STANDING TALL
AMONG THE GIANTS

HWW SMAlL FIRMS COMPETE AND SUCCEED

>> Big Changes In Surveying
>> Spotlight on Environmental Restoration
>> ‘High-Efficiency’ Rail
THE NEW EPSON® SURECOLOR® T-SERIES

- Extreme plotting accuracy at resolutions up to 2880 x 1440 dpi
- Capable of producing a precise, color, D-sized plot in 25 seconds
- Advanced pigment ink technology for truly durable, full-color plots
- High-capacity ink cartridges up to 700 mL for low printing cost
- Space-saving design with easy access front-loading paper and ink

EPSON SureColor T3000 - 24" | $2,995
EPSON SureColor T5000 - 36" | $3,995
EPSON SureColor T7000 - 44" | $4,995

Speeds are based upon print engine speed only. Total throughput times depend upon factors such as computer file size, page resolution, ink coverage, and networking. For the SC-T3000, top speed for a D-sized plot is 28 seconds.

Prices are MSRP, before rebates. Please check with an EPSON Professional Imaging Authorized Reseller for actual price as dealer prices may vary.

EPSON and SureColor are registered trademarks and EPSON Exceed Your Vision is a registered logomark of Seiko Epson Corporation. Copyright 2012 Epson America, Inc.
Cover Feature

SMALL FIRMS STAND TALL AMONG THE GIANTS
Small firm executives offer their keys to success in a time of unprecedented challenge and change.

Departments

FROM ACEC TO YOU
Small firms address big marketplace challenges.

MARKET WATCH
High efficiency, not high speed, becomes primary rail focus.

LEGISLATIVE ACTION
Oregon lawmaker introduces ACEC-backed water bill; Council meets with Secretary Clinton on global infrastructure.

BUSINESS INSIGHTS
The leadership succession lifecycle; critical continuing education online, at your convenience; valuable tools, contracts and publications for mechanical/electrical firms.

NEW YOUNG PROFESSIONALS FORUM
Young professionals embrace ACEC’s new leadership forum.

MEMBERS IN THE NEWS
Stephen J. Hickox named CEO of CDM Smith; Kris Bauman joins Sam Schwartz Engineering as COO.

MERGERS AND ACQUISITIONS
Successful M&A integration not without its challenges.

2012 FALL CONFERENCE WRAP-UP
Highlights from ACEC’s fall meeting in Boca Raton, Fla.

THE SURVEY SAYS: TIME FOR CHANGE
How GIS technologies are transforming the land-surveying industry.

EARTHY IMPROVEMENTS
ACEC member projects reclaim environmentally compromised land for public and private use.

SMALL FIRMS STAND TALL AMONG THE GIANTS
Small firm executives offer their keys to success in a time of unprecedented challenge and change.

MEMBERS IN THE NEWS
Stephen J. Hickox named CEO of CDM Smith; Kris Bauman joins Sam Schwartz Engineering as COO.

MERGERS AND ACQUISITIONS
Successful M&A integration not without its challenges.

THE SURVEY SAYS: TIME FOR CHANGE
How GIS technologies are transforming the land-surveying industry.

EARTHY IMPROVEMENTS
ACEC member projects reclaim environmentally compromised land for public and private use.
Small Firms Address Big Marketplace Challenges

While three-quarters of the ENR 500—the largest A/E firms—are members of ACEC, it is the small firms—those with less than 50 employees—that constitute the majority of the industry and Council membership.

This issue of Engineering Inc. features the small firm—and its unique challenges and opportunities. (See page 8.)

ACEC addresses small firm needs in many ways, from management education and resources to important networking opportunities to government advocacy. The Small Firm CEO roundtable has become a valuable forum at annual meetings, and since 1990, ACEC’s Small Firm Council has advanced the business interests of small firms.

ACEC achieved several notable legislative and regulatory wins relevant to small firms over the past year, including a payroll tax increase on firms structured as S-Corps. The House also adopted legislation to prevent tax increases on S-Corps, LLCs, partnerships and other “pass-through” entities typical of small firms.

In addition, we influenced the U.S. Army Corps of Engineers to change how it measures small firm subcontracting goals, basing such goals on percentage of the total contract value. This, while benefitting firms of all sizes, should provide greater certainty for work by small firms on project teams.

Also featured in this issue is a report on how new GIS technologies are transforming the surveying industry (see page 18) and what a shift in the rail and transit sectors from high speed to high efficiency means for future engineering opportunities. (See page 4.)

We had an outstanding Fall Conference in Boca Raton, Fla. (see page 14), and hope to see you again at our Annual Convention in Washington, D.C., April 21–24.

Ted C. Williams
ACEC Chairman

David A. Raymond
ACEC President & CEO
You've built your business on quality and precision. But no matter how well-trained or careful you or your employees are, mistakes can and do happen. In today's litigious society, those mistakes are increasingly leading to lawsuits for engineering firms everywhere.

That's why having the right professional liability coverage—designed specifically for engineers—is critical to the future of your business.

As fellow engineers, the ACEC Business Insurance Trust (BIT) team understands the unique liability risks you face every day in your business. By working with the insurance experts at Marsh, we can help you get the right professional liability coverage—at the right price—for your business.

ACEC BIT Professional Liability Insurance can give you:

- Protection from claims and lawsuits
- Competitive premiums through access to multiple markets
- Comprehensive coverage
- Expert legal counsel and defense of claims and lawsuits

GET A FREE QUOTE TODAY!

Professional liability coverage developed exclusively for the needs of engineers.

Call the Marsh insurance experts:

800.338.1391

or visit www.acecbit.com
High Efficiency, Not High Speed, Becomes Primary Rail Focus

The U.S. railway and transit sector is increasingly shifting its focus from high-speed rail to high-efficiency rail. The new challenge: how to squeeze more trains per hour out of a largely static and strained domestic railway system.

High-speed rail was a cornerstone of the Obama administration’s plan for enhancing the nation’s transportation infrastructure. Politics and ongoing financing issues have dogged many of the more ambitious high-speed rail plans from the start.

“Unless our nation finds a way to create a huge funding source that would be required to create a network of high-speed rail, it will just be more rhetoric than what we can actually do,” reasons John Kurgan, executive vice president and chief operating officer of Michael Baker Corporation in Moon Township, Pa.

One place where high-speed rail is advancing is California. The state legislature recently approved $4.7 billion to start building an initial 30-mile segment in 2013. Despite the progress, many in the state question whether the full project—an 800-mile route linking San Francisco to San Diego at an estimated cost of $68 billion—will ever be completed.

Demand for Rail

While some high-speed projects face uncertainty, traditional rail systems are in high demand. Passenger and freight rail sectors have reported rapid growth in recent years, and forecasts point to continued expansion through the coming decades.

Commuter rail passenger trips increased from 268 million in 1980 to 464 million in 2011, according to the American Public Transportation Association (APTA); light-rail passenger trips jumped from 133 million to 488 million; and heavy passenger (subway) rail trips increased from 2.1 billion to 3.6 billion.

APTA statistics show that 2011 saw the second-highest number of passenger trips since 1957; in the first quarter of 2012, ridership was up 5 percent. By 2040, APTA forecasts total rail passenger trips will nearly double, from 4.4 billion in 2011 to 8.3 billion.

Freight rail is another area of strength. According to the U.S. Department of Transportation, tonnage carried by the nation’s freight railways will increase by 33 percent by 2040, to 2.4 billion tons annually.

On the passenger side, Amtrak reported a surge in ridership. The national railroad recorded its highest annual ridership ever in 2011—topping 30 million passengers, almost double the number from 2000.

“Gas prices will continue to rise, and that will push people toward mass transit,” says Stu Lerner, vice president in Stan-tect’s Transit and Rail Sector, North America. “Rail is also more sustainable, and we’ve found that the younger generation is more apt to use transit.”

Smarter Rail

The increased demand for rail has exposed a major shortcoming of the current system. The vast majority of the nation’s 145,000 miles of track exists in rail corridors that cannot be expanded—and many of those corridors are already operating at peak capacity.

Some improvements in efficiency can be realized by modernizing sections of track to provide incremental increases in speed, but railroads are increasingly banking on more technological solutions.

For instance, “The railroads are among the largest investors in information processing,” says Anthony Hatch, a freight railway analyst in New York City. “They’ve developed the ability to drive huge masses of information in close to real time.”

“The Smarter Railroad,” a report from IBM, says that railways are developing “mobile condition-based monitoring systems” to provide real-time analysis of the operating...
condition of individual cars. Further out, these systems will “sense changes in infrastructure, such as metal fatigue in overpasses and concrete fissures in ties, and notify work crews, procurement offices and public entities,” the report says.

Railways are also increasingly integrating intermodal freight, the fastest-growing freight rail sector in the past 25 years. “We’re working with a number of railroads to improve their intermodal facilities,” Kurgan says.

On the passenger side, the focus has shifted to computer-controlled, driverless trains. “The big urban metro systems can’t expand their stations. They can’t make longer trains or bigger trains,” says Amjad Bangash, managing director of global rail for Bechtel Civil. “They’re concentrating on increasing the number of trains per hour. In some systems, such as Hong Kong, they have trains stacked right behind each other, running every minute to a minute and a half.”

