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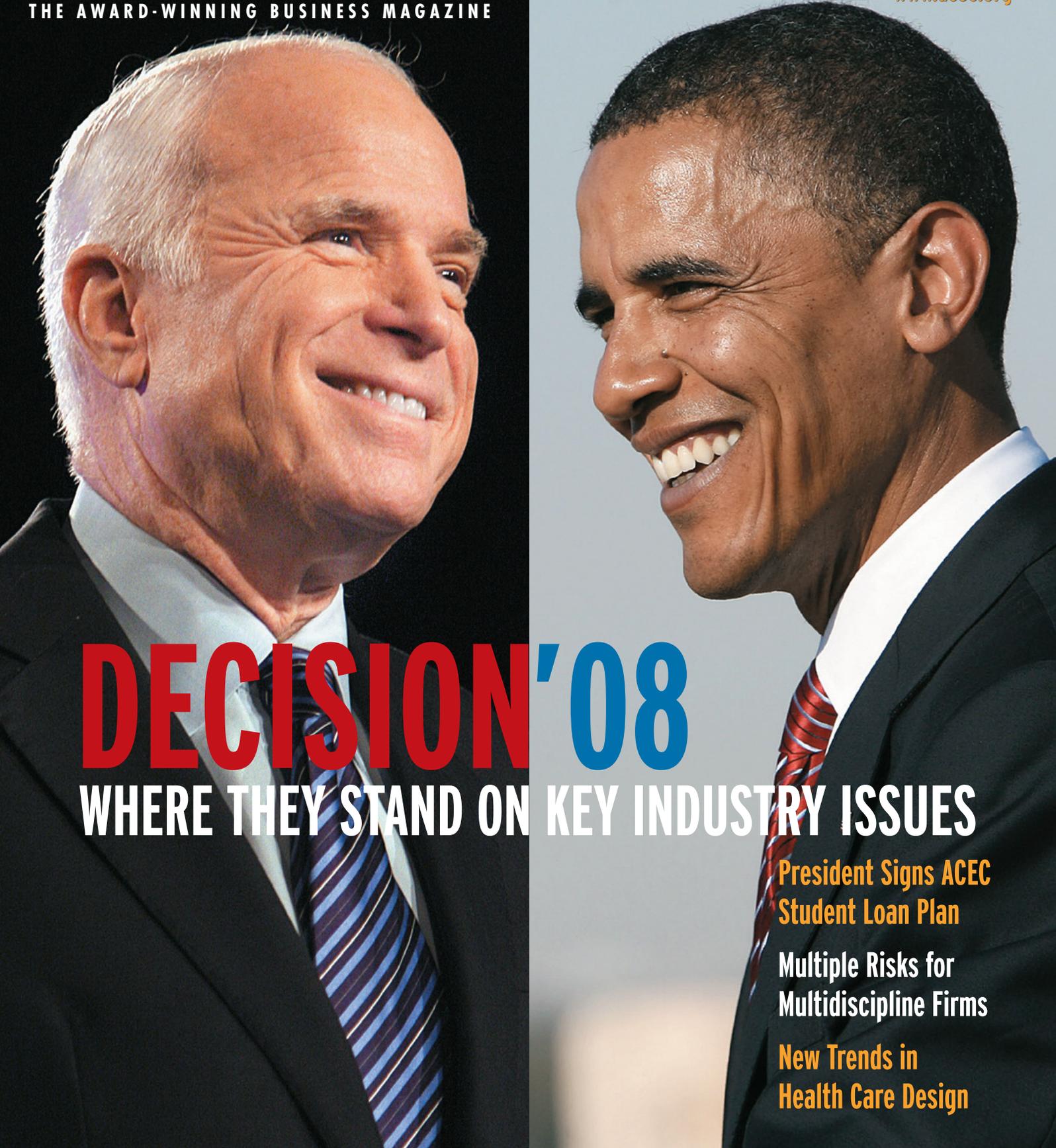
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ENGINEERING INC.

THE AWARD-WINNING BUSINESS MAGAZINE

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DECISION '08

WHERE THEY STAND ON KEY INDUSTRY ISSUES

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Student Loan Plan

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Multidiscipline Firms

New Trends in
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COVER STORY

DECISION '08

Which candidate will better serve our industry—Barack Obama or John McCain?

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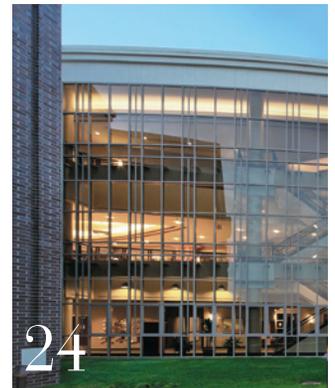
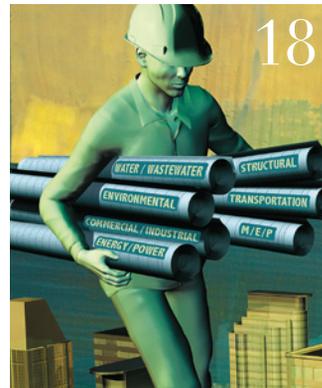
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Staying in the Political Forefront

As we enter the final stretch of an exciting election season, ACEC is actively engaged on the national and state levels to make sure that the candidates hear our message on key challenges in infrastructure, energy and regulation.

The 2008 election will have significant implications for the nation and the engineering industry. Our cover story provides a comparison of the two presidential candidates on critical industry issues, with perspectives from the media, academia and member firms.



Many of those issues are now at crucial stages in the legislative process, including transportation funding and wetlands regulation; their fate will certainly be affected by the outcome of the election.

If you look at where McCain and Obama stand on infrastructure, taxes and regulation, some of their positions may surprise you.

This issue of Engineering Inc. also includes a report on the risk management challenges faced by multidiscipline firms, and an in-depth look at current trends in health care facilities design.

In the coming months, we urge all ACEC members to take a politically active role in their local, state and national elections and to support ACEC/PAC and state political efforts.

All of us benefit through participation in the democratic process. This is a great time to make it work for our industry and our nation.

Handwritten signature of John F. Hennessy III

John F. Hennessy III
ACEC Chairman

Handwritten signature of David A. Raymond

David A. Raymond
ACEC President & CEO

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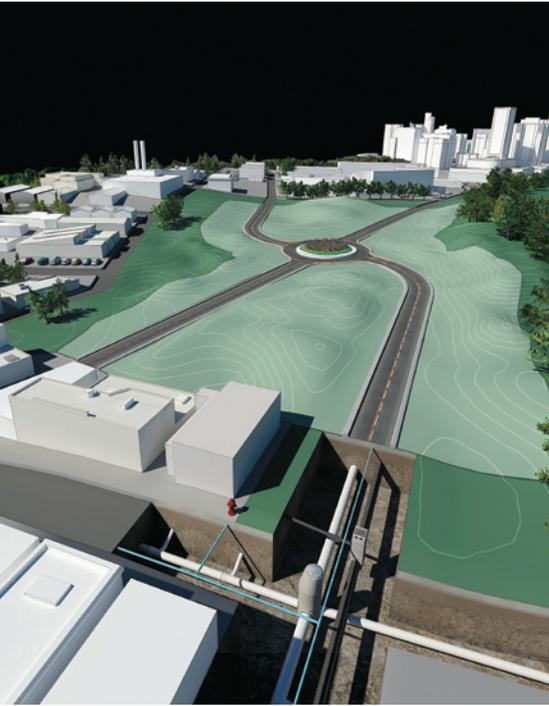
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Digital renderings such as this one from Autodesk soon will be accessible on multiple software platforms.

Bentley and Autodesk to Make BIM Systems Compatible

In response to concerns from ACEC and client users about compatibility between Building Information Modeling (BIM) software platforms, Bentley and Autodesk have agreed to exchange software libraries and support each competitor's application programming interface tools.

The agreement between the two rival industry leaders marks a major step toward eliminating the compatibility challenges faced by engineering firms using BIM.

The software currently does not support multiple BIM platforms. For firms doing business with multiple government agencies—or a single agency that requires more than one BIM application—the cost of additional software and training can result in a firm being unfairly excluded from competing, especially small firms.

"I think we are making progress here," said Robert Bank of the U.S. Army Corps of Engineers.

For more than a year, ACEC and client users have championed the use of Industry Foundation Call (National BIM Standards) compliant software to provide BIM benefits and enhance interoperability.

Bentley and Autodesk pledged to share the necessary information to allow each platform to read, write and submit in the competitor's file format. Both firms cautioned that many technical details and questions remain to be resolved.

Industry consensus views BIM as the wave of the future in the design, construction, operation and maintenance of facilities and infrastructure. The incompatible formats in the marketplace, however, have limited implementation of the technology.

