a staff of nine. And that is huge in terms of cost savings. Aconex is allowing RTD to lead one of the most innovative projects in the country.”

In Sept. 2011 RTD was awarded the “Best Team Award” from Constructech Magazine for use of Aconex on RTD FasTracks projects.

Lisa Vallejo-Dorrance commented: “Our constant goal in the implementation of the FasTracks program is to maximize the value of every dollar spent. An online collaboration platform should save the program significant time and resources, helping us to reach our milestones faster and more efficiently, and hopefully providing better risk management and the highest levels of build quality and program transparency.”

Estimated project gains through the use of Aconex online collaboration platform

<table>
<thead>
<tr>
<th>Gain Type</th>
<th>Estimated Total Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce direct costs</td>
<td>0.02%</td>
</tr>
<tr>
<td>Boost productivity</td>
<td>0.23%</td>
</tr>
<tr>
<td>Accelerate competition</td>
<td>0.42%</td>
</tr>
<tr>
<td>Avoid disputes</td>
<td>0.90%</td>
</tr>
<tr>
<td>Reduce reworks</td>
<td>1.69%</td>
</tr>
</tbody>
</table>

Total cost savings measured: $1,160,000 over the next 3 years.

In Sept. 2011 RTD was awarded the “Best Team Award” from Constructech Magazine for use of Aconex on RTD FasTracks projects.
Deltek-ACEC Study Shows Steadily Improving Financial Picture for Firms

The 2012 Deltek Clarity Architecture & Engineering Study, undertaken in collaboration with ACEC, revealed that A/E firms overall are experiencing improved profitability even in a slow-growing economy.

The study compares 2012 data on the four most important operating metrics for A/E firms: net labor multiplier, utilization rate, overhead rate and operating profit rate. More than 200 U.S. and Canadian A/E firms participated in this year’s study, the 34th edition.

The net labor multiplier, a measure of markup on labor costs, has been relatively flat over the past three years among surveyed firms, fluctuating between 2.85 and 2.95.

The utilization rate (also known as chargeability), which measures the percentage of total staff labor charged to projects, rose in 2012 from 58.3 percent to 59.9 percent and now is up more than 5 percentage points since bottoming out two years ago. Yet, it still has room for improvement—it was at 63 percent in 2004.

The overhead rate dropped by more than 10 percentage points last year from its peak in 2011. Overhead is now at the lowest rate since the recession began. The key drivers here are increasing utilization, which decreases labor charged to overhead, and a continued focus on cost control. The overhead rate is calculated by dividing total overhead (before distributions) by total labor expense.

After reaching a decade low in 2009 at 8.35 percent, operating profit rates continued to rise steadily to 10.13 percent last year.

Profitability Performance Trends

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Labor Multiplier</td>
<td>2.85</td>
<td>2.95</td>
<td>2.91</td>
</tr>
<tr>
<td>Utilization Rate</td>
<td>54.5%</td>
<td>58.3%</td>
<td>59.9%</td>
</tr>
<tr>
<td>Overhead Rate</td>
<td>165.0%</td>
<td>172.5%</td>
<td>161.6%</td>
</tr>
<tr>
<td>Operating Profit Rate</td>
<td>9.10%</td>
<td>9.26%</td>
<td>10.13%</td>
</tr>
</tbody>
</table>

Source: 2012 Deltek Clarity A/E Study

COPS Provides 7 Baselines For Business Practices

Business management and safety risks are critical concerns for surveying firms. To address these issues, the Council of Professional Surveyors (COPS) created Seven Baselines of Business Practices.

The seven baselines are (1) culture, (2) planning, (3) education, (4) contract documents, (5) policy and procedures, (6) communications and correspondence, and (7) technical tools and documents. Each includes worksheets and sample documents for surveyors to use in the daily running of their businesses.

In addition, COPS has released two more products. Baseline 6-4: Note to Property Owners will help firms explain why a survey is being done and make it easier to request information that may help, such as maps and/or personal knowledge. Baseline 2-4: Site Specific Safety Analysis identifies health and safety issues and lists relevant procedures for project personnel to follow on a per-site/per-project basis. The analysis gives all personnel a place to communicate health and safety concerns and allows for documentation of proactive remediation. All of the COPS-developed products are available at www.acec.org/bookstore.

Engineers Explain Complex Technical Issues in Judicial Proceedings

Experts are vitally important to American jurisprudence. They not only review and evaluate complex technical issues, but explain them in simpler terms to juries/triers of fact. Hundreds of engineers have been trained over the last four years in the fine art of providing effective legal testimony through ACEC’s Expert Witness Program. Though many may think the training focuses on what to do when being cross-examined by the opposing attorney, the bulk of the information covers what occurs outside of the courtroom during discovery, depositions and writing reports.