Where the Growth Is

In several parts of the country, demographic and economic developments are driving the expansion of the U.S. rail network. Hatch says North Dakota is the fastest-growing state for rail use, largely because of the Bakken oil shale formation. To move a projected 1 million barrels per day of crude oil by 2015 to refineries, drillers rely primarily on rail transit, which is cheaper than trucking and more flexible than pipelines. It’s also an economical way to deliver inbound materials; each new oil well requires 23 railcar loads of materials during construction.

Rail is also having an impact on food transport, says Hatch. Global climate trends suggest that the United States will soon become an even larger exporter of food, prompting modernization and expansion of the rail network throughout the grain-producing Plains states. Hatch says the Gulf Coast will see a regeneration of the chemical industry and that even some parts of the Rust Belt, such as Pittsburgh, may undergo reindustrialization that requires updating existing railways.

Passenger-rail growth is largely concentrated in urban areas of the country. The 11-mile, $1 billion Central Corridor Light Rail system connecting Minneapolis and St. Paul is the largest public works project ever undertaken in Minnesota. California’s Bay Area Rapid Transit is looking to extend deeper into the San Jose area. Seattle’s Sound Transit is expanding across Lake Washington. And the $5.6 billion Metro Silver Line project, part of the Washington Metropolitan Area Transit Authority’s effort to connect Virginia’s busy Dulles Airport to its western suburbs, is halfway complete.

For metro areas that cannot afford the significant upfront investment of light rail, bus rapid transit (BRT) is a popular interim step, says Kurgan. “They’re planning out routes with buses and then will put in rail if there is enough demand,” notes Kurgan, who is working with the Connecticut Department of Transportation on a BRT connector between Hartford and New Britain. “The Federal Transit Administration has been very encouraging of starting lines as bus rapid transit.”

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

Statement of Ownership, Management, and Circulation

Engineering Inc. (USPS 0067395) is published (6-monthly) six times a year by the American Council of Engineering Companies.

The mailing address of the publication is 1015 15th Street, NW, 8th Floor, Washington, D.C. 20005. The mailing address of the publisher is 1129 20th Street, NW, Suite 700, Washington, D.C. 20036. The publisher is TMG, the editor is Andrea Keeney, and the managing editor is Corey Murray. The owner of the publication is the American Council of Engineering Companies.

There were 23,123 copies of Engineering Inc. published for September/October 2012 issue; the average for the preceding 12 months was 21,336. The paid/requested outside county mail subscriptions for the September/October 2012 issue were 21,957; the average for the preceding 12 months was 20,429. The other classes mailed through USPS for the September/October 2012 issue were 686; the average for the preceding 12 months was 597. Total distribution for the September/October 2012 issue was 22,643; the average for the preceding 12 months was 21,026. Copies of Engineering Inc. that were not distributed during the September/October 2012 issue (office use, leftovers) was 319.

The percent paid/requested circulation for the September/October 2012 issue was 97%. The average percent paid/requested circulation for the preceding 12 months was 97%.
Legislative Action

‘Fiscal Cliff’ Awaits Post-Election Face-Off

Congress was unable to resolve important tax and spending issues before the election. It will return in mid-November to address outstanding matters.

If Congress does not act, tax rates on individual income, capital gains, dividends and estates will increase on Jan. 1, 2013. Federal spending, meanwhile, is slated for a $109 billion cut because of a failed 2011 budget deal.

Plans have been floated to approve a six-month or one-year extension of most or all tax provisions in an effort to avoid the economic impact of a massive tax increase. An agreement on these issues would likely include some spending cuts, and Congress may also direct itself to pursue comprehensive tax reform.

ACEC has urged Congress to prevent the tax increases and protect infrastructure funding from automatic spending cuts.

ACEC Provides Feedback To FHWA on Proposed Regulations

ACEC submitted extensive comments on regulatory changes proposed by the Federal Highway Administration (FHWA) on rules governing engineering and design services on federal-aid highway projects.

Key provisions in the rulemaking include clarification of acceptable procurement methods and procedures, including specific measures for complying with the Brooks Act. FHWA also proposed to update its requirements for state Department of Transportation (DOT) oversight of contracts and program administration.

The Council supported most of the proposed changes as consistent with current law and best practices. ACEC recommended certain improvements to promote efficient contracting and protect the interests of Member Firms.

ACEC objected to proposed limitations on the services that could be performed by firms already contracted for program management. The overly broad restriction could interfere with routine and beneficial project services offered by firms, such as feasibility studies, constructability reviews and environmental permitting.

Significant attention was given to the section on audits and allowable costs, an area of heightened interest among DOTs and A/E firms. The new regulations would provide more detail on establishing indirect cost rates and assessing the reasonableness of direct salaries, consistent with Federal Acquisition Regulation cost principles. The agency also identified the factors that should be used in setting fixed fees, including project size and scope, complexity, duration, risk and the nature of the services provided.

ACEC also asked the agency to restrict the use of broad form indemnification clauses in contracts. Several state and local transportation agencies have included onerous indemnification provisions in contracts that would expose firms to limitless and uninsurable liability for any and all claims arising out of a project. The Council told FHWA that subjecting firms to these provisions will deter qualified firms from competing for work and thereby undermine open competition and effective program delivery.

FHWA will review the public comments submitted for the record over the next several months. A final rule could be published sometime in spring 2013.

Council Meets With Secretary Clinton on Global Infrastructure

ACEC International Committee Member Firms recently participated in an invitation-only inter-agency conference—hosted by Secretary of State Hillary Clinton—on opportunities in the global market.

ACEC urged Secretary Clinton to eliminate domestic and international hurdles for U.S. firms operating overseas.

Member Firms that participated in the event included Bechtel, Black & Veatch, CDM Smith, CH2M HILL, Collins Engineering, Dewberry, HDR, Jacobs Engineering, MWH Global, Parsons Corp., Sheladia Associates, Stanley Consultants, Tetra Tech, The Louis Berger Group, The Shaw Group and URS Corp.
Congressmen Support ACEC ‘Municipal Advisor’ Concerns

House Financial Services Committee Chairman Spencer Bachus (R-Ala.) and Rep. Robert Dold (R-III) are supporting ACEC’s position that the Securities and Exchange Commission (SEC) is exceeding congressional intent in regulating engineering activities under the new federal “municipal advisor” rule.

Enacted as part of the Dodd-Frank financial services reform law, the provision requires firms that advise state and local governments on matters related to municipal financing to register with the SEC.

Although Congress included an exemption from registration for “engineers providing engineering advice,” the SEC’s proposed rule narrowly interpreted the exemption, excluding cash-flow modeling and certain feasibility studies from its definition of engineering advice.

ACEC is urging the SEC and working with Congress to correctly define “engineering advice.” The House passed legislation in September (H.R. 2827), narrowing the requirements for who must register as a municipal advisor with the SEC, but did not address the engineering exemption.

The SEC also announced that it needs additional time to finalize its municipal advisor registration rule, and has extended the temporary registration system until Sept. 30, 2013.

Oregon Lawmaker Introduces ACEC-Backed Water Bill

Rep. Earl Blumenauer (D-Ore.) has introduced H.R. 6249, the Water Protection and Reinvestment Act of 2012. The ACEC-supported measure seeks to establish a water protection and reinvestment trust fund, financed through small excise fees on certain beverages and other household products.

The Oregon lawmaker wants to secure a long-term solution to what the Environmental Protection Agency estimates is $187.9 billion in wastewater needs over the next 20 years.

Nearly three-quarters of the funding created by the Water Protection and Reinvestment Act would be distributed as grants through the existing Clean Water State Revolving Fund to capitalize state funds, which would then be used to provide loans to publicly owned treatment works for wastewater treatment construction to meet Clean Water Act requirements and provide sewage services.

The legislation would also provide additional incentives for green infrastructure and water efficiency as well as funding for state efforts to prevent and control pollution.

A portion of the program’s funds would be set aside for grants, and additional funding would be made available for technical assistance to small wastewater treatment facilities.

“We have dedicated funding for the nation’s transportation systems,” said Congressman Blumenauer. “It’s time to establish a similar trust fund to finance clean water infrastructure. We cannot continue to place the burden of protecting public health, restoring the environment, and reducing pollution on communities and individuals who are simply unable to afford it.”

For More News

For weekly legislative news, visit ACEC’s Last Word online at www.acec.org.
Darryl Anderson knows the opportunities—and potential headaches—associated with running a small engineering firm. For more than three decades, the Lakeview, Ore.-based engineer has worked with homeowners, local municipalities and other partners on myriad surveying, water treatment, material testing and geotechnical projects. “We find ourselves constantly competing against larger firms with more resources,” he says. “Although we have managed to carve out a niche and gain a reputation, it’s a constant struggle to land projects and sell our services.”
Despite the challenges, Anderson, president of Anderson Engineering & Surveying, Inc., says he wouldn’t trade the uncertainties of small firm ownership for a job at a larger firm. He loves his work, is involved in his local community and has managed to carve out a decent living. And he enjoys the sense of autonomy and broad scope of engineer-
ing challenges he encounters on a given day. “There is always something new and interesting going on,” he says. “When you work at a small firm, you are constantly pushed to be innovative and creative.”

Anderson isn’t alone. Though large engineering firms dominate the headlines, the nation’s small firms remain a core component of the industry. While ACEC serves engineering firms of all sizes, 80 percent of its membership consists of firms that have 50 or fewer employees.