NIST Program Seeks to Improve Detection of Infrastructure Failure

The National Institute of Standards and Technology (NIST) is seeking proposals to develop innovative technologies for inspecting, monitoring and evaluating critical components of the nation's roadways, bridges, and drinking and wastewater systems.

As part of its new Technology Innovation Program, NIST expects to award up to \$3 million across three years for a single company, and as much as \$9 million over five years for a collaborative R&D project. The research must target new, efficient, accurate, low-cost and reliable sensors and related technologies that provide quantitative assessments of the structural integrity or degree of deterioration of bridges, roads, water mains and wastewater collection systems.

The new program aims to create advanced monitoring gear for inspectors who currently rely heavily on their eyes

and ears to detect problems.

"There is some technology using sonar and fiber optics that allows you to look in places where you can't get your head," although it's expensive and labor-intensive, said NIST's Marc Stanley.

"Most of what they have at their disposal are these crude tools—rakes and chains and hammers—and they tap on things and listen," Stanley said. "These guys are trying to do a good job, and they really don't have the tools to make it easy for them."

Even before the collapse of the I-35 Bridge in Minneapolis last year, which killed 13 people, NIST had been studying the issue. The agency's aim is to advance industrial innovation.

More than one-quarter of this country's bridges are rated structurally deficient or functionally obsolete. Nearly a quarter-million water main breaks happen each year.



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First Private Activity Bonds Issuance Marks Historic Highway Financing

The U.S. Department of Transportation (DOT) has issued its first tax-exempt private activity bonds for highway construction, a major development for alternative highway financing.

The \$589 million in private activity bonds will be used to construct a 14-mile I-495 Capital Beltway High Occupancy Toll (HOT) Lanes project in Northern Virginia.

As part of surface transportation funding legislation SAFETEA-LU—signed in August 2005—private companies building and operating public-use facilities are allowed to borrow up to \$15 billion nationwide on a tax-exempt basis to build highways and certain freight facilities.

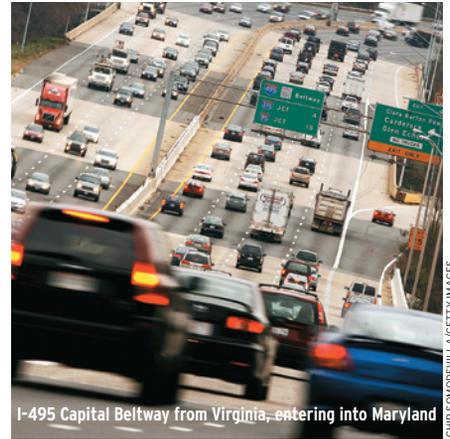
So far, the DOT has authorized the issu-

ance of \$5.6 billion in these private-activity bonds to seven projects throughout the nation, including the Capital Beltway HOT Lanes. However, this is the first time such bonds actually have been issued.

“This financial transaction represents a historic turning point, not only for the way we finance highway projects, but also for the thousands of drivers who lose precious time stuck in traffic on one of the nation’s most congested highways,” said Transportation Secretary Mary Peters.

The \$589 million issued by the Capital Beltway Funding Corporation, a nonprofit Virginia corporation, is part of an estimated \$1.9 billion finance package to fund the project.

Two private companies will finance, oper-



ate and maintain the express lanes using tolls to repay the debt, as well as a \$589 million U.S. DOT direct loan. The loan was made through the department’s Transportation Infrastructure Finance and Innovation Act loan program, which encourages private-sector participation in the financing of highway projects with flexible repayment terms. The Commonwealth of Virginia also is providing significant resources to the public-private partnership.

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Aging Boomers Fuel Health Care Construction

By Joe Salimando

There used to be at least two sure things in life: death and taxes.

Today one could also add a third: old age.

Active American baby boomers, whether they realize it or not, are changing the direction of our economic and construction future. Here are a few realities to consider:

- AARP claims there were 87 million Americans age 50 or over in 2007, nearly 30 percent of the popula-

tion. Statistics further show that roughly half of those who reach age 65 will go on to celebrate their 85th birthday. The U.S. Census Bureau projects that the over-65 age group will account for 36 percent of the population by 2020.

- As people get older, they will demand and consume ever-increasing amounts of health care.

Intuitively, that would suggest that the health care industry might not suffer as

much as other business sectors from the instability in the current economy.

Not the case, however.

As worker shortages continue to affect many aspects of American business, health care has taken a shellacking—a shortage of nurses for years, with no relief on the horizon, as an example.

One way the nation's medical system is attempting to cope with the worker shortage is by emphasizing efficient hospital technology. That

means even where new medical structures aren't on the agenda, high-tech hospital rehabilitations are a priority.

Many aging medical facilities also have altered their operational philosophies to focus on tangible benefits, such as patient comfort. So-called "green" hospitals have reportedly been shown to facilitate healing; patients in such facilities are said to get better faster.

Widespread philosophical and cultural changes in the nation's health care system are fueling a need for engineering expertise to design the sophisticated mechanical, electrical, plumbing and structural systems—such as state-of-the-art operating rooms or specimen delivery facilities—necessary to meet rapidly advancing requirements.

Health Care Numbers

The U.S. Bureau of Labor Statistics reports that health care employment has increased nearly 38 percent from 1994 to 2007, compared with overall U.S. employment, which the Census Bureau says increased 28.2 percent in that same period.

At the same time, health care construction has increased by 125 percent (and it's up again through the first five months of 2008). Hospital construction rose 145 percent in the same timeframe.

With total construction (across all market sectors) increasing 112 percent in the same period, statistics confirm that medical care construction clearly is one of the most

Health Care Employment and Construction, 1994-2008

YEAR	Health Care Employment (thousands of people)		Health Care Construction (millions of dollars)		
	TOTAL	HOSPITALS	TOTAL	HOSPITALS	MED. BLDG.
1994	8,886	3,784	\$15,447	\$9,891	\$3,398
1995	9,386	3,792	\$15,259	\$8,807	\$4,064
1996	9,397	3,817	\$15,420	\$8,348	\$3,728
1997	9,562	3,834	\$17,390	\$9,968	\$4,001
1998	9,812	3,910	\$17,737	\$9,469	\$4,070
1999	9,876	3,946	\$18,388	\$9,491	\$4,910
2000	10,042	3,997	\$19,455	\$10,183	\$5,066
2001	10,188	4,031	\$19,506	\$11,313	\$4,638
2002	10,527	4,172	\$22,438	\$13,925	\$4,924
2003	10,918	4,210	\$24,217	\$15,217	\$6,068
2004	11,146	4,260	\$26,272	\$16,147	\$7,615
2005	11,371	4,301	\$28,495	\$18,250	\$8,031
2006	11,622	4,377	\$32,016	\$21,914	\$7,165
2007	11,904	4,462	\$34,776	\$24,285	\$7,582

Sources: Health Care Employment: Bureau of Labor Statistics data for January 2008. Health Care Construction: Census Bureau final report for end-of-year construction 2008.

Boom Times

Here is a sample of comments from industry experts on the surge in health care construction across the nation:

- "Michigan's health care institutions have not done this much building in decades, since funding for the national Hill-Burton Act ended in 1974." —Bob Riney, EVP/COO, Henry Ford Health System, Detroit (*Detroit Free Press*)
- "Most clients we talk to are planning an addition or new towers." —Joseph E. Kranz, health care manager, Turner Construction, Arlington, Va. (*Mid-Atlantic Construction* magazine)
- "There are major hospital construction projects in nearly every metro area." —WakeMed CEO Bill Atkinson (*Triangle Business Journal* of Raleigh/Durham, N.C.)
- "Not since the 1970s has Minnesota experienced so much hospital construction." —Jon Buggy, managing principal, Ellerbe Becket, Minneapolis (*Finance & Commerce*)

robust construction sectors.

Reed Construction Data shows that one-third of all 2007 health care construction starts took place in just four states—California, Florida, Illinois and Texas.

And it's not just hospitals. According to real estate analysts Grubb & Ellis, rentals for medical offices increased by an average of 2.8 percent annually in the 2000–2007 period, compared with traditional office space, which rose by an average of 1.3 percent per year in that same period.

Future Growth

Robert Bach, the chief economist at Grubb & Ellis, told the Associated Press that "medical properties are positioned to outperform other property types over the next 10 years."

FMI Corp.'s recently released Q2 2008 construction

outlook provides these data for the next few years:

Total nonresidential construction is projected to increase just 4.4 percent from 2007 through 2012; health care construction is expected to surge 49 percent during the same period.

In other words, the march of health care construction will do more than continue—it will accelerate. Consider the latest FMI projections—health care constituted 8.5 percent of all nonresidential construction in 2007. In 2012, it will make up 12.1 percent. Thanks to America's aging population, business indeed is booming.

Joe Salimando writes frequently on the construction industry at www.eleblog.com. He can be reached at ecdotcom@gmail.com.