Become a Confident Engineering Expert Witness takes attendees step-by-step through the ramifications and expectations of serving as an expert witness. The course is for engineers, architects and surveyors interested in gaining recognition as an expert witness or adding this to their client services. The next day-and-a-half course is June 20–21 in Chicago.

For the complete course outline and to register, visit http://www.acec.org/education/eventDetails.cfm?eventID=1420.
2013 Capital Strategies and M&A Forum
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This Forum will bring A/E/C, Environmental Consulting, and Government Programs firm leaders together to discuss capital and merger & acquisition strategies and opportunities that firms can utilize in today’s market as they continue to build value in their businesses.

DR. BARRY ASMUS
WEDNESDAY DINNER
“Distilling the Current Economic Issues Impacting Your Business”
Senior Economist with the National Center for Policy Analysis

WILLIAM C. (BILL) SIEGEL, P.E.
TUESDAY BREAKFAST
“Adapt or Perish”
President and CEO, Kleinfelder

ALAN KRUSI
TUESDAY LUNCHEON
“M&A Matchmaking: Choosing the Best Partner”
President, Strategic Development, AECOM

MIKE BARNICLE
WEDNESDAY LUNCHEON
“The Price of Politics Today”
Veteran print and broadcast journalist, radio personality and social and political commentator

SESSIONS INCLUDE
- Measuring Cultural Fit Early to Maximize Deal Success
- Financing Transactions in the Current Market
- Corporate Finance Opportunities, Strategies & Techniques Using ESOPs
- Private Equity: Positioning Your Firm with a Financial Partner
- Avoiding Risky Business—Lessons From Real Life
- In the A/E/C Game—Does Size Really Matter?...Surprising findings about the ENR 500 since 1977
- Exit In A Lawful Manner: The Legal Side of Exit Strategies
- Navigating Internal Transition Strategies: How Can You Stay Independent?
- Organic Growth: Tax and Accounting Considerations to Recapitalize and Grow Your Business

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On The Move

Dan Meckes was named chairman and CEO of Crawford, Murphy & Tilly, Inc., of Springfield, Ill. He succeeds Brian Whiston, who recently retired after 41 years. Meckes, who is based at the firm’s St. Louis, Mo., office, will retain his role as president. He is also secretary/treasurer for ACEC/Missouri.

Atkins named Joe Boyer CEO of its North American region, succeeding Maj. Gen. L. Dean Fox, USAF (Ret.). Boyer is based at the firm’s Austin, Texas, office.

ARCADIS COO Gary Coates will succeed Steven Blake, who will retire June 1, as CEO of ARCADIS U.S., in Highlands Ranch, Colo. Zack Smith, chief strategy and sales officer for ARCADIS U.S., was nominated to assume Blake’s post on the ARCADIS executive board. If approved, Smith would also assume responsibility for the firm’s Latin America business.

Schnabel Engineering in Glen Allen, Va., promoted Walter Rabe to executive vice president. Rabe is based at the firm’s Sterling, Va., office.

Timothy B. Wall, COO of CDM Smith, was promoted to president. He is based at the firm’s Cambridge, Mass., headquarters.

Kansas City, Mo.-based HNTB Corporation named Philip Petrocelli president of the firm’s West Division, where he will oversee infrastructure programs in growth markets, including rail/transit, tolling and aviation. He will be based at the firm’s Irvine, Calif., office.

Los Angeles-based AECOM Technology Corporation appointed Andrew D. Peters senior vice president and chief safety officer. Peters, who will lead the company’s worldwide Safety, Health and Environment organization, is based at AECOM’s New York City office.

T. Baker Smith Celebrates 100th Anniversary

One hundred years and three generations of Smith family leadership has helped T. Baker Smith grow into an ENR Top 500 firm with more than 300 employees.

Starting his firm in 1913 as a one-man surveying and civil engineering operation bearing his name, T. Baker Smith initially helped design southeast Louisiana’s early infrastructure of roads, bridges and utilities systems.

T. Baker’s son, Wm. Clifford Smith, succeeded him at the firm in the early 1950s, and Clifford’s son, Kenneth, joined the firm in 1980; he became president and CEO in 2001. “I am proud and honored to carry my grandfather and father’s legacy into the next century,” says Kenneth Smith, who is also ACEC/Louisiana PAC Champion and a longtime member of the ACEC/PAC Capitol Club.

In 2002, Kenneth led a company expansion that added T. Baker Smith offices in Houston, along with Thibodaux, Lafayette, and Baton Rouge, La. The firm more recently opened offices in Shreveport, La., and San Antonio.