How do small firms cope with the realities of a lingering recession? How do they manage information technology and match the offerings and capabilities of larger firms? And how do they address the growing spate of regulations that ensnare all businesses? There’s no single template for navigating today’s business environment, but there are common best practices. As Anderson puts it, “You have to remain flexible and agile and constantly adapt to change. When you work at a small firm, you have to wear many hats and take on multiple roles.”

The Small Business Landscape

The small business landscape is fraught with risk. Owners of these companies typically lack the deeper pockets and resources of larger firms; they must handle an assortment of roles and, in many cases, depend on referrals and repeat business to achieve bottom-line results. What’s more, a prolonged economic slump and radical changes in the way work is done—largely a result of technological innovation—is redefining what it takes to succeed as a small company.

Anderson, whose firm operated two offices for 18 years before the economic slowdown forced the firm to shutter its Redmond, Ore., outpost in 2008, knows the effects of these pressures firsthand. The firm now has six employees who handle projects within a 100-mile radius encompassing southern Oregon, northern California and northwest Nevada. The circumstances are not always ideal. “In some cases, we have to do work for gratis or invest a considerable amount of time helping clients in order to get a project off the ground,” Anderson explains. Putting down roots in the community is especially important for small firms. Anderson has served on the local school board and several civic committees and commissions.

Rather than attempt to be all things to all people, many small firms survive, and often thrive, by establishing specific areas of expertise. Palmetto Engineering & Consulting, a Greenville, S.C., firm that specializes in industrial, electrical and telecom projects, has grown from just four engineers in 2006 to more than 100 employees today. Principal Gregg Hughes says his firm succeeded by leveraging relationships, serving as a quality solutions provider and loading up on talent, even when such investments meant higher up-front costs. “Our focus has always been on finding the best people,” he says. “It’s a winning situation for everyone.”

There is no substitute for talent. “We don’t have any room for fat or someone who doesn’t pull their weight,” Hughes explains. Every employee is expected to serve multiple roles and should expect to be forced outside his or her comfort zone.

Ed Parrone, president & CEO of Parrone Engineering in East Rochester, N.Y., points to personnel as the greatest indicator of whether a small firm achieves long-term success. “Employees can either make or break the profitability on a project,” Parrone says. “I am only as good as they are.”

The entrepreneurial and autonomous nature of small firms is doubtless part of their appeal; it’s also part of what makes the work so challenging, says Scott Braley, principal at Atlanta-based Braley Consulting & Training. Small firm executives sometimes have no choice but to fill skill and expertise gaps on short notice, as work arises. This means establishing a network of trusted pro-

---

**Success Stories**

What are the most important characteristics of a small firm?

**Darryl Anderson, President**

Anderson Engineering & Surveying, Inc.

“You need to be extremely flexible and match employees with the roles they’re best at. This approach builds loyalty and reduces turnover.”

**Gregg Hughes, Principal**

Palmetto Engineering & Consulting

“The ability to convert a new or existing relationship into actual revenue...requires a firm to build a reputation and put it to work.”

**Scott Miller, President**

Haley and Ward, Inc.

“Flexibility, particularly in terms of employees and skills, is essential. This translates into a lot of cross-training. It’s important to take care of the company as well as the clients.”

**Matthew Murello, President**

Lewis S. Goodfriend & Associates

“It’s all about relationships and a confidence that you can do the work well. You will do what it takes to succeed—even when you have to learn and gain experience along the way.”

**John Woods, Principal**

Woods • Peacock Engineering Consultants

“We have invested heavily in information technology in order to stay ahead of the curve. This means hardware but also software systems, such as BIM. An emphasis on information technology helps differentiate a small firm.”

“When you work at a small firm, you have to wear many hats and take on multiple roles.”

DARRYL ANDERSON

ANDERSON ENGINEERING & SURVEYING, INC.
professionals and independent contractors ahead of time and having a mechanism in place to find talent on the fly. The latter can be aided by the use of social media and online professional networks such as LinkedIn.

The landscape is constantly shifting. Recent changes to Small Business Administration (SBA) Size Standards forced firms to adapt to a changing reality. The SBA raised the revenue threshold for small business engineering firms from $4.5 million to include those with annual revenues up to $14 million. “Firms that were relying on being competitive by being small just got a whole lot more competition,” Braley says of the change. “For the previously small firms, in particular, there is a growing anxiety: How can we compete effectively against those bigger firms that have so many more resources?” The net effect is smaller firms competing against larger firms, particularly for “set aside” work, he says. “It’s yet another headache related to going after work that is already scarce,” he adds.

“It brings more firms and larger firms, those with more resources, into the picture,” Par- rone says. “The pool is now much bigger, which makes competition for small firm–targeted dollars much more difficult.”

One option for smaller firms is to contract with larger ones. John O. Woods Jr., principal of 16-person, Alexandria, Va.-based Woods • Peacock Engineering Consultants, says cutbacks and economic pressures have opened the door for his and other small firms to chip in on bigger projects. On one hand, these projects are complex and highly profitable; on the other, they can be sporadic and unpredictable, he says.

Getting paid is also an issue. In some cases, it can take months. When working for government agencies, for example, there’s no remedy for inefficient accounts payable departments, Woods says.

Small firms also often lack the breadth and depth of projects in their portfolio to impress bigger clients. “Unless you have a long working history with a client, it can be tough to get your foot in the door,” explains Scott Miller, president of Haley and Ward, Inc., a 115-year-old civil and environmental engineering services firm in Maynard, Mass. “But once you’ve got the connection, the opportunities can be substantial.”

The Benefits of Being Flexible
Smaller firms can use their flexibility and agility to their advantage. Today’s business environment allows companies to scale up and down very quickly and plug in expertise when and where it is needed. “In many cases, small firms are at an advantage because they can say, ‘We’re small, we’re agile, we’re flexible and we can accommodate your specific needs and the way you work,’” says Braley. “If you factor in the personal nature of business relationships, it can serve as a huge selling point.”

It’s working for Matthew Murello, president of Lewis S. Goodfriend & Associates, a six-person Whippany, N.J., firm that specializes in architectural acoustics and noise abatement. “Clients have my cell number and my e-mail address. They know that if they need to reach me for any reason, I’m available. By cutting out layers of bureaucracy, it’s possible to make decisions faster and address problems sooner than at a large firm.” The downside? “It’s never possible to go on an uninterrupted vacation.”

Technology Levels the Playing Field
The success of today’s small firm is heavily rooted in today’s information technology. Laptops, tablets, smartphones, videoconferencing tools, wireless networks and increasingly sophisticated software—including design modeling, collaboration tools and social media—have helped level the playing field for businesses of all sizes. In many cases, technology offers small firms the ability to bid on projects in otherwise hard-to-reach places and pro-

80% of ACEC membership consists of firms with 50 or fewer employees—even though 77% of ENR 500 also belong to ACEC.

ACEC’s Teaming Fair Makes Connections Count
One of the biggest challenges to running a successful small business is connecting to the marketplace and identifying available opportunities. Nowhere is the challenge greater than when working with the federal government. ACEC’s Teaming Fair—part of its annual Federal Markets Conference—is designed to bring together large and small A/E firms for work on government contracts.

During the event, large-firm representatives conduct one-on-one interviews with small firm representatives through a series of prescheduled appointments. Small A/E companies fill out a matrix of needs—including skills, location, experience and ownership categories. Large firms then identify the best possible matches and meet with those firms.

Last year’s event included 22 large-firm participants, including representatives from AECOM, URS, Jacobs, CH2M HILL and Tetra Tech. It also included representatives from the U.S. Air Force, U.S. Department of Energy, U.S. Department of Homeland Security, U.S. Department of Justice and the General Services Administration. As federal agencies increasingly turn to small firms to fill a variety of requirements, the Teaming Fair offers a practical way for small firms to market their skill sets and talent base to larger potential business partners and clients.

Plan to attend ACEC’s Teaming Fair during the 2013 Annual Convention, April 21-24, in Washington, D.C.
UNLOCKING THE POWERFUL POTENTIAL OF DATA requires the vision to see beyond the surface. The NYU Master of Science in Business Analytics for Executives prepares experienced business professionals to leverage data as a strategic asset to make better business decisions. Gain a distinct, competitive advantage in just 5 concentrated modules in New York and Shanghai.
cess work faster and more efficiently than at any point in the past.

Industry observers say the most successful small firms are frequently early adopters of technology and use it to build a more agile organization. They’re often able to move in and out of IT systems quickly—and adopt tools that make them more attractive to clients.

Staying up on the latest business and IT systems is not always easy given the demands of running a smaller operation. “Technology is a double-edged sword. It makes smaller firms more productive, but it also demands knowledge, training and resources to ensure that systems are installed correctly and used effectively,” says Miller. His firm has no problem forking over the money for project-specific software—so long as it can leverage the application for other clients in the future.

At Woods • Peacock, which specializes in structural engineering projects for the federal government, information technology—including BIM and AutoCAD Revit software tools—accomplishes two goals: It drives results and creates an environment that’s more attractive for younger engineers, many of whom want and are comfortable with emerging technologies.

“It’s important to give people the tools they need to succeed but also feel excited about their work,” explains Woods.

The Challenge Of Regulation
As the number of regulations associated with new and existing engineering projects grows, the burden on small firms and their limited resources increases.