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ACEC ADVOCATES INFRASTRUCTURE INVESTMENT; PRESIDENT BUSH SIGNS ACEC'S STUDENT LOAN FORGIVENESS FOR ENGINEERS

ACEC Urging Infrastructure Funding in Possible Second Stimulus Package

ACEC is emphasizing to House and Senate leaders the importance of including a strong infrastructure component in any second stimulus package.

Congressional leaders are considering a second bill in an attempt to stimulate economic growth. The draft bill includes billions in funding for "ready-to-go" transportation and infrastructure projects.

A vote could occur in September, following months of job losses, rising energy costs and food prices, and increasing concerns about a lackluster economy.

Earlier in the year, ACEC and industry allies lobbied to add \$5 billion in infrastructure investment during the debate over the first stimulus package. To expedite passage at that time, White House and congressional leaders did not include infrastructure funding in the bill.



Ed Mulcahy

Bush Signs Into Law Student Loan Forgiveness for Engineers

President Bush signed into law last month legislation that will provide up to \$10,000 in student loan forgiveness for engineers.

The Higher Education Reauthorization and College Opportunity Act of 2008 extends various federal student aid programs, and also creates a new program to provide financial assistance in areas of "national need." ACEC ensured that the bill included engineering.

The provision was modified from earlier legislation introduced by Rep. Emanuel Cleaver (D-Mo.)—the Strategic Technology/Engineering Program Act (H.R. 3634)—which seeks to create a broader loan forgiveness and scholarship program to encourage more young people to pursue engineering careers.

"This is a critical step in reversing the decline in the number of engineering graduates in the United States," said former ACEC Chairman and current College of Fellows Chairman Ed Mulcahy of TranSystems.

Mulcahy was the inspiration behind ACEC's drive to develop and pass legislation.

Highway Trust Fund Fix Advances

The House approved legislation backed by ACEC and its industry allies to ensure the solvency of the Highway Trust Fund and avoid a devastating cut to state highway program funding. The trust fund shortfall is now under consideration in the Senate, where identical language has been included in several bills.

The bill, which passed the House by a wide, bipartisan margin of 387-37, transfers \$8 billion from the Treasury to the Highway Trust Fund, essentially returning revenues that were transferred out of the trust fund and into the general fund in 1998.

"The House vote was a huge win and a clear indication that Congress is listening to us on the importance of correcting the trust fund solvency problem," said ACEC President Dave Raymond. "It's also an indication that our strong grassroots lobbying works, as thousands of ACEC members called or wrote support letters to their members of Congress about this issue."

The Highway Trust Fund is facing a projected deficit in the next fiscal year because of lower-than-expected revenues and emergency outlays. The shortfall would lead to a 34 percent cut in funding guaranteed to the states under SAFETEA-LU.

The 387-37 House vote came despite a veto threat from the White House. Action now moves to the Senate, where ACEC is working closely with lawmakers to gain final passage.

House Clears ACEC-Backed Bridge Inspection and Repair Bill

The House approved ACEC-supported legislation to improve the nation's bridge inspection, rehabilitation and repair programs.

The National Highway Bridge Reconstruction and Inspection Act (H.R. 3999) authorizes \$1 billion for fiscal year 2009 for the Federal Highway Administration's Highway Bridge Program. The bill includes a key Council recommendation that requires the Department of Transportation (DOT) to develop a new risk-

ISSUES ON THE MOVE	WHAT'S NEXT
Infrastructure stimulus package	House, Senate action in September
Highway Trust Fund solvency	Final congressional action in September
Loan forgiveness for engineering students	Funding for the new program to be considered in 2009
Comprehensive energy package	Possible congressional action before November



David Oates, chairman of ACEC's Transportation Committee, delivers testimony on the economic benefits of infrastructure investment.

ACEC Advocates Infrastructure Investment at House Hearing

As part of the effort to promote infrastructure funding to boost economic growth, ACEC was invited to testify at a House committee hearing before the August recess.

David Oates, president of Oates Associates and chairman of ACEC's Transportation Committee, testified before the House Small Business Committee on the economic benefits of transportation and other infrastructure improvement projects.

"Additional spending on infrastructure will foster immediate job creation, but it is also important to appreciate the long-term benefits to our national economic competitiveness," Oates said.

"A safe and efficient transportation network is critical to economic growth—it reduces travel time and increases reliability, thus lowering costs and leading to greater economic productivity for businesses and ease of mobility for travelers."

Oates further outlined the implications of continued inadequate funding, including safety risks, worsening congestion, and higher maintenance and repair costs.

based process for bridge inspection and repairs.

The measure calls for the DOT to establish bridge repair priorities based on safety and serviceability, along with passenger and freight mobility. It also requires states to establish five-year performance plans for the inspection, rehabilitation and replacement of deficient or obsolete bridges.

An ACEC-backed provision requiring bridge program managers and team leaders to be state-licensed engineers also is included. The House also adopted an amendment to expand the bill to include new tunnel inspection requirements.

In the wake of the I-35 bridge collapse in Minneapolis in

August 2007, ACEC members Ray McCabe, HNTB's senior vice president, and Mark Bernhardt of Burgess & Niple provided congressional testimony on the need for a risk-based approach to bridge inspections and repairs.

"I am pleased that Chairman [James] Oberstar heeded the recommendations of the engineering community in this bill," McCabe said. "This legislation will allocate resources more efficiently, provide for a more consistent rating and review system across all states and promote greater use of advanced technologies and materials."

The prospects for Senate action on the bill this year are uncertain. The bill could be included in the broader SAFETEA-LU reauthorization legislation due for consideration next year.

ACEC Calls on Senate to Embrace All Energy Options to Curb Price Rises

ACEC urged the Senate to adopt a comprehensive approach to addressing rising energy prices, including expanded production of oil and gas as well as renewable sources.

ACEC and a number of business organizations are promoting legislative solutions that use all domestic energy sources instead of choosing among them.

"Only a broad-gauge solution will adequately address the problem," ACEC President Dave Raymond said in a letter to the Senate. In addition to expanding oil, gas, nuclear, coal and renewable energy sources, ACEC also is calling on Congress to focus on energy efficiency and conservation, modernizing the nation's energy infrastructure, and supporting development and deployment of new technologies and practices.

With energy policy becoming a major issue in the upcoming presidential contest, it remains unclear whether Congress will resolve the debate before the end of the year between proponents of oil and gas drilling and those supporting more emphasis on renewable sources and conservation.

Raymond stressed the need for both. "No single energy source alone can provide a satisfactory solution for America's energy needs," he said, adding that while "we cannot drill, mine or farm our way to energy sufficiency...no combination to the exclusion of others will suffice."

FOR MORE NEWS

For weekly legislative news, visit ACEC's *Last Word* online at www.acec.org.

Positions at a Glance

INFRASTRUCTURE

Voted against final passage of SAFETEA-LU, although opposition stemmed from disapproval of federal earmarks included in the final bill.

ECONOMY

Balance budget by 2013. Reform entitlement programs, including Medicare and Social Security. Home Plan would provide relief to homeowners in danger of foreclosure.

TAX REFORM

Would trim corporate tax rate from 35 percent to 25 percent and maintain Bush tax cuts. Proposes gas tax holiday for consumers (that would reduce funds for the Highway Trust Fund).

CAPITAL GAINS

Would maintain 15 percent tax on capital gains and dividends and phase out Alternative Minimum Tax.

ENERGY

Supports more domestic energy production of all kinds—oil, gas, nuclear, coal and renewable energy sources, as well as conservation and green technology development.

GOVERNMENT CONTRACTING

Would make every aspect of government purchases and performance transparent. Supports utilizing the private sector to deliver services, and blames opposition to contracting out on "labor leaders looking to swell the ranks of federal government unions."

Which candidate will better serve our industry?

Decisio

Positions at a Glance

INFRASTRUCTURE

Proposes National Infrastructure Reinvestment Bank that would make an additional \$60 billion available for infrastructure over the next 10 years.

ECONOMY

Provide additional tax rebates to working families. Establish Foreclosure Prevention Fund. Create Advanced Manufacturing Fund to promote more efficient manufacturing techniques.

TAX REFORM

Would eliminate most Bush tax cuts. Would raise top two income tax brackets for families earning more than \$250,000 to 36 percent and 39.6 percent; would provide \$1,000 tax credits to working families.

CAPITAL GAINS

Would raise taxes on capital gains and dividends. Reduce taxes on small business owners.

ENERGY

Will focus on alternative and renewable energy sources, open to more offshore drilling if incorporated into larger package of conservation/renewable initiatives; create 5 million "green collar" jobs.

GOVERNMENT CONTRACTING

Seeks additional oversight of government contracting process to reduce waste and corruption. Supports unions and vows to curtail what he sees as excessive federal dependence on private contractors for performing inherently governmental functions.