Anniversary Awards

At Pennoni Associates’ 2013 Ellipse Awards Ceremony (from left): Pennoni Founder and Chairman C.R. “Chuck” Pennoni, former Pennsylvania Governor Ed Rendell, Congressman Bill Shuster (R-Pa.), former Congressman Bud Shuster (honoree) and ACEC President Dave Raymond
Welcome New Member Firms

ACEC/Alabama
G. W. Jones & Sons Consulting Engineers, Huntsville
Sawgrass Consulting, LLC, Theodore

ACEC/Arkansas
Myers-Beatty Engineering, PLLC, Van Buren

ACEC/California
Advanced Engineering & Consulting, Canoga Park
Huffman Engineering and Surveying, Santa Rosa
Parisi Transportation Consulting, Mill Valley
Salontai Consulting Group, LLC, Rancho Santa Fe

ACEC/Colorado
ALTUS Environmental, LLC, Boulder
Jirs Hedrick & Associates, Inc., Greenwood Village
Leverington & Associates, Inc., Pueblo

ACEC/Connecticut
Zuvic, Carr and Associates, Rocky Hill

ACEC/Florida
CORE Engineering & Construction, Inc., Winter Park
Ellis & Associates, Inc., Jacksonville
INTERA Incorporated, Jacksonville

ACEC/Georgia
Bowman and Company, LLC, Macon
Facility Design Group, Smyrna

ACEC/Idaho
Triangle Consulting, LLC, Osburn
Yanke Energy, Inc., Boise

ACEC/Illinois
Bowman Consulting Group, Ltd., Chicago
C. C. Johnson & Malhotra, P.C., Chicago
Chicago Testing Laboratory, Warrenville
Edwards Engineering, Inc., Elk Grove Village
Geocon Professional Services, Frankfort
Gonzalez Companies, LLC, Belleville

ACEC/Indiana
Certified Engineering, Inc., Indianapolis
Quality Environmental Professionals, Inc., Indianapolis

ACEC/Louisiana
Industrial Engineering Management, Inc., Baton Rouge
Principal Engineering, Inc., Mandeville

ACEC/Michigan
Ziemnick Foster Engineering, LLC, Grand Ledge

ACEC/Mississippi
Covington Civil & Environmental, LLC, Gulfport

ACEC/New Jersey
GEOD Consulting, Inc., Newfoundland

ACEC/New Mexico
ACES Engineering, Farmington
Broders & Paxton Consulting Engineers, Inc., Albuquerque
Coupland-Moran Engineers, Inc., Albuquerque

ACEC/North Carolina
Davis & Foyd, Inc., Hickory
Harris Engineering, Charlotte
Summit ECS, Inc., Raleigh
The John R. McAdams Company, Inc., Durham

ACEC/Oklahoma
ASAG Energy, Oklahoma City
Mehlburger Brawley Engineering, Tulsa

ACEC/Oregon
Breshears/Thorton Engineering Consultants, Ltd., Portland

ACEC/Tennessee
Fulghum, MacIndoe, & Associates, Inc., Knoxville

ACEC/Texas
Engeneering, LLC, Houston
Baer Engineering & Environmental Consulting, Inc., Austin

ACEC/Wisconsin
GESTRA Engineering, Inc., Milwaukee
Houle Enterprises, Oshkosh

Charles Crook Consulting, Inc., Arlington
Charles Gojer and Associates, Dallas
CivilCorp, LLC, Victoria
Cleary Zimmerman Engineers, San Antonio

Core Engineering, LLC, Corpus Christi
Corsair Consulting, LLC, Round Rock
Dale W. Caffey Consulting Engineers, Inc., Carrollton
DeShazo Group, Inc., Dallas

Engineering Partners International, LLC, Kingwood
Franklin Engineers and Consultants, Pearland
Gupta & Associates, Inc., Dallas

Huckabee & Associates, Inc., Fort Worth
KSA Engineers, Inc., Longview
Leap Structures, PLLC, Austin

Morris Engineers, Inc., Tomball
Pinnacle Engineering, Inc., Houston
PKW Engineering, Houston

Republic Energy Operating, LLC, Dallas
Spadafina Engineering, Houston
Subsurface Technology, Inc., Houston

The Wallace Group, Inc., Waco
ZenTech, Inc., Houston

ACEC/Vermont
Trinity Engineering & Technical Services, Stamford

ACEC/Virginia
Rice Associates, Manassas
Williamsburg Environmental Group, Inc., Williamsburg

ACEC/Wisconsin
GESTRA Engineering, Inc., Milwaukee

WH, LLC, dba Western Heritage Consulting & Engineering, Mills

Additional information on all ACEC activities is available at www.acec.org.