“It constantly takes more time and money to comply with regulations,” says Anderson. “Things have gotten more complicated and frustrating.” But he and other small firm executives admit regulations aren’t always a bad thing; sometimes more regulation translates into more work. “Today, many organizations and government agencies lack the expertise or staff to deal with all the regulations,” Anderson says. “They require outside expertise and counsel.”

Not surprisingly, the Affordable Care Act is distinctly on the radar of small firms. Woods notes, for example, that while the act provides tax credits to small businesses, engineering firms largely don’t qualify for them. “We don’t have employees who earn less than $50,000 per year, and that’s probably true for engineering firms nationwide. It adds up to another challenge for small businesses.” Adds Murello: “Cost increases in health insurance, liability insurance and other requirements continue to add to the challenge of operating a small business.”

In the end, it’s crucial for small firms to distinguish themselves and forge a clear brand identity. Success and bottom-line financial results are heavily dependent on managing people, processes and technology effectively—in order to deliver the highest level of service at a reasonable cost, explains Braley. “The best small firms compete effectively by understanding their identity and what they really offer and then delivering superior results. They address the most basic and important client question: What can you do for me?”

Samuel Greengard is a business and technology writer based in West Linn, Ore.
The more than 750 attendees at the recent ACEC Fall Conference in Boca Raton, Fla., embraced the program’s thought-provoking speakers, comprehensive business management sessions and valuable networking opportunities.

Against the backdrop of a contentious national election season, Fall Conference attendees focused on three critical industry concerns: the increased threat of government competition; growing opportunities in energy, industrial and other private markets; and the need for broad public support for infrastructure investment.

“I thought the education sessions were great—especially the format and content,” said John Rathke, a first-time attendee from Mead & Hunt, Inc., in Green Bay, Wis. “Networking and the business discussions were the most valuable because you learn what firms are doing well and realize that we’re all dealing with the same issues.”
Forbes Publisher Rich Karlgaard predicted that “following the Great Recession will come the Great Reset,” which will include the reallocation of capital toward infrastructure and success for firms with streamlined business models.

Karlgaard said that “soft virtues,” such as design, will play an important role in the marketplace, and that “great design is more valuable than ever because it’s viewed as a proxy for intelligence.”

CNBC financial analyst Ron Insana said the U.S. economy is performing better than many experts projected, and that bodes well for engineers. “Things have improved in many ways, and I am very optimistic about the economy’s future,” Insana said. “I just don’t see the horror stories that others keep focusing on.”

Insana predicted that once lawmakers reach a deal to avoid the “fiscal cliff,” new near-term legislative directives will focus on infrastructure investment and advancing the electrical grid. All of which will usher in a “new dawn in America’s economy.”

For example, Insana said that while the ’70s was one of the nation’s worst economic decades, it also produced one of the greatest entrepreneurial periods, including the launching of Southwest Airlines, FedEx and Microsoft.
ACEC/PAC Raises Record $155,000 at Fall Conference; Rothenberg Emphasizes Lobbying Importance

Stuart Rothenberg, political analyst and publisher of the Rothenberg Report, praised the success of ACEC/PAC and emphasized that lobbying lawmakers on behalf of an industry or profession is becoming more crucial than ever.

“It’s really important to be involved in your PAC and support your organization’s lobbying efforts,” Rothenberg said. “Everyone is doing it: the trial lawyers, medical associations, service organizations. If you want your voice to be heard among all the others, you have to lobby. It’s important, and I encourage you to do more of it.”

ACEC/PAC had a strong showing at the recent 2012 Fall Conference, raising $155,000, surpassing the total of any previous Conference.

In the ACEC/PAC Sweepstakes, ACEC Senior Vice Chairman Blake Murillo, Psomas, won the $10,000 grand prize; Gregg Spagnolo, AECOM USA, Inc., won $5,000; and Scott Rathfon, Century Engineering, Inc., won $2,000. Bruce Alstaetter, S&ME, Inc.; Royce Conlon, PDC Inc. Engineers; Eli Khoury, HDR; and Don Sipher, Froehling and Robertson, each won $1,000.

ACEC Board Receives Praise From AASHTO’s Horsley, ISI’s Bertera

During a presentation before the ACEC Board of Directors, AASHTO Executive Director John Horsley credited the “long-standing partnership” between his organization and ACEC in achieving this year’s passage of the critical two-year federal surface transportation program.

“We kept the money steady, and the new streamlining provisions improve efficiency,” said Horsley. He added that the partnership still faces pivotal challenges. “The current program ends at the end of 2014, and unless we pass a new bill, funding for highways drops from $41 billion to $4 billion in 2015, and transit funding falls from $11 billion to $3.5 billion. We have a major challenge ahead.”

The Board of Directors also heard from Bill Bertera, executive director, Institute for Sustainable Infrastructure (ISI), who praised ACEC for its co-creation of ISI and described plans to credential 1,000 practitioners in the Envision™ rating system.

U.S. Corps Chief Bostick Praises Partnerships With Private Firms

Lt. Gen. Thomas Bostick praised U.S. engineering firms for helping the Corps deliver innovation and value to the nation.

“We get a lot of credit for things at the Corps,” Bostick told the audience, “but the quality of work that we produce is a direct reflection of engineering companies throughout the nation.”

He said at least 60 percent of Corps projects will continue to be designed by private A/E firms, and he noted that more than $34 billion in contracts were awarded to private A/E firms last year.

ACEC President Dave Raymond (center) compares regional differences in the meaning of “business casual” with Sergio “Satch” Pecori (left), CEO of Hanson Professional Services, based in Springfield, Ill., and William Siegel, CEO of Kleinfelder, based in San Diego.

Charles Gozdziewski, of Hardesty & Hanover in New York, and his wife, Ann, await the start of the ACEC/PAC Sunset Catamaran Sail.
CEO Panel on Growth Points to Core Expertise, Talent

Dean Fox, CEO of Tampa, Fla.-based Atkins North America, said firms must complete the hard work of streamlining operations and focusing on core competencies as a foundation for growth. “The best growth strategy is then to extend those core competencies into new markets,” he said.

At San Francisco-based Degenkolb Engineers, where stockholders have seen their stock value increase 12 percent annually over the past 30 years, Chairman Chris Poland underscored the value of talent. “We’ve built a business that is oriented around what our people want to do. Growth is a long-term process and people are the key element,” he said.

For small firms, “growth is expensive,” pointed out Gregg Hughes, founding principal of Palmetto Engineering and Consulting in Greenville, S.C. “You need to keep an eye on your balance sheet to ensure that you have enough reserves to finance growth opportunities when they appear.”

ACEC Thanks the 2012 Fall Conference Sponsors

Key Conference Sponsors
The ACEC Business Insurance Trust
Chartwell Capital Solutions
GeoSpec Systems, a Microsoft Partner

Supporting Sponsors
ACEC Retirement Trust
Deltek
XL Insurance

ACEC/PAC Sponsors
GOLD
Lockton Companies

Golf Tournament Sponsors
C&S Engineers
ms consultants
Strand Associates

SILVER
Degenkolb Engineers
Ponni Associates, Inc.

2012 College Of Fellows Inductees

- C. Douglas Cherry
  Cherry, Weber & Associates,
  Phillipsburg, N.J.

- Lauren Evans
  Pinyon Environmental Engineering, Inc.,
  Lakewood, Colo.

- Slade Exley
  Neel-Schaffer, Inc.,
  Jackson, Miss.

- Alain Gallet
  Terracon Consultants,
  Inc., Birmingham, Ala.

- Philip Houser
  Farnsworth Group,
  Inc., Bloomington, Ill.

- Stephen Lane
  Smith Seckman Reid,
  Inc., Nashville, Tenn.

- Kevin Kokal
  Alliance Engineering,
  Inc., Richmond, Va.

- Stuart D. Monical
  MKK Consulting Engineers,
  Greenwood Village,
  Colo.

- Sergio “Satch” Pecori
  Hanson Professional Services, Inc.,
  Springfield, Ill.

- Loren M. Steenson
  Lamp, Rynearson & Associates, Inc.,
  Omaha, Neb.

- Gregg Ten Eyck
  Leonard Rice Engineers, Inc.,
  Denver, Colo.

- James E. Owen
  MSA Professional Services, Inc.,
  Baraboo, Wis.
For more than 2,000 years, land surveying hardly changed at all. In one generation, it has changed completely.

The advent and explosive expansion of Geographic Information Systems (GIS) technology has rocked the surveying industry. With technological developments certain to accelerate in the coming years, surveyors must adapt to fast-changing market realities or risk being left behind.

By Gerry Donohue

Takeaways

Widespread adoption of Geographic Information Systems is forcing many surveying firms to rethink their business model.

The evolution of GIS technologies could lead to further consolidation within the marketplace.

New business opportunities exist for surveying firms that know how to sift and analyze data.

How GIS technologies are transforming the land-surveying industry, creating new opportunities for firms ready and willing to evolve.
“Surveyors justifiably take a lot of pride in their profession,” says Janet Jackson, president of Intersect GIS, a consulting firm that works with surveyors. “But they need to retool and change their business model or they’re going to go broke.”

Complete and Accurate Data
Since its inception, land surveying has been rooted in hands-on precision. The equipment has improved over the centuries, from the chains and levels of ancient Egypt to the astrolabes of the Middle Ages. The theodolite was introduced in the 17th century, evolving by the early 19th century into the transit, which was popularized by railroad engineers heading west. Transit technology entered the electronic age in 1971 with the introduction of the Total Station.