By Stacy Collett

n '08

ETHAN MILLER/GETTY IMAGES

As the race for U.S. president enters the home stretch, the debate continues among engineering professionals regarding which major-party nominee—Republican John McCain or Democrat Barack Obama—would be best for the industry.

Most already know where Sens. McCain and Obama stand on many of the hot-button issues—the war in Iraq, the war on terrorism and health care.

But what about issues pertaining to the engineering industry, such as transportation, energy, the environment and taxes?

“The candidates are expected to remain true to their party colors,” says FOX News political analyst Morton Kondracke.

“For all their promises to work across party lines and seek bipartisan consensus solutions to America’s problems, Barack Obama and John McCain have laid down economic platforms that are classic reflections of their parties’ ideologies.”

Kondracke, who will be a featured speaker at the upcoming ACEC Fall Conference in Montréal, Oct. 19–22, adds: “Obama, whose voting record is the most liberal in the Senate, wants to expand government intervention and investment, raise taxes on upper-income individuals and businesses and redistribute income down the economic scale.

“McCain, once a maverick, now favors retaining all of President Bush’s tax cuts and lowering the corporate rate, arguing it’s the best way to create jobs. He wants to reduce domestic spending and proposes free market reforms for health care.

“Whoever is elected will have a hard time ending the partisan polarization that keeps Washington gridlocked,” Kondracke says.

An in-depth examination of the candidates’ speeches and websites, as well as what is said about them by business and industry leaders, sheds light on their views on issues relevant to the engineering industry.

Transportation Infrastructure

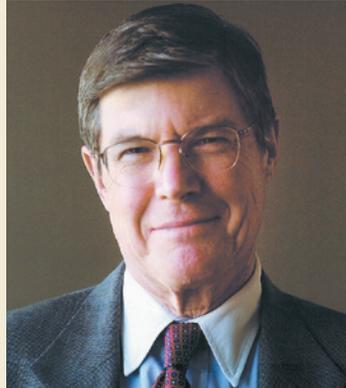
Obama has said that strengthening the nation’s transportation systems, including roads and bridges, is a top priority.

“Too many of our nation’s railways, highways, bridges, airports and neighborhood streets are slowly decaying due to lack of investment and strategic long-term planning,” asserts Obama in campaign literature. “America’s long-term competitiveness depends on the stability of our critical infrastructure.”

Obama has proposed a National Infrastructure Reinvestment Bank that would make \$60 billion available for infrastructure projects over 10 years in addition to annual Highway Trust Fund appropriations. The bank would provide lines of credit or loan guarantees to states for projects. When those

Barack Obama and John McCain have laid down economic platforms that are classic reflections of their parties’ ideologies.

MORTON KONDRACKÉ
FOX NEWS



has called for line-item veto authority over any bill he deems potentially wasteful.

McCain was one of four senators who voted against final passage of the Safe Accountable Flexible Efficient Transportation Act—A Legacy for Users (SAFETEA-LU), which provides funding for highway projects. The move, prompted by McCain’s concerns over earmarks in the bill, drew mixed reviews from the industry.

“While we don’t think earmarks are necessarily a great idea and there have certainly been abuses of earmarks...we think earmarking has its place,” says Cathy Connor, senior vice president and manager of government affairs at PB (formerly

loans are repaid, the money goes back into this bank for future projects.

McCain has yet to offer a formal proposal on national infrastructure repair and improvement. He has come out against federal earmarks—the insertion of local pet projects into legislation—and



JACK GUEZ/POOL/GETTY IMAGES

Large projects do need periodic large influxes of money that comes through earmarks.

CATHY CONNOR

PB



Parsons Brinckerhoff). “When we’re building enormous, billion-dollar high-way interchanges and interstate bridges, the formula program just isn’t sufficient, and large projects do need periodic large influxes of money that comes through earmarks.”

Industry watchers also have reacted with skepticism to McCain’s proposed gas tax holiday. Sen. Jon Kyl (R-Ariz.) attempted to insert the proposal on behalf of McCain as part of technical corrections to SAFETEA-LU. The proposal would have suspended gas taxes from Memorial Day to Labor Day in an effort to lessen the public pain of surging gas prices. Obama opposed the measure from the onset.

Kyl was forced to withdraw the amendment after critics, including ACEC and several of his colleagues in the Senate, argued that temporarily suspending taxes would negatively affect important infrastructure projects, many of which draw their funding from federal gas levies.

Does that mean Obama would be a stronger proponent of

the nation’s infrastructure? Not necessarily, says Peter J. Morici, professor of logistics, business and public policy at the University of Maryland, College Park.

Morici says the engineering industry probably “is going to get more attention paid to infrastructure over the next two years out of Obama than with McCain, but McCain would still fund infrastructure programs, simply because there’s going to be so much pressure to prime the pump.”

Tax Reform and the Economy

Tax reform and economic revitalization have bottom-line impact on engineering firms. Again, the candidates have different approaches to business issues.

“McCain’s policies are designed to reward companies that are already doing well, while Obama’s policies are designed to strengthen the overall business environment and create new opportunities for business,” says John S. Irons, research and policy director for the Washington, D.C.-based Economic Policy Institute.

“McCain has proposed to reduce the corporate tax rate, maintain all of the Bush tax cuts, and alter depreciation rules that would result in even lower effective tax rates for corporations,” Irons says. “Obama aims to create new jobs in manufacturing and end tax loopholes that reward firms for sending jobs overseas. He also is proposing eliminating some capital-gains taxes on small businesses to help new startups prosper.”

Obama has pledged to provide a \$1,000 tax credit to working families across the board to offset payroll taxes. For families bringing in more than \$250,000, Obama would raise the top two income-tax brackets back to the 36 percent and 39.6 percent rates that were in effect in the Clinton years.

He also is seeking to raise the capital gains tax rate from 15 percent to 20 percent for those Americans making more than \$250,000 per year—the lowest rate that existed in the 1990s and the rate President Bush proposed in his 2001 tax cut. “A 20 percent rate is almost a third lower than the rate President Reagan set in 1986,” said Obama advisors in *The Wall Street Journal*.

Obama also proposes to raise taxes on oil and gas companies, tax the gains of private equity partners as regular income rather than at the lower capital-gains rate they now pay, and target overseas tax havens and income earned overseas.

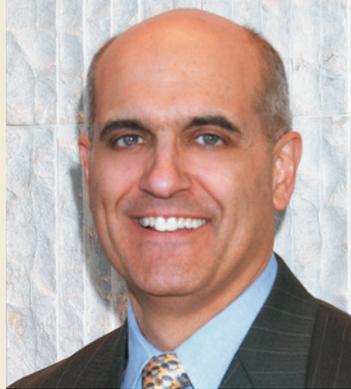
McCain’s Jobs for America proposal would provide relief to families hit hard by high gas and food prices through a reintroduction of his gas tax holiday, which some estimates say could have saved consumers \$6.8 billion in taxes during the summer. He also would repeal the 54-cent-per-gallon tax on imported sugar-based ethanol and roll back corn-



EMANUEL DUNAND/GETTY IMAGES

No matter who gets in, you're going to see more emphasis on climate change and energy efficiency legislation going forward.

JAY FARRAR
CH2M HILL



based ethanol mandates, which have been blamed for rising food costs.

In addition to making the Bush tax cuts permanent on income, capital gains and dividends, the Arizona senator would reduce the estate tax from its planned 2009 rate of 45 percent to 15 percent, while also trimming the corporate tax rate—one of the world's highest—from 35 percent to 25 percent, a move designed to make American companies think twice before moving operations offshore.

Energy and the Environment

Faced with mounting concerns about the environment, both major-party candidates have proposed measures to reduce greenhouse gases, carbon footprints and fuel consumption.

"EPA enforcement over these last years has waned a fair amount," says Jay Farrar, senior vice president at Englewood, Colo.-based CH2M HILL. "No matter who gets in, you're going to see more emphasis on climate change and energy efficiency legislation going forward."

Bucking the notion that Republicans are soft on the environment, McCain has introduced the Lexington Project, a sweeping energy proposal that aims to reduce the nation's dependence on foreign oil, while exploiting clean, more environmentally friendly alternatives.

As part of the plan, McCain advocates expanding domestic oil and natural gas production; offshore drilling; powering automobiles through means other than oil; and investing in clean, alternative sources of energy, including a proposal to construct 100 new nuclear power plants by 2030 and implement a permanent tax credit to 10 percent of wages spent on corporate research and development.

McCain also proposes a cap-and-trade system aimed at reducing greenhouse gas emissions by setting a cap on the amount of greenhouse gases companies can emit and allowing them to buy and sell their rights to emit, similar to the acid-rain trading program of the 1990s.