Members in the News

Calendar of Events

MAY
29 Project Work Planning—The Process of Planning and Executing a Project (online seminar)
30 Health Care Reform—Implications for Engineering Firms (online seminar)

JUNE
4 Industry Economic Update: Light at the End of the Tunnel? (online seminar)
5 Ensuring Profitable Growth, Developing Winning Strategies for Solid, Measurable Results (online seminar)
10 Mysteries of the FAR Revealed—Using the AASHTO Audit Guide: Course One, Camp Hill, Pa.
11 From Ho-Hum to High Impact: Proven Strategies for Winning Project Interviews and Effective Owner Debriefs (online seminar)
18 If You Haven't Planned It, You Can't Control It (online seminar)
19 Left Brain, Right Brain: The Art of Engineering Persuasion (online seminar)
20-21 Become a Confident Engineering Expert Witness, Chicago
25 Public-Private Partnerships: Opportunities and Risk for Consulting Engineers (online seminar)

To sign up for ACEC online seminars, go to www.acec.org.
Prior to 2007, more than three-quarters of all deals annually in Canada involved a Canadian buyer. That percentage dropped to just 61 percent in 2012 as non-Canadian firms scrambled to enter hot Canadian energy and natural resources markets.

As of mid-April, international interest in Canadian engineering firms was trending higher, with four deals with Canadian sellers split between domestic and international acquirers.

If your firm is interested in entering the Canadian market through acquisition, here are two things to keep in mind:

1) Energy and independence go together, just not the way you think. In our experience, many engineering firms that support the energy sector rely on contract or part-time staff. These individuals are often treated legally as separate businesses. Such arrangements give employers flexibility to staff up or down based on project needs. Contract workers meanwhile are able to hedge the risk associated with a single employer or project while better managing annual income taxes. This scenario often presents challenges for an acquirer, as a long-time contractor likely maintains extensive client relationships and the buyer has little certainty the contractor will remain post-transaction. Owners of a selling organization heavily dependent on contract staff may have effectively inflated their profitability by being spared the expenses of payroll and other costs associated with regular employees. Acquisitions of contractor-dependent firms are possible but require greater due diligence and acceptance of additional risk by the buyer.

2) Consulting engineers who want to be an EPC. The engineer-procure-construct (EPC) business model is attractive to many Canadian engineering firms supporting mineral extraction because an EPC platform allows a firm to capture a greater portion of the value chain of a large capital investment by an oil and gas company. However, the relative experience of a consulting engineering firm and its ability to generate revenue and manage liability under an EPC contract must be thoroughly vetted. Buyers seeking consulting engineering firms should carefully consider the extent to which the procure/construct phases of a project are a strategic necessity or even possible in the event of an acquisition.

With its ample natural resources and specialized engineering practices, Canada will continue to be a target for buyers inside and outside the country looking to expand and complement their engineering needs through 2013.

Acec Deal Makers

Acec Member Firms are increasingly enhancing their businesses through mergers and acquisitions to better serve clients, access new markets and improve performance. Here are just a few of the recent Acec deal makers:

- On April 1, Acec member and 850-person consulting firm GAI Consultants (Homestead, Pa.) finalized its acquisition of 50-person Crispel-Snyder, Inc. (Lake Geneva, Wis.), also an Acec member. The acquisition will enhance GAI’s local government, transportation, real estate and energy market capabilities in the Midwest, while expanding the firm’s geographic presence and resources in Wisconsin.

- On March 8, Acec member and industry leader Parsons (Pasadena, Calif.) announced its acquisition of First Support Services, Inc. (Dallas) and its subsidiaries from First Group. First Support Services provides facility operations and maintenance services, logistics support, transportation support and telecommunications operations services to the U.S. government, including the U.S. Air Force and U.S. Navy.

To view the most up-to-date and “live” versions of the M&A heat maps accompanying this article, as well as the buyers and sellers in each state, go to www.morrisseygoodale.com. Mick Morrissey is managing principal of Morrissey Goodale LLC, a strategy, M&A and human capital solutions firm serving the A/E/C industry. He can be reached at mmorrissey@morrisseygoodale.com. Nick Belitz is principal consultant of Morrissey Goodale’s Denver office and can be reached at nbelitz@morrisseygoodale.com.

Watch the M&A Takeaway video that accompanies this article, presented by Mick Morrissey, at www.morrisseygoodale.com/AECECMergers/MayJune2013.
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**Network statistic based on GeoAccess information and UnitedHealthcare standard network access mileage criteria, 2010.