Despite many advances, one constant remained: To achieve survey grade levels of accuracy—plus-minus one centimeter—a crew of trained, properly equipped professionals had to go out to the site and take measurements.

The rapid growth of GIS systems over the past 20 years has fundamentally altered that dynamic. It’s suddenly possible to gather measurements using a wide variety of technology-based tools, ranging from a handheld global positioning system (GPS) unit that costs less than $100 to mobile scanners with price tags topping more than $1 million.

These tools, especially the more budget friendly, aren’t as detailed as traditional surveying mechanisms, but they don’t need to be, because the biggest growth sector in the field is the mapping of assets. Municipalities and property owners want to know what they have—the number of trees, the condition of the roads, the location of all the Starbucks. “The owners need accurate and complete data,” explains Jackson. “But it doesn’t need to be precise.”

The lack of precision was a big factor in the surveying industry’s initial resistance to GIS. Many surveying experts perceived it as a separate field.

“Surveyors misunderstood the purpose of GIS,” says Marcus Reedy, director of surveying and geomatics at David Evans & Associates in Portland, Ore. “They got hung up on the accuracy and didn’t recognize how they could use it.”

Surveyors also felt “threatened” by all the attention given to GIS, says Ammon Bush, senior manager for geomatics at Shumaker Consulting, Engineering and Land Surveying in Binghamton, N.Y. Looking to protect their market share, many surveyors hunkered down behind their state licenses. Critics tried to restrict what GIS could be used for and who could use it, but the technology continued to gain steam. Today, there is growing pressure in some states to allow GIS professionals to work in areas that currently require a surveyor’s license.

Computing Precision and Power
Surveyors continue to resist GIS at their own peril. Not only is the accuracy differential between GIS and surveying equipment rapidly narrowing, but the technology is saturating the market.

Some say it’s a matter of time before GIS equipment achieves survey-grade precision.

Providers are already testing the technology’s limits. GeoAutomation, a Belgian firm that produces a mobile-scanning system, employs a van equipped with 14 cameras. The van moves down the road at 55 miles per hour. Each camera takes 28 images per second.

“We specialize in very high accuracy positioning, especially in urban areas, where there is often limited GPS reception,” says Tony Saleh, COO of GeoAutomation, which has a North American office in Montreal. “In many applications, we can guarantee accuracy within one inch.”

While plus-minus one inch isn’t precise enough, Saleh draws a parallel to aerial photogrammetry. “Ten years ago, they could deliver accuracy up to three feet. Then it was two feet, then one foot. Today it’s six inches. We believe the same progression will happen with mobile mapping technology.”

Bush says that the technology may soon advance to a level where the general public will have access to affordable equipment with survey-grade precision.

At the same time, computing technology has made possible the storage and rapid analysis of nearly incomprehensible amounts of data. Where a survey crew produces data a point at a time, GIS generates terabytes. Surveying and Mapping, Inc., an ACEC Member Firm based in Austin, Texas, won an Honor Award in the 2012 ACEC Engineering Excellence Awards for its mobile Light Detection and Ranging (LIDAR) mapping of a seven-block area in downtown...
Austin, which project organizers say was conducted in a fraction of the time of conventional surveying methods.

McKim & Creed, a Wilmington, N.C.-based surveying and engineering firm, recently embarked on a pilot project using airborne LIDAR technology, which produces highly accurate measurements with sophisticated laser pulses.

“The equipment has become so good that we can get a couple-of-centimeter accuracy flying at 60 knots,” says Tim Cawood, senior vice president at McKim & Creed and former chairman of ACEC’s Council of Professional Surveyors. “If we’re doing a flood plain survey, we can cover a hundred miles a day or more.”

As the LIDAR scans the flood plain, it generates massive amounts of incidental data, such as width of roads, location of transmission lines, or wetlands boundaries, which creates tremendous additional value at little if any additional cost. McKim & Creed still employs more than 20 survey crews, but Cawood says the primary focus in the surveying industry has moved from the on-site collection of data to its management, analysis and presentation.

“Instead of having surveyors out in the field, GIS technology brings the field into the office in a virtual world,” says Cawood. “The prism pole is now a mouse.”

Industry Consolidation

For many surveyors, the transition from the field to the office has been difficult.

“A lot of these guys got into the business because they like being in the field. They like the trucks and the equipment,” says Jackson. “They don’t want to spend their days in front of a computer.”

Most surveying firms are small, local operations—70 percent don’t operate outside a 100-mile radius of their office—and their ownership is graying. “The average surveyor today is 58 years old,” says Brent Jones, global marketing manager for survey/cadastre/engineering at Esri, which manufactures GIS software. “That’s not a time when you want to spend $100,000 or more to transform your business for a new market.”

“Or more” is the operative phrase. One of GeoAutomation’s mobile camera vans costs more than $600,000; an airborne LIDAR setup can add up to more than $1 million.

While such large investments can set a firm apart from its competition, expenditures will soon be the price of admission. “Within 10 years, mobile scanning will be as common as GPS is today,” says John Matonich, president and CEO of Rowe Professional Services in Flint, Mich. Though these systems will become more affordable in time, other better, faster, more precise and more expensive technologies will compete to take their place.

Hardware is important. But to use these technologies effectively firms also must understand the software that helps navigate collected data. And that means training. “We already have a highly skilled staff,” says Matonich, “but we have to invest in some pretty sophisticated training to stay abreast of the demands and needs of some of our clients.”

The New Land Surveying Firm

These changes will likely shake the foundation of the surveying industry for years to come. The adoption of new technologies will likely lead to consolidation, with large firms boasting regional, national and even international reach. In turn, small firms, long the backbone of the surveying industry, will become increasingly marginalized.

Large companies have the financial muscle to invest in new technologies and training, and many are positioned within the broader marketplace to reap the benefits of those investments. “Transmission line mapping has been mandated for North America,” says McKim & Creed’s Cawood. “The owners of the utilities will hire companies to do low-altitude LIDAR. That’s going to be more than $1 billion in mapping.” Cawood says that low-altitude LIDAR will likely become the standard for mapping the nation’s huge transportation infrastructure network.

With larger firms moving to dominate the hot asset-management market, smaller surveying firms will find themselves in competition for legal and boundary work, which currently accounts for a shrinking 20 percent of the overall surveying market.

“With the growth of GIS, the opportunity for surveying firms is unbelievable,” says Esri’s Jones. “Surveyors know data. They know precision. They have the expertise. They can use their experience to manage the data, making sure it’s always there and always right.”

Says David Evans’ Reedy, “We’re definitely in the investment and growth mode for these new technologies; fully integrating GIS is our surveying business.”

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

**Celery Fields Revival**

**PROJECT:** Celery Fields Restoration, Sarasota County, Fla.

**FIRM:** Stanley Consultants, Muscatine, Iowa

They call it Celery Fields. For years, up until the 1980s, farmers used the large swatch of land in Sarasota County, Fla., to grow celery and other row crops.

When county planners decided to redevelop the fallow farmland as part of a $7.2 million Regional Stormwater Facility expansion project, they discovered high concentrations of arsenic in the soil, exceeding the maximum allowed limit of 2.1 milligrams per kilogram in a residential area.

To complete the project and answer the question of what to do with 1.2 million cubic yards of contaminated soil, county planners contracted with Iowa-based Stanley Consultants.

The firm’s duties included administering the construction contract and providing construction engineering and inspection services, such as field sampling and testing of concrete, asphalt and earthworks.

Finished in July 2011, the massive restoration project required planners to mitigate the potential for arsenic exposure while developing flood protection, develop a new wetland restoration habitat, add floodplain storage and treat more than 3,600 acres of stormwater runoff within the nearby Phillippi Creek drainage basin.

In addition to putting aside clean topsoil, the plan called for hauling 45,500 tons of arsenic-laden earth from multiple sites and reusing it to create an 85-foot observation mound for hiking and mountain biking trails.

To reuse the contaminated soil, engineers first had to add a two-foot-deep buffer of clean dirt to the mound. “The project also called for more than 130,000 aquatic plants and trees to be planted,” says Dave Dixon, Stanley’s construction services manager.

As the observation mound grew and became steeper, another challenge arose. “The dirt was highly organic and clayey, creating slippery areas and making it hard for regular hauling trucks to navigate,” Dixon says. The team devised an innovative plan for ensuring that a nearby bridge could bear the higher loads, closed down roads to public traffic for the duration of activities and used off-road trucks to haul away the dirt. “Off-road vehicles can haul larger volumes and have superior handling in slippery and steeper graded environments,” Dixon explains.

The firm also had to secure clean, arsenic-free soil from other locations to cap the mound. “For some reason, there seemed to be a shortage of dirt at the time,” Dixon recalls. Fortunately, through coordination with other projects throughout the county, the firm was able to negotiate the use of excess topsoil and/ or fill dirt.