Obama's plan, titled New Energy for America, would create more than 5 million "green-collar" jobs by investing \$150 billion over 10 years to advance the production of biofuels, renewable energy and clean coal and the training of people for careers in those sectors. He initially opposed new offshore drilling, as did McCain, but later said he would support it as part of a larger program to lower energy costs.

Like McCain, Obama also would establish a cap-and-trade program as an incentive to reduce greenhouse gas emissions. His plan also includes a pledge to put 1 million domestically built hybrid cars on American roadways by 2015 and ensure that 10 percent of the nation's electricity comes from renewable sources by 2012, increasing to 25 percent by 2025.

Future Changes

No matter who takes the White House in November, changes to existing infrastructure and environment and energy policies appear imminent—and that's good news for the engineering industry.

Such reforms also require "more innovative approaches to how you design and engineer solutions in buildings, roads, rail, even water treatment plants," says Farrar. "How do you create energy, manage it; how do you make those plants more efficient and at the same time reduce their carbon footprint? All those things require engineering know-how. A lot of companies will thrive on that."

"I think an Obama administration presents us with opportunities as well as challenges," says Steve Hall, ACEC's vice president of government affairs. "Looking ahead to 2009, with Democratic majorities in the House and Senate, a Democratic White House might offer us a new opportunity to secure significant funding increases during SAFETEA-LU reauthorization, as well as more federal funding for water infrastructure.

"At the same time, the positions Obama has taken on such business issues as health care reform, taxes and contracting out suggest that we will have some work to do in protecting the interests of our Members."

Mccain's policies are designed to reward companies that are already doing well, while Obama's policies...create new opportunities for business.

JOHN IRONS
ECONOMIC POLICY INSTITUTE



The same dilemma holds true should McCain prevail in November. "On the infrastructure front," says Hall, McCain continues to favor the elimination of congressional earmarks. While I think some of our members would support the senator's position here and give state departments of transportation more flexibility in how they spend federal funds, we'd also like to see a much more

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aggressive stance from Sen. McCain on the need to invest more in transportation and environmental infrastructure.”

At the same time, Hall adds: “We like the fact that McCain has a strong record supporting the private sector on tax reform, health care, regulatory relief, contracting out and other business issues.”

The debate is even evident between the candidates' home states. ACEC/Illinois Executive Director David Kennedy, for example, sees a lot of industry positives in an Obama victory.

“We are spending a great deal of money on the war in Iraq and on that country's reconstruction, yet we are underfunding infrastructure here at home,” says Kennedy. “I think an Obama administration could result in a lot of new work opportunities brought about by new policies on energy development, addressing global warming and other environmental issues, working with a Democratic Congress on a new transportation reauthorization bill and funding the Water Resources Development Act along with other infrastructure programs.”

Meanwhile, in McCain's home state of Arizona, ACEC/National Director Ken Feyen notes what engineering firms can expect from a McCain administration.

“I think the first thing you should recognize is that John McCain always has supported small business and entrepreneurship,” Feyen says. “He believes entrepreneurship creates the ultimate job security and individual wealth. Sen. McCain supports tax relief for the small business, including a first-year deduction or expensing of equipment and technology. He also would establish a permanent tax credit equal to 10 percent of wages spent on R&D. He also would reduce the corporate tax rate, which is essential to

keeping jobs in the United States and stimulating the economy.”

New York City Mayor Michael Bloomberg, who also is co-chairman of the Build America's Future coalition, believes the nation's transportation infrastructure outlook should be a higher priority for both campaigns.

“We have the opportunity to get the stimulus right this time if we take a different approach: putting more Americans to work building the infrastructure we need to compete in the global economy and to remain the world's economic superpower,” Bloomberg says.

“Investing in these kinds of projects across the country would reduce unemployment; increase revenue for cities and states that are struggling to balance their books; and attract billions in private investment over the next few decades.”

ACEC President Dave Raymond sums up the challenge for the engineering industry presented by the election as follows: “Looking after the fundamental health and safety of the public and the growth of our economy is ACEC's common ground with both candidates. The central question for us in the outcome of the election is whether we start with an Obama higher government spending approach and then seek to protect ourselves on the tax and regulatory front, or with a McCain lower government spending approach and then seek to inject more infrastructure spending into it.” ■

Stacy Collett is a freelance business writer based in Downer's Grove, Ill.



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By Gerry Donohue

RISK

In a Multidiscipline World

As firms expand into new territory, professional liability concerns mount

Professional liability risks lurk behind every decision and action an engineering company undertakes. Small and single-discipline firms often have an advantage in managing these risks because their size and focus allow them to maintain tight controls. Multidiscipline and larger firms, however, face a daunting array of professional liability challenges, from inside the firm and in the marketplace.

When you're doing bridge work, the processes are well known and the people are well trained.

JACK BEEMER

DAVID EVANS AND ASSOCIATES



"Exposure comes from every angle of our business," says John Magliano, chairman of Syska Hennessy Group, a M/E/P firm in New York City. "And every one of them presents a significant risk in this market today."

Risk lurks in unexpected places. Jack Beemer, corporate risk officer at David Evans and Associates, Inc., in Portland, Ore., says that engineering firms face less risk designing a bridge, for example, than staking a construction site.

"When you're doing bridge work, the processes are well known and the people are well trained," says Beemer. "You have state and federal design requirements that are well defined and you have to meet those standards."

"Construction staking, on the other hand, tends to be fast-moving. You don't have a lot of time to understand the problems and consider the situation. It's a segment that's prone to errors. And if something gets built wrong, you have to pay for the actual construction correction. Some of our biggest claims have been in low-fee construction staking jobs."

On top of these discipline-specific risks, firms face the challenges of operating across diverse markets and through widely dispersed offices. As a result, Tim Corbett, president of SmartRisk, a Pasadena, Calif.-based risk management consulting firm, says, "Multidiscipline firms are often inconsistent in developing their risk management practices. They really need to establish a consistent practice across the whole firm."

Facing the Challenges

Several factors combine to prohibit multidiscipline firms from establishing a consistent risk management strategy.

At their inception, most engineering firms focus on one discipline. The founders build the firm around their expertise, such as structural or civil engineering.

"In smaller firms, the principals can get involved in every project and they can manage risk as they want to," says Bob Fogle, corporate risk officer for HNTB, a national multidisciplinary firm that works in transportation, bridges, aviation, architecture, urban design and planning, environmental engineering, water and construction services. "As you get larger and have offices all over the country, however, the people who are managing the risks every day are farther removed. You don't have a senior leader of the firm engaged in every project."

This distance creates disconnects where mistakes can arise. "Management may understand the risks inherent in a particular discipline, but a lot of times the field employees may not," says Dave Collings, an Atlanta-based partner at the insurance brokerage firm Ames & Gough. "Creating risk management awareness across a widespread firm can be a significant challenge."

Expansion creates its own problems. As firms enter new fields, there might be a lag before they acquire the knowledge and experience to recognize and understand the risks of the discipline. "Some disciplines, such as structural or geo-tech, carry a higher risk than others, such as electrical," says Collings. "We've been surprised at how often a firm's perception of a discipline's risk doesn't match the reality."

Conversely, a firm might make an acquisition to gain immediate knowledge and experience in the new discipline, yet must then inculcate the corporate culture to new staffers.

Finally, firms sometimes make questionable expansion decisions in a slow market. "When a firm goes looking for revenue in new disciplines or with new clients," says Corbett, "risk increases dramatically."

Another problem area, says Corbett,



arises from the relationship of the various disciplines within the firm. "In some firms, each discipline becomes like a firm within the firm," he says. "Each one works independently, with its own way of doing things."

And disciplines within firms don't always work together coherently. "There is a ubiquitous communication problem," says

In smaller firms, the principals can get involved in every project and they can manage risk as they want to.

BOB FOGLE

HNTB



Randy Lewis, vice president of loss prevention and client education at XL Insurance in Denver. “For example, the structural engineers in a firm make a design change, but they fail to bring M/E/P into the loop or they do it with e-mail. They don’t talk it through and make sure it goes through. M/E/P has to scramble, and then someone wonders if anyone told the fire control people. It all cascades if it’s not dealt with.”

In a recent Ames & Gough survey of a large multidisciplinary firm, engineers cited communication as the primary key to risk management—communication up and down within the firm, across disciplines, and especially with the client.

Putting Policies in Place

Managing professional liability risk in multidiscipline firms requires many of the same strategy components used by engineering firms of all sizes. Risk management

experts say it’s more difficult to implement these components and point to five key risk management strategies: technical expertise, client relationships, communication, contracts and training.

Syska Hennessy’s Magliano believes technical expertise is the foundation of successful risk management. “If you produce your product in a disciplined way, if you produce a quality technical product, you are going to avoid much of the risk,” he says. “You preclude the results of your risk creation.”