Today, Celery Fields has been completely transformed from an unusable hunk of contaminated soil to a safe, popular area for recreation, including mountain biking and hiking, water sports, bird watching, and athletics.
By Darlene Bremer

ACEC Member Firms reclaim environmentally compromised land for public and private use

**PROJECT:** Presidio Restoration, San Francisco

**FIRM:** Kennedy/Jenks Consultants, San Francisco

Originally a Spanish fort, the Presidio in San Francisco was seized by the U.S. military in 1846. It served as a Department of Defense installation until the Army vacated it in 1994 and turned it over to the Presidio Trust. Since then, the trust’s revitalization efforts have resulted in the development of museums and open spaces, a golf course, playgrounds and the restoration of former Army housing for homes.

The trust recently embarked on a project to remove two adjacent landfills from the California Department of Toxic Substances Control’s list of sites in need of remediation. The project meant eliminating concentrations of certain chemicals, including metals, pesticides, polycyclic aromatic hydrocarbons and dioxins, that tested above ecological risk levels. An equally important goal was to preserve native plant species and local archeological sites and to integrate the site restoration features with future recreational improvements, such as trails and a practice baseball field.

The trust chose Kennedy/Jenks Consultants to prepare the plans, specifications and cost estimates for the project and to provide construction support for the excavation, transportation and off-site disposal of up to approximately 80,000 tons of soil and debris. In addition to removing the soil, fill and debris, the company was responsible for regrading and drainage improvements for the former landfill area. “With the support of H.T. Harvey & Associates and the Public Works Administration, we also were responsible for designing the new multiuse trails and stream crossings, as well as various drainage facilities and a retention pond with outlet control structures, plantings and irrigation,” says Laura Kennedy, the firm’s principal. The company completed substantial construction last December and has just finished overseeing one year of revegetation establishment and monitoring.

One major challenge was ensuring the protection of native plants and cultural resources during construction, including a serpentine grassland habitat, wetlands bird-nesting sites, a historic dam and tunnel, and a historic brick incinerator. “We carefully determined the exact location of each of the protected resources and integrated that information into the contractors’ specifications, ensuring that the areas would remain undisturbed,” Kennedy explains.

Further challenges included stabilizing a hillside on the site to prevent future erosion by incorporating buried terrace supports into the design to preserve surface stability while addressing aesthetic concerns. The firm also protected the established downstream infrastructure (including museum space) from stormwater runoff by constructing a detention basin that mimics wetlands. “The detention basin stores water and sediments, basically damming any runoff from encroaching on the infrastructure,” Kennedy says.

A combination of remediation and engineering expertise has transformed the two former landfills into an urban national park that celebrates history, environment and community.


When stakeholders set about developing a 28-acre former industrial waste zone in the Port of Monroe, they knew the site, unused since the mid-1970s, would require a massive restoration.

By the time Soil and Materials Engineers (SME) began work on the project in 2009, there was eight to 14 feet of highly contaminated industrial waste, including foundry sand and coal tar, and six to 12 feet of contaminated groundwater overlying up to two feet of former wetlands bottom, with 15 to 20 feet of clay beneath that, and a limestone/dolomite bedrock underneath that.

The existing site wasn’t the only potential challenge. Each stakeholder had specific goals for the project, which was completed last December. The Port of Monroe sought to mitigate environmental risks posed by contaminated wastes and fill and promote development of its industrial park; the City of Monroe sought to create high-wage manufacturing jobs and increase its tax base; the Michigan Department of Environmental Quality and the U.S. EPA saw an opportunity to use dedicated funding to restore a brownfield site; and Ventower Industries wanted to overcome the site’s myriad environmental obstacles to construct a 115,000-square-foot wind turbine manufacturing plant in a location with rail, highway and port access.

SME was responsible for conducting a Phase II environmental assessment to identify site contaminants, engineering solutions to support the plant’s foundation and other load-bearing requirements, designing soil caps to cover the contaminated fill, engineering a vapor intrusion mitigation barrier system, designing stormwater detention pond liners, and working with the various stakeholders to obtain brownfield funding to pay for the environmental components of the project. “As a startup enterprise with no real track record [and] immediately following the 2008 economic collapse, Ventower was unable to secure commercial financing. Our challenge was to help the project secure more than $10 million in EPA and state brownfield redevelopment financing,” explains James Harless, SME vice president.

An unstable stratigraphy of saturated industrial waste underlain by clay and bedrock meant that the heavy loads imposed by the building’s floors, foundations and pavements could not be supported on the unconsolidated fill with traditional foundation designs. “In addition, the underlying clay could not be penetrated or else contaminated groundwater from the fill zone could migrate to the uncontaminated bedrock aquifer,” explains Harless. SME overcame this challenge by calling for the installation of load-bearing controlled modulus columns, upon which aggregate could be spread and a foundation built.

Today, stakeholders say the project has come full circle, successfully transforming a former industrial waste landfill into a site where new industrial operations produce components for clean wind energy production.

Port of Potential
Unique to this project is its extensive plant diversity. Traditionally, restoration projects involve choosing a handful of plants and then allowing additional species to colonize over time. “This project, however, specifies more than 100 species of plants and requires long-term planning and investment in biological expertise to verify that the plants delivered are the ones specified,” Burton says.

Whether funding, engineering or creating high-quality wildlife habitats from degraded lands, Stantec’s project managers, engineers and ecologists worked closely with the Manatee County Natural Resource Department leaders to identify proactive solutions and emerging opportunities to further improve the project’s outcome. ■
The Leadership Succession Lifecycle

Leadership succession is an inevitable fact of corporate life, and it’s a particularly significant process for engineering and architectural firms whose leaders—many of whom are baby boomers—are approaching the end of their careers.

Disregarding this critical process can result in significant performance declines as firms work through vacuums left by retiring leaders or address conflicts among candidates competing for the top leadership post. The ultimate consequence of this inattention for many firms is a premature organizational death, generally via sale or merger.

A new book just released by ACEC, *The Leadership Succession Lifecycle in Best-Practice Firms*, examines the results of a study that identifies and describes best practices for dealing with leadership succession. Authored by distinguished management consultants, design professionals and Senior Executives Institute faculty, the book draws upon the best practices of 13 firms that have successfully navigated leadership succession.

*The Leadership Succession Lifecycle in Best-Practice Firms* is available through the ACEC website at www.booksforengineers.com.

Valuable Tools, Contracts, Publications for Mechanical/Electrical Firms

Business management and safety risks are two of the most critical concerns for mechanical/electrical (M/E) firms. To help address these issues, the Council of American Mechanical & Electrical Engineers (CAMEE) offers several publications, tools and contracts to help firms navigate through and around risk. CAMEE publications focus on key management areas: (1) planning; (2) compensation; (3) communication; (4) education; (5) quality; (6) M/E submittal checklists; and (7) contracts. Each focus area includes worksheets and sample documents for M/E engineers to use in the daily running of M/E firms.

CAMEE recently released a new publication: *CAMEE Tool 3-2—Correspondence Letters*, which makes it faster and easier to access correspondence with the appropriate verbiage for commonly encountered business situations. This tool provides appropriate language to correspond with clients, owners, subconsultants and building officials and can be used internally with employees to keep everyone informed about projects or their employment.

All CAMEE products are available at www.booksforengineers.com.

The ACEC Institute for Business Management provides comprehensive and accessible business management education for engineering company principals and their staffs. Visit ACEC’s online educational events calendar at www.acec.org/calendar/index.cfm or bookstore at www.acec.org/publications, or call 202-347-7474, ext. 338, for further information.
New Young Professionals Forum

Nearly 50 Conference attendees took part in the inaugural ACEC Young Professionals Forum, which featured a dozen young engineers sent by their firms and others interested in issues important to emerging leaders. Leadership workshops were led by instructors from ACEC’s Senior Executives Institute.

As its first actions, the group renamed itself the “Emerging Leaders Forum,” set up a LinkedIn page and created a steering committee to drive future programming.

ACEC also presented five engineers with Young Professional of the Year awards. Selected by the ACEC Fellows, they were recognized for making significant contributions to the profession early in their careers.

Timothy’s career as a municipal engineer has already resulted in two award-winning projects for the City of Auburn Hills. A $2 million project through a municipal golf course that required bank stabilization, off-line detention facilities, a pump station, floodplain management and course redesign netted him the local American Public Works Association (APWA) Environmental Project of the Year Award. He also created a quality-control procedure to ensure proper overlay thickness for a $4 million boulevard project, which received a Michigan Concrete Paving Association award. Timothy represented ACEC in the 2012 National Engineers Week “New Faces of Engineering” advertisement in USA Today. He holds a bachelor’s degree in civil engineering from Michigan Technological University.

2 Emily Allen, Kennedy/Jenks Consultants, Lakewood, Colo.
Emily has demonstrated expertise beyond her years in the water and wastewater fields—expertise that helped her earn Kennedy/Jenks’ Employee of the Year Award. A project engineer, Emily also served as chair of the 100-member Rocky Mountain Section of APWA’s Water for People Committee, where she led fundraising activities and education outreach to provide clean water and sanitation to developing countries. Emily earned a bachelor’s degree in civil and environmental science engineering from the Colorado School of Mines.

3 Nikhil Bodhankar, CHA, Albany, N.Y.
A lead electrical engineer, Nikhil provides design services for power distribution, lighting, communications, fire alarm, security and control systems at the GE Global Research Center. His research on functionally integrated reactive surface technologies was presented at the Nunan Research Symposium. Also, his article, “Short Circuit Fault Analysis and Calculations,” was published in Electrical Construction & Maintenance magazine. He holds a bachelor’s degree in electrical engineering from the University of Pune in India and a master’s degree in electrical engineering from Syracuse University.