“Technical expertise is very important, especially on larger, more complex projects,” concurs Ames & Gough’s Collings, “but firms also have to have a high level of awareness of risk.” Let’s say, for example, that a less experienced person in a local office runs into a professional liability problem. Some firms are open to calling in senior people from the home office to solve the problem. Others don’t want the home

Those firms that are more open are able to keep small problems small.

DAVE COLLINGS
AMES & GOUGH



office to know, and the inexperienced people try to deal with the situation. “Those firms that are more open are able to keep small problems small,” says Collings.

David Evans’ Beemer says the most important risk management factor is the firm’s relationship with the client. Firms need to know with whom they are

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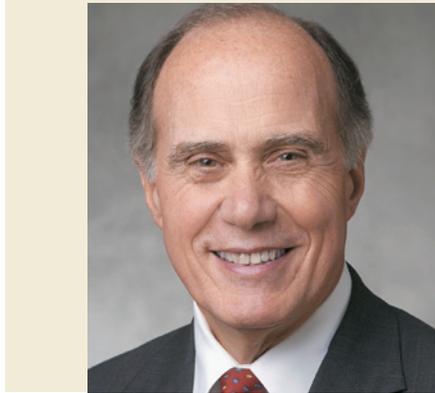
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2007-2008 ACEC/MA President*

We ask our senior people to train the staff through example on a day-to-day basis.

JOHN MAGLIANO

SYSKA HENNESSY GROUP



working and then maintain a good, open relationship with those clients as they move through the project.

“Relationships are your first line of defense,” Beemer says. “Ninety-nine times out of 100, it’s the relationship that makes a project work.”

Patrick McCarthy, director of risk management for the architects and engineers department at Lexington Insurance Company, agrees. “You need to know your client. You have to know their background. You have to know their history of litigation.”

As in any successful relationship, good communication is the key. “You need constant communication with the owner,” says McCarthy. “If there’s no communication, the client’s first reaction to bad news is to file a claim.”

When a client relationship does go sour, consistent contract and design document procedures might mean the difference between a minor inconvenience and a major settlement.

“No matter the discipline or the size of the firm, contracts are extremely important,” says McCarthy. “They ensure that the design professional is held to a professional standard of care.”

The challenge for many firms is that contracts often are negotiated at the project level over a long period of time and go through much iteration. It’s easy for ambiguity to slip into the wording, for the scope and the fee to slip out of alignment, or for wording that guarantees performance to find its way in. In the fervor to get the

project, field managers might not be as diligent as they should be.

“Given the autonomy that other-than-senior people have to negotiate contracts and other services,” says Magliano, “everyone needs to be very familiar with terms and conditions.”

“In our firm, any outside contract has to go through the risk management department,” explains Beemer. “And any large contract has to go through the contract review team.”

At HNTB, a Standards of Performance for contracts spells out, in detail, who needs to be involved in which type of contract based on a host of factors, including the size of the project, the role HNTB is playing and the size of the client. “Eighty percent of the contracts need to go through risk management,” says Fogle. “About the only types of contracts that don’t go through us are those with clients with whom we sign multiple contracts a year for recurring projects.”

Training ties together all these risk management practices. It provides the framework for attaining technical expertise, building good client relationships and putting together a strong and consistent contract regimen.

“In most firms, there’s a big gap between the senior and junior staff regarding risk,” says Corbett. “That knowledge has to be

In most firms, there’s a big gap between the senior and junior staff regarding risk.

TIM CORBETT

SMARTRISK



passed on, and training programs are the best way to do that.”

Syska Hennessy has an extensive training program. “We have classes through our in-house general counsel or outside counsel about once a month,” says Magliano. “Then you have to factor in our risk management meetings, which are essentially also training, and they take place once a month as well.”

Additionally, Magliano says, “we ask our senior people to train the staff through example on a day-to-day basis.”

HNTB integrates “risk management into virtually all of our in-house training,” says Fogle. “We have all kinds of training for project managers and client managers, and generally a piece of that training has to do with risk management.”

Walking the Walk

Successful engineering firms have a culture of risk management. It isn’t an afterthought or a piece of the puzzle; it’s an approach to business. Small firms get that approach organically from the principals, who are often on the front line. Bigger, multidiscipline firms have to build a culture of risk management more formally.

Most firms have put in place risk management training programs, risk management manuals and risk management policies and procedures designed to squeeze out the mistakes and miscues that can lead to someone filing a suit. They even have staff whose sole role is to ensure that risk management stays high on everyone’s list. At HNTB, for example, the risk management department has 10 people.

As important as all these formal practices are, XL’s Lewis says, it’s a firm’s drive and commitment to sustained risk management that makes the difference.

“All too often, we see firms establish a set of standard risk management policies and procedures and then hope they are being implemented,” says Lewis. “Hope, however, is not a method. You have to go out and confirm that these things are being done.” ■

Gerry Donohue is ACEC’s senior communications writer.

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KJWW provided engineering services for the Kishwaukee Community Hospital in DeKalb, Ill., (above) and Edward Hospital in Plainfield, Ill. (below); Sparling expanded and upgraded facilities at the MD Anderson Ambulatory Clinic Building in Houston (bottom left) and the Children's Hospital in Aurora, Colo. (right); and Mulkey provided engineering services for WakeMed's Raleigh campus in N.C. (bottom right).



Designs

By Samuel Greengard

Engineering helps \$25 billion health care facility industry modernize with equal parts care and comfort

The art and science of treating people and improving their physical being has steadily evolved over the past century. Medicine has undergone enormous advances, and new knowledge and technology have revolutionized the treatment of sickness and disease. Step into a typical medical facility anywhere in the country these days, and you'll confront a menagerie of high-tech equipment set amid a fairly sterile backdrop of white walls and harsh, utilitarian design—an environment that under any circumstances would seem uninviting.

But all that may soon change. The concept of what a hospital is and how it should look is, for the first time, undergoing serious reexamination. In recent years, health care providers have challenged architects, designers and engineers to take a fresh look at how they design patient rooms, waiting rooms, nursing stations, utility closets and public spaces. "An entirely different approach to building facilities and designing space has emerged," says Todd Liebert, president of Clark Patterson Lee, a Rochester, N.Y.-based design firm that specializes in hospital projects.

A confluence of factors is changing the industry landscape. For one, there's a greater desire to make patients feel comfortable—and thus improve a facility's image, market share and clinical efficacy. And then there are regulatory factors, such as the need to design rooms for a single patient. Finally, a tangle of new technologies is streaming into the hospital environment. These include advancements in wireless networks, air quality systems, entertainment systems, communications equipment and more

advanced medical machinery—as well as systems to track and maintain them.

Increasingly, research studies, patient focus groups, a shifting industry outlook and the sheer logistics of integrating systems and equipment into a facility influence decision-making. Says Sarah Gilbert, director of strategic capital projects for St. Mary Mercy Hospital in Livonia, Mich.: "Hospital buildings are aging, and health care providers are looking to evolve to a more contemporary approach. There is a focus on building facilities that better meet the needs of patients."

Rx for Change

Creating a comfortable stay for medical patients hasn't always been at the vanguard of thinking. Throughout most of the 20th century, hospitals have been drab and sterile places filled with uncomfortable furniture, harsh fluorescent lights, noisy rooms, bad smells and unappealing food. Too often, patients shared rooms, had limited privacy and little space for visitors.

In the 1990s, the health care industry

began to solicit a second opinion about what a hospital is and what approach it should take. Melding medical needs with a bit of a Marriott mentality, some said, would create a more comfortable environment—one that helps patients heal. The concept first took shape in birthing rooms. Some hospitals began to equip these spaces with plush sofas and chairs, colorful walls, attractive art and beds that looked like they were rolled in from a furniture showroom. Closets, drawers and other hidden spaces sported the less aesthetically pleasing equipment needed to handle a delivery.

The trend eventually became a marketing tool for health care providers looking to gain a competitive advantage in the highly

An entirely different approach to building facilities and designing space has emerged.

TODD LIEBERT

CLARK PATTERSON LEE



A Model Hospital

One of the most design-conscious hospitals in the world is Rikshospitalet University Hospital in Oslo, Norway. The \$500 million, 1.4 million-square-foot facility with 585 beds has emerged as a model for much of the world. It includes skylights, floor-to-ceiling windows, painted glass, soft lighting in place of fluorescents, fountains, art, textiles, gardens and a panoramic view of nearby fjords.

A renowned pediatrics and maternity wing includes vibrant colors, a play area and a bed for parents in each child's room. Waiting rooms include television sets, pianos, computers and game tables. The upshot? Since opening in 2000, Rikshospitalet University Hospital has doubled the number of patients it accommodates (and received superior ratings) while lowering turnover, absentee rates and overall costs. In a 2004 *New York Times* article, architect Arvid Ottar described it as "a humanistic hospital: built by humans for humans."

profitable baby delivery business. By the early 2000s, many hospital executives began to realize that a homespun touch paid dividends. Today, the list of amenities includes comfortable single rooms with nice views, soft lighting, nearby gardens and many of the amenities of home—including wireless Internet access, home theater and entertainment (including high-definition flat-screen televisions), video games and a more diverse and appealing menu.

Tony Monk, who specializes in health care design and is the author of the book *Hospital Builders*, believes that the trend is all about "dollars and sense." He argues that people who enter a facility are vulnerable and the environment can sometimes make or break their recovery. And there's growing medical evidence to support the notion. But the evolution of medical facilities also is about creating a better environment for health care workers and stamping out infection.

It's no small matter. The Center for Health Design, a Concord, Calif.-based nonprofit organization that promotes the idea of "healing" hospitals, estimates that capital spending on health care facilities will rise to \$25 billion annually in 2010—up from \$15 billion in 2006.

The organization reports that much of the additional outlay for upgraded facilities—typically \$12 million for a \$240 million, 300-bed facility—is recouped through reduced infection rates and better patient recovery. Researchers also say that better facilities attract top-tier physicians and other health care workers. "It creates a better environment for everyone," says Mercy's Gilbert.

But turning that concept into reality can sometimes prove daunting. Designing and building a new facility—or retrofitting an existing one—can take years and involves complicated architecture, design, engineering and project management skills. Success requires new ways of thinking and a high level of communication and cooperation among construction partners and subcontractors.

"Medical facilities are extremely complex," explains ACEC Vice Chairman James Duncan, chairman and chief engineer at Seattle-based Sparling, which specializes in hospital construction. "A typical project requires detailed knowledge and expertise in an array of systems and technologies."

The engineering expertise required for health care facilities is among the most challenging in the industry. Hospitals

require tight integration among a variety of systems—including electrical, lighting, computer networking, voice communication, HVAC and medical equipment. "It's no longer feasible to operate each system using separate wiring or cabling," Duncan says. "Space planning and design elements must enter the process from the very beginning and influence a project throughout the planning and construction phase." Moreover, he says, designers must create adequate spaces and pathways for future equipment—including information technology (IT) systems. And those subtle differences can make or break a contract.

Sparling typically works with clients to identify the focal points for projects. Like most companies providing design or engineering services, it increasingly relies on Building Information Modeling (BIM) software to fully explore options.

"3-D drawing development is becoming common," adds Grant Schmidt, senior engineer and market segment leader for health care at KJWW Engineering Consultants in Rock Island, Ill. "It is an important tool in understanding the scope of a project and conducting what-if scenarios. It helps an organization minimize the price of construction and avoid excessive change orders."

Valoree Eikinas, principal and director of building systems for Raleigh, N.C.-based Mulkey Inc., says her firm does not yet see a critical demand for BIM in the health facilities sector, but clients do expect firms to work quickly and design with an eye toward the future.

"The ability to design at a fast pace and design in future expectations is key in the health care field," she says. "Hospitals exist for many years and evolve rapidly as technologies evolve. The engineering team needs to be able to design systems capable of evolving with them."

Trading Spaces

The trend to rethink the notion of hospital space—as well as patient rooms—is gaining steam the world over. Health care facilities in North America, Europe and beyond are looking to make hospitals feel and look more like home. Driving the trend is the

A typical project requires detailed knowledge and expertise in an array of systems and technologies.

JAMES DUNCAN
SPARLING



It's ultimately a question of what a hospital desires, what it actually needs... flexibility and expandability are essential.

GRANT SCHMIDT
KJWW



fact that many facilities, originally built in the 1950s or 1960s, are in desperate need of renovations and upgrades. As a result, some owners are completely rebuilding facilities, while others choose to remodel existing buildings and infrastructure.

Patient rooms typically have doubled in space—many of them built to accommodate one, rather than two, patients. Sinai Hospital in Baltimore has gone a step further and built a guesthouse—complete with cable TV, private baths, sitting areas and a telephone—for families of long-term patients. A growing number of facilities also include private showers, sophisticated windows and lighting systems (capable of providing everything from actual daylight to specialized blue light designed to minimize disruptions to circadian rhythms) and sound-absorptive materials that reduce noise and disruption.

In addition, computer systems and patient portals increasingly offer quick and easy access to medical data, interactive educational materials and point-to-point communication tools that connect directly to medical professionals within a facility. Networks—with wireless Internet access—accommodate everything from laptop computers and personal digital assistants to mobile medical equipment. In many instances, hospitals even are tying patient-facing systems into room-installed TVs, providing a central place to view treatment calendars, order meals and discuss medication regimens.

“Architects and design professionals must

keep up with cutting-edge trends,” says Liebert. Indeed, as hospitals migrate from multiple, independently run systems to a central IP-based approach, administrators are learning that it's essential to design and build work and patient areas to accommodate the various tools and technologies of the trade.

Some hospitals even are turning to peer-reviewed scientific journals to provide clues about how to adapt and change hospital settings. Medical professionals are learning that it is vital to standardize operating rooms (in order to minimize the risk of errors); construct nursing stations that keep nurses deployed rather than congregating at central administrative areas; and design common areas so as to minimize worker fatigue and speed access to records, supplies and equipment. For design and construction professionals, this evolving approach means understanding how facilities—and the patient environments and workflows they create—contribute or inhibit the spread of infections, potential injury, facility transfers and even staff turnover.

It's a concept that Mercy's Gilbert understands well. The 304-bed facility is undergoing a major rebuilding and renovation project spearheaded by ACEC Member Firm KJWW that involves the construction of a new emergency center and an outpatient surgery department, the redesign of rooms, more efficient use of public spaces and the integration of advanced lighting and climate controls.

Project managers are scrutinizing industry best practices and soliciting feedback from focus groups and patients. Ultimately, Gilbert says, the success of the project, slated for completion in 2011, is dependent upon “the entire team and the expertise that it brings to the table.”

Balancing current practices with emerging design trends and technology systems is essential. “We have tried to look beyond what's available today and understand what will likely be necessary in the future,” says Gilbert. That means understanding feasibility and cost issues necessary to complete the project. Getting a handle on the data means being able to work closely with con-

A New Standard of Care

Here are some of the major changes in modern hospital design:

- Larger rooms designed for a single patient. These spaces increasingly include windows and private showers.
- Replacing harsh fluorescent lighting with softer fluorescent or incandescent lighting.
- Patient portals offering hospital information, treatment schedules, video on demand, music, games, Web access, e-mail and more. A growing number of facilities are installing high-definition TVs and home theater components.
- Additional space for robotic surgery units.
- More efficient and ergonomic corridors and public areas, optimized for electronic records.

sultants and design firms with deep technical knowledge of lighting, acoustics, electrical systems, mechanical systems, ergonomics, IT and more.

KJWW's Schmidt says it's best to use a detailed matrix that leads executives, project managers and engineers through the entire analysis and planning process. “It's ultimately a question of what a hospital desires, what it actually needs, what the infrastructure can support and what its budget is,” he says. “Flexibility and expandability are essential.” It's also wise to assemble a strong core team—including outside consultants and subcontractors, if necessary—that truly understand a hospital's unique situation. Bringing in expertise early and conducting a thorough analysis “can have a huge domino effect by building a solid foundation,” says Schmidt, who adds that an 18- to 26-month construction process isn't unusual.

One thing is certain: Hospital design is evolving, and firms that work with these facilities are being forced to upgrade their internal expertise and offerings. This new environment serves up its share of opportunities and challenges. “It is an exciting time to work with health care organizations,” says Sparling's Duncan. “Hospital design and engineering now require a strong balance between knowledge, skills and creativity. It's an entirely different world than a few years ago.” ■

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

TAKING THE

By Jim Parsons

At some point in their careers, many engineers confront the question, “Where do I go from here?” ■ The answer is not always easy. When most engineers earn their bachelor’s degrees, they focus first on landing a job. As they gain experience in the field, that focus often shifts from the short-term challenges of daily work to long-term career goals.

Longer-term goals, however, often require augmenting current technical skills with additional training in the business of engineering—such as project and personnel management, leadership, budgeting and finance, communication, marketing, even law.

“In today’s world, you don’t advance by sitting in an office with a calculator and doing design,” says Raymond Krizek, a professor at Northwestern University’s Robert R. McCormick School of Engineering and Applied Science in Evanston, Ill.

Engineers looking to expand their knowledge of business concepts have a variety of educational options: full-blown master’s programs in engineering management; shorter courses, including the five-week ACEC-sponsored Senior Executives Institute (SEI); or intensive multiday seminars targeting key firm-management issues.

Business in the Engineering Environment

Several colleges and universities across the country now offer a master’s degree in engineering management (MEM). Designed to attract engineers from all disciplines, MEM programs combine key business and management concepts, new and advanced technologies, and analytical and quantitative tools and apply them to the engineering environment.