A project engineer, Victor played a major role in the design and construction management of several water and sewer systems throughout Virginia. He also was responsible for the development and analysis of a flow monitoring program, a sewer system evaluation survey plan and a rehabilitation plan for a Hampton Roads project to decrease sanitary sewer overflows. Victor also heads his own nonprofit organization, whose mission is to provide a clean, sustainable water source for a rural community in central Haiti. He holds a bachelor’s degree in civil and environmental engineering from Virginia Tech.

As a project engineer, Eric led a $23 million facilities upgrade design at a Massachusetts wastewater treatment plant. His expertise in pumping station design, facilities evaluations, infiltration/inflow and sewer system studies was also used to troubleshoot systems at Deer Island, New England’s largest treatment plant. Eric holds a bachelor’s degree in environmental engineering and a master’s degree in environmental engineering, both from Manhattan College.

Justin Wheeler of H&A Architects and Engineers said, “There are many leadership programs available, but ACEC’s program is specifically focused on our industry, which is a huge benefit.”

Robert Macoy of KCI Technologies said the new forum would provide important benefits for participants. “This program provides a great opportunity to build important networks among industry colleagues,” Macoy said. “I’m looking forward to being a part of this program for many years.”
Decision Makers

Transformative Success

With more than 5 million miles traveled over a 35-year career, Robert Uhler, executive chairman and former CEO of MWH Global, helped transform a small engineering firm with humble California roots into a global market leader, with more than 8,500 employees in 36 offices worldwide.

Q. What is the primary reason you chose to become an engineer?
A. I was born into a military officer’s family and had a natural affinity to mathematics. I followed my father’s footsteps by going to West Point, which is the first engineering school of our country. Graduating in the middle of the Vietnam War, I became a highly trained combat leader with an excellent engineering education. After a harrowing combat tour and the future prospect of a conservative post-war army, I decided to leave the Army and go back to graduate school on the G.I. Bill. I wanted to put my creativity into some planet-friendly contribution. I picked environmental engineering, and it turned out to be a burgeoning business opportunity at the right time.

Q. If you had not pursued a career in engineering, what other profession(s) interested you?
A. After I practiced design engineering for 10 years, I found my interests shifting to management and business strategy. I nearly left the engineering profession, but my company convinced me that management theory would be appreciated with their emerging requirements. They sent me back to Harvard Business School and assigned me as their chief of strategy. I found that looking at an engineering company through the eyes of management philosophy was not only valid but differentiating. Today, we are seeking more strategy-oriented engineers. Engineers are typically great problem solvers and managers, but we can’t find enough futurists in the gene pool.

Q. What is the best advice you ever received?
A. That’s easy: “Make your clients heroes or heroines in their organization’s eyes, and they will want more of you.” That philosophy reorients you into the shoes and interests of your client. Once they know that is your genuine orientation, they are loyal and in need of your participation in their endeavors.

Q. What do you know now that you wished you had known 20 years ago?
A. I wish I had been taught more about systemized risk processes that feed off of experience. You don’t want your kids to learn “the hard way” and the same is true for companies. If you can transfer learning, you stand a better chance of not living through the same crisis multiple times. Engineers, like kids, don’t think it will happen to them. But, you need to be able to effectively teach them history without stifling their creativity. It is not about taking risks, it is about taking risks in things you can afford and are worth failing in.

Q. If you were president of the United States for one day and could make one executive decision, what would it be?
A. At this moment in time, I would reinvent the federal tax code to create a tiered, flat tax rate with few deductions while getting most all of the employed population to participate in paying some tax, even if small. The fact that the wealthy should pay more and that more Americans must participate in the tax system are both valid.

Q. What do you consider your greatest professional achievement and why?
A. Probably being one of the leaders in MWH who helped facilitate transformational change several times with a very conservative population. Engineers seem to believe: If it worked in the past, it will always work again. If you propose change, they want tangible proof of success before they will enthusiastically follow you. Change motivation is very difficult. To have MWH a global leader in the water sector, while receiving many industry rewards for both our knowledge management systems and use of IT in delivery, is great. But we will need to transform ourselves repeatedly in the future to survive and thrive. Agility often does not go along with the big and historically successful.

Q. Do you have a unique hobby that takes up a significant amount of your time?
A. I truly enjoy history. It’s odd because in business, I like the future. However, there is something exciting about understanding the past and admiring accomplishments of those who preceded us. I am a multiple-subject collector. My collections include historical signatures (personal DNA to me), ancient coins and 18th/19th-century miniature portrait art. I was excited to be invited two years ago to join the Smithsonian Institution’s National American History Museum board. Each trip there is an incredible experience of learning from the finest curators and archivists in the world.
Catlin claims service is ranked #1...again!

The 2012 American Council of Engineering Companies (ACEC) Professional Liability Survey has ranked Catlin #1 for claims service. In this survey, which included 330 respondents, the Catlin team that specializes in Construction, Design Professional and Environmental claims received the top score.

At Catlin, we’re here to assist and guide our clients through the claims process. So, it’s no wonder that 68% of respondents in the 2012 ACEC Survey indicated that they were “very satisfied” with our claims service and the competency of our claims staff. In fact, out of insurance carriers considered, nobody earned higher marks for claims service than Catlin.

To learn more about our commitment to exceptional claims service, visit us at CatlinUS.com.
On The Move

Stephen J. Hickox was named CEO of Cambridge, Mass.-based CDM Smith, effective Jan. 1, 2013. He will succeed Richard Fox, who will remain CEO through 2012 and stay on as chairman until his retirement in April 2013. Hickox currently is the group president of the firm’s Public Services Group—North America East and Latin America. Executive Vice President Timothy B. Wall, who was named COO, effective Oct. 1, previously served as group president of the firm’s Federal Services Group.

Elsewhere at the firm, Thierry Desmaris was named executive vice president—finance. He succeeds Paul Camell, who is retiring in April 2013 after 40 years with the firm. Eric Hartmann was promoted to senior vice president and CFO. He succeeds Robert Anton, who retired at the end of August.

Kris Bauman joined New York City-based Sam Schwartz Engineering as executive vice president and COO. Bauman, who has more than 30 years of experience in the construction and real estate fields, will be based in the firm’s corporate headquarters.

Terry A. Ruhl was appointed president of CH2M HILL’s transportation business. He previously served as senior vice president and director of consulting and international operations for the company’s Transportation Business Group. He is based out of CH2M HILL’s Denver headquarters. Alonzo L. Fulgham joined the firm as vice president, strategy and sustainable international development. Fulgham is based in the firm’s Chantilly, Va., office.

Oakbrook Terrace, Ill.,-based PSI announced the following appointments: Vijay Khosla was promoted to senior executive vice president, where he will oversee U.S. operations in the Northeast and Upper Midwest. He is based in Philadelphia. Shyam Veeramachineni was promoted to executive vice president with responsibility for Oklahoma and all of Texas, except for Houston and Longview. He is based in Austin. Doyle Smith joined the firm as senior vice president, where he will oversee operations in Dallas, Fort Worth, McKinney, El Paso and Fort Bliss in Texas and in Oklahoma City, Okla. He is based in Dallas.

Fred S. DeCusatis joined Borton-Lawson as CFO and will be based in the firm’s Wilkes-Barre, Pa., headquarters. Prior to joining Borton-Lawson, DeCusatis was the international controller for DeAngelo Brothers Incorporated, in Hazleton, Pa.

New York City-based Parsons Brinckerhoff (PB) named Paul Demit senior vice president and director of the firm’s water practice, where he is responsible for the growth and development of PB’s North American water business. Demit is based in the firm’s Atlanta office.
San Francisco-based URS Corporation named Robert J. Vensas vice president and office manager for its Infrastructure & Environment Division’s Michigan operations. Vensas, who previously served as vice president of operations in Michigan, is based in the Grand Rapids, Mich., office.

Philadelphia-based Pennoni Associates named Joe Viscuso vice president and office director for the firm’s West Chester, Pa., location.

Fairfax, Va.-based Dewberry promoted Peter Drenan to vice president of the Emergency Management, Disaster and Mitigation service line. Mark Montgomery was promoted to vice president of emergency management and has served as the deputy project director and a task manager on assignments for the FEMA Public Assistance Technical Assistance Contract. Both are based in the firm’s Virginia headquarters.

Welcome New Member Firms

ACEC/Alabama
Walker Associates, Inc., Tuscaloosa

ACEC/Arkansas
Kraemer Consulting Engineers, PLLC, Jonesboro

ACEC/Arizona
Kraemer Consulting Engineers, PLLC, Phoenix

ACEC/California
BREEN Engineering, Inc., Torrance

ACEC/Columbia
TJ Martinez & Associates, Las Vegas

ACEC/Colorado
Able Consulting Group, LLC, Denver

ACEC/Connecticut
David Cruz Engineering, Inc., Danbury

ACEC/Florida
Dannick Engineering Consultants, Inc., Orlando

ACEC/Georgia
Innovative Engineering, Inc., Woodstock

ACEC/Kentucky
Bacon Farmer Workman Engineering & Testing, Inc., Paducah

ACEC/Louisiana
Gulf South Engineering & Testing, Inc., Kenner

ACEC/Massachusetts
Mabbett & Associates, LLC, New Bedford

ACEC/Metro Washington
ATCS, PLC, Herndon, Va.

ACEC/Michigan
Applied Power and Controls, Inc., Detroit

ACEC/Missouri
M3 Engineering Group, PC, St. Louis

ACEC/New Mexico
CEI Enterprises, Albuquerque

ACEC/North Carolina
Allied Consulting Engineers, PLLC, Charlotte

ACEC/Ohio
Advanced Civil Design, Gahanna

ACEC/Oklahoma
Frankfurt Short Bruza, Oklahoma City

ACEC/Tennessee
The Corradino Group, Brentwood

ACEC/Texas
Camino Real Consulting Engineers, LLC, Bulverde

Welcome New Member Firms

ACEC/Alabama
Walker Associates, Inc., Tuscaloosa

ACEC/Arkansas
Kraemer Consulting Engineers, PLLC, Jonesboro

ACEC/Arizona
Kraemer Consulting Engineers, PLLC, Phoenix

ACEC/California
BREEN Engineering, Inc., Torrance

ACEC/Columbia
TJ Martinez & Associates, Las Vegas

ACEC/Colorado
Able Consulting Group, LLC, Denver

ACEC/Connecticut
David Cruz Engineering, Inc., Danbury

ACEC/Florida
Dannick Engineering Consultants, Inc., Orlando

ACEC/Georgia
Innovative Engineering, Inc., Woodstock

ACEC/Kentucky
Bacon Farmer Workman Engineering & Testing, Inc., Paducah

ACEC/Louisiana
Gulf South Engineering & Testing, Inc., Kenner

ACEC/Massachusetts
Mabbett & Associates, LLC, New Bedford

ACEC/Metro Washington
ATCS, PLC, Herndon, Va.

ACEC/Michigan
Applied Power and Controls, Inc., Detroit

ACEC/Missouri
M3 Engineering Group, PC, St. Louis

ACEC/New Mexico
CEI Enterprises, Albuquerque

ACEC/North Carolina
Allied Consulting Engineers, PLLC, Charlotte

ACEC/Ohio
Advanced Civil Design, Gahanna

ACEC/Oklahoma
Frankfurt Short Bruza, Oklahoma City

ACEC/Tennessee
The Corradino Group, Brentwood

ACEC/Texas
Camino Real Consulting Engineers, LLC, Bulverde

ACEC/California
BREEN Engineering, Inc., Torrance

ACEC/Connecticut
David Cruz Engineering, Inc., Danbury

ACEC/Florida
Dannick Engineering Consultants, Inc., Orlando

ACEC/Georgia
Innovative Engineering, Inc., Woodstock

ACEC/Kentucky
Bacon Farmer Workman Engineering & Testing, Inc., Paducah

ACEC/Louisiana
Gulf South Engineering & Testing, Inc., Kenner

ACEC/Massachusetts
Mabbett & Associates, LLC, New Bedford

ACEC/Metro Washington
ATCS, PLC, Herndon, Va.

ACEC/Michigan
Applied Power and Controls, Inc., Detroit

ACEC/Missouri
M3 Engineering Group, PC, St. Louis

ACEC/New Mexico
CEI Enterprises, Albuquerque

ACEC/North Carolina
Allied Consulting Engineers, PLLC, Charlotte

ACEC/Ohio
Advanced Civil Design, Gahanna

ACEC/Oklahoma
Frankfurt Short Bruza, Oklahoma City

ACEC/Tennessee
The Corradino Group, Brentwood

ACEC/Texas
Camino Real Consulting Engineers, LLC, Bulverde

Calendar of Events

NOVEMBER
27 The Seven Secrets of Super Successful Project Managers (online seminar)
29 A Rock and a Hard Place: ConsensusDocs Contracts from the Engineer’s (and Owner’s) Perspective (online seminar)

JANUARY
8 Team Network Analysis: Fixing Bottlenecks Across High-Functioning Teams (online seminar)
15 Design Project Management (online seminar)

DECEMBER
4 If You Haven’t Planned It, You Can’t Control It (online seminar)

To sign up for ACEC online seminars, go to www.acec.org/education.

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

Successful M&A Integration Not Without Its Challenges

There will be more than 180 mergers and acquisitions (M&As) of design and engineering firms in the United States this year—that’s an average of 15 per month, or one every two days.

For the acquirer, integration represents an opportunity to realize a return on investment. For the seller, integration represents an actual return on investment and a new beginning for the firm and its employees. Make no mistake about it—a successful integration is the top priority for buyers and sellers.

1. Not a core competency: Many small firm managers have never completed an acquisition before and are ill-equipped for the short-term complexities of merging business systems. They also are not prepared for long-term challenges, such as fully engaging employees at an acquired firm in the pursuit of success for the merged entity. Larger acquirers, meanwhile, tend to have a playbook for M&A integration and managers who have been through the process.

2. “That’s not my job”: Unlike larger firms, which have managers dedicated to the integration of acquisitions, most small firms assign managers who already have one (if not multiple) important hats to wear. Smaller buyers rely on overloaded regional or division managers for integration. These managers tend not only to lack the required integration experience or skills, but also frequently don’t have the bandwidth to dedicate to the task. (Who on your staff has loads of discretionary time to focus on integration of an acquisition?) Given this dynamic, M&A integration tends to not get the prioritization or care it deserves.

3. The emotional intelligence barrier: When a firm makes an acquisition, it’s like hiring a lot of new people all at the same time. It’s even more challenging when you take into account that many of these folks are fearful and, to some degree, skeptical of the merger. A number are worried that they might lose their jobs (most of the time this is unwarranted) and are waiting for the other shoe to drop, so to speak. These new employees need assurances, communication and direction—three essentials that likely received little or no attention in the six months leading up to the merger, as the focus was likely on getting a deal done. There is a real need on the part of the acquiring firm’s integration team to understand and manage these emotions. Far too often managers lack the skills to even recognize, let alone address, these concerns. Many integration managers don’t conduct annual reviews of current employees. Managers tend to view integration purely as a project with milestones and goals and miss completely the human element, which can result in unnecessary staff turnover and lack of employee engagement.

4. Sellers’ motivations: Often, majority owners of a selling firm are at a point in their careers where they are less motivated to grow a business and more motivated to explore outside interests. Additionally, majority owners often receive enough proceeds from the sale to lessen their financial incentive to continue to work hard. Many inexperienced buyers are blind to or refuse to acknowledge these factors and find out too late that the most senior members of the acquired firm are more focused on “checking out” than seeing a successful integration through to completion.

First-time or novice buyers would do well to recognize these four hurdles to successful M&A integration. If you’re a first-time buyer or have had trouble with integration in the past, make sure that you have a plan in place to address each of these areas. The success of your investment may well depend on it.

To view the most up-to-date and “live” versions of the M&A heat maps accompanying this article and to see the buyers and sellers in each state, go to www.morrisseygoodale.com.

Watch the M&A Takeaway video that accompanies this article, presented by Mick Morrissey at http://www.morrisseygoodale.com/ACECMergers/NovDec2012.

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.
WORKING TO MAKE THE CONSULTING ENGINEERING INDUSTRY THE HEALTHIEST IN THE UNITED STATES

INCREASE PRODUCTIVITY  •  DECREASE ABSENTEEISM
IMPROVE MORALE  •  CONTROL HEALTHCARE COSTS

Learn more about this program during our webinar Dec. 11 at noon (CST) • To register, go to www.WellnessWebinar.info

Designed Wellness is a uniquely created initiative aimed to improve the health, productivity and well being of our member firm’s employees. From biometric screenings to e-coaching, exercise planners to online competitions, we’ve created a comprehensive wellness solution. Designed Wellness is offered at no additional out-of-pocket cost to ACEC Life/Health Trust Member Firms.

DESIGNEDWELLNESS.COM

Call or email us to get started today: 800-841-6130 • wellness@aceclifehealthtrust.com
When you choose the ACEC Life/Health Trust insured by UnitedHealthcare, you’re aligned with experts who provide solutions that may lead to healthier employees and lower health care coverage costs.

As an ACEC member, you may benefit from:

- **Savings** — ACEC members may receive up to 12%* savings on their annual premium.
- **A broad network** — 98% of the U.S. population has local access to a UnitedHealthcare provider.**
- **Your choice of broker** — There’s no need to switch agents.
- **Streamlined administration** — Moving from your current health plan is surprisingly simple . . . plus, you can get medical, dental, vision, life and disability all in one plan.

Learn how your engineering firm may pay less while enjoying remarkable service with the ACEC Life/Health Trust.

**Call 1-877-265-3919 or visit uhctogether.com/acec4 for more information.**

The American Council of Engineering Companies (ACEC), the ACEC Life/Health Insurance Trust and UnitedHealthcare Insurance Company are three separate legal operating entities and, as such, the organizations are governed and function independently. UnitedHealthcare’s services are provided with the authorization of the ACEC Life/Health Trust. Questions related to health benefits offered through the Life/Health Trust should be directed to 1-800-573-0415.

*Potential 12% savings on annual premiums for businesses with 2-99 employees, as compared to UnitedHealthcare products sold outside the ACEC Life/Health Trust. This is not applicable to UnitedHealthcare and Oxford Products in NY, NJ and CT.

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

© 2012 UnitedHealthCare Services, Inc. Insurance coverage provided by or through UnitedHealthcare Insurance Company or its affiliates.