The curriculum typically is tailored to the needs of civil, structural, mechanical and other engineering professionals. Contrary to the traditional approach, in which firms specialize in specific com-

ponents of the design process, MEM programs reflect the industry-wide shift toward systems integration.

“Engineers need to think differently, as they are increasingly being called on to put sophisticated subsystems together for other people,” says Selcuk Güceri, dean of the Drexel College of Engineering in Philadelphia, which recently announced its new MEM graduate degree program. “MEM provides a bird’s-eye view so that they can integrate the elements of technology, people and resources into successful projects.”

Professor Wade Shaw of the Florida Institute of Technology (FIT) in Melbourne, Fla., and editor-in-chief of *Engineering Management Review*, says MEM graduates are valuable for their skill sets and ability to understand clients’ needs beyond the technical minutiae of a spec sheet.

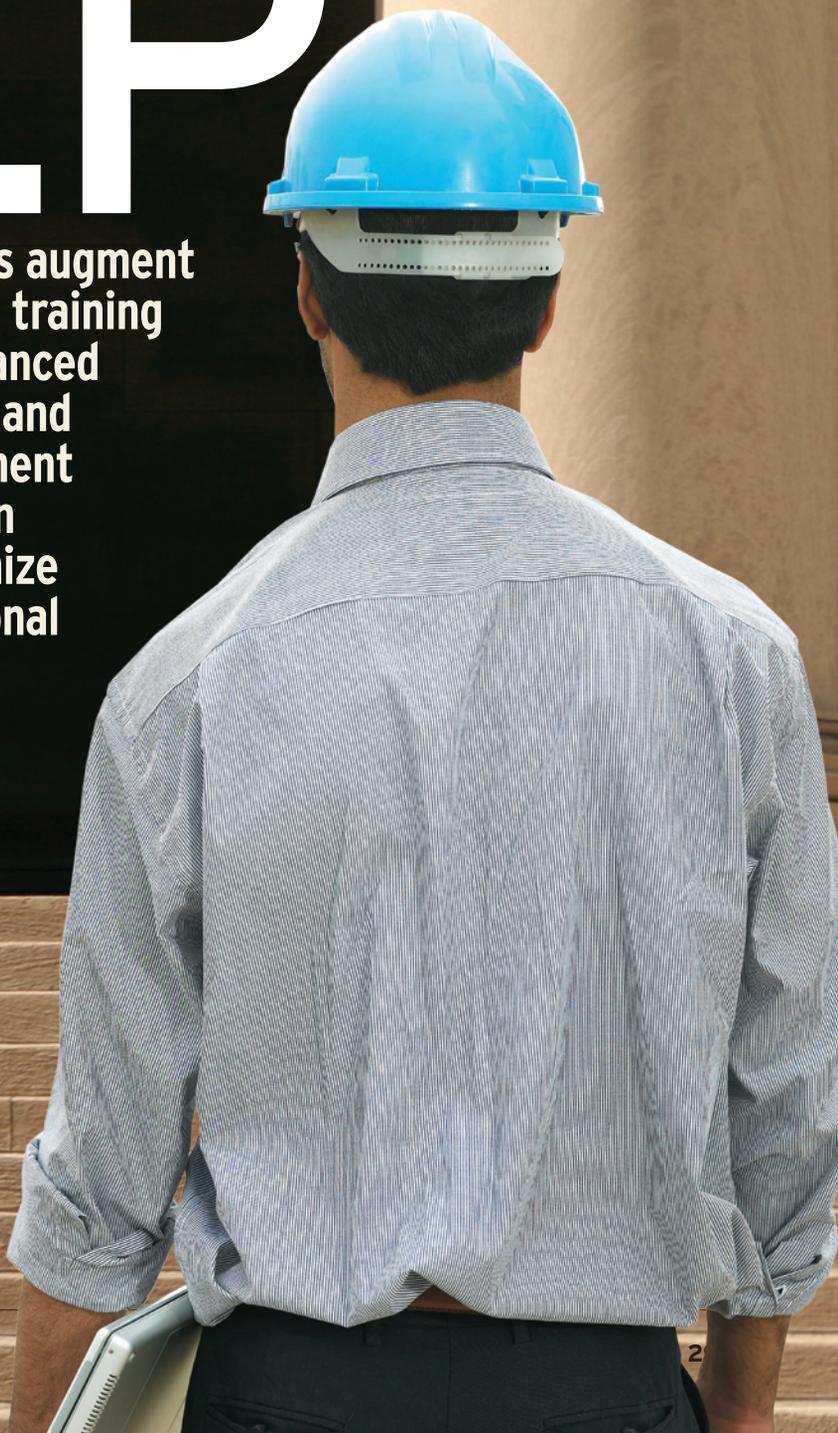
“An MEM graduate degree also communicates that an engineer is sensitive to the issues in an organization that lead to effective decision-making, teamwork, communication and business performance,” he says.

And well-trained MEM graduates don’t require an extensive learning curve to apply their skills. “Our graduates are able to jump in, be productive and contribute to a project, something that’s not always true of other master’s-level programs,” says Northwestern’s Krizek.

These and other attributes appealed to Chris DeGood, a senior civil/site engineer for URS Corporation based in the company’s

NEXT STEP

Engineers augment
technical training
with advanced
business and
management
education
to maximize
professional
growth



Traverse City, Mich., office, and a graduate of Northwestern's MEM program.

"It was nice to get engineering and construction management packaged that way," says DeGood. "With only an undergraduate degree, you may know how to get things done, but you may not know how to make sure the project is profitable."

Other Master's Options

Far more recognizable than the MEM is the Master of Business Administration (MBA). Indeed, many engineers have used MBA degrees as stepping stones to key leadership roles at their firms.

"We're a professional service firm, so our employees should understand what that means," says Phyllis Elikai, vice president of McKim & Creed in Bolivia, N.C., which encourages employees to pursue graduate degrees. "Business issues are rarely covered in undergraduate engineering programs."

Having an MBA on one's resume suggests the ability to see the big picture and to navigate the intricacies of business management, from analyzing financial reports to making strategic decisions.

Other firms that promote graduate work focus on more technical areas. Chicago-based H.W. Lochner encourages its design professionals to pursue a Master of Science (M.S.) degree with an emphasis on structural engineering.

"Graduate-level design courses are perfect for our bridge and transportation projects because they provide an advanced analytical perspective," says John Cook, director of human resources for H.W. Lochner. "Some of our offices won't interview structural engineers who don't have an M.S."

Specialized M.S. programs provide more in-depth applications and exposure to new technologies, says Elikai. "Students have the opportunity to associate with research professors and experience things they didn't get as undergraduates. They come back with skills and knowledge of technologies that we can offer to clients or develop in our firm."

Senior Executives Institute

Engineers who don't have the time or

Business issues are rarely covered in undergraduate engineering programs.

PHYLLIS ELIKAI

McKIM & CREED



professional flexibility to pursue a master's degree have a host of alternatives from which to choose. Many universities offer Executive MBA programs. ACEC's SEI program features five weeklong learning sessions spread out over two years.

"The schedule was far more efficient [than a full-time MBA program]," says SEI graduate Kurt Fraese, CEO of GeoEngineers, a 400-person Seattle-based firm. "I needed to stay on the job. Even with all this training, I needed to stay engaged with our leadership."

SEI begins a new two-year program each fall. Class sizes are limited to 28 participants. SEI holds each five-day session in a different location nationwide, and the curriculum focuses on establishing leadership skills and building a learning organization.

SEI's status as an elite program attracts top students. "I asked one of my SEI classmates who has an MBA how the two compared, and he found the quality of the classmates was the most significant difference," says Scott Franklin, senior vice president at Life Cycle Engineering in Charleston, S.C. "Firms tend to be highly selective in whom they send [to SEI]."

Business of Design Consulting

ACEC's Business of Design Consulting (BDC) program offers an even more intense learning experience. Over the course of just four days, participants immerse themselves in all phases of operating an engineering business: leadership and human resources; finance, business management and ownership transition; information technology; contracts and risk management; and marketing.

"It was time well spent," says program participant Brian Dench of Pate Engineers, Inc. "I learned a wealth of information from the speakers, as well as from the interaction with industry peers from diverse markets and geographic locations."

Degrees of Distinction

For many engineers, selecting from among these options is a matter of preference.

"Whereas the MBA is primarily about functional areas of business—finance, marketing, accounting and so forth—the MEM is about integrating technical disciplines within business contexts," says FIT's Shaw. "Because most MBA programs offer very little technical content, it will not make you a better engineer."

But, he adds, "for those who want to stick with design and technology, the M.S. is better."

With only an undergraduate degree, you may know how to get things done, but you may not know how to make sure the project is profitable.

CHRIS DEGOOD

URS CORP.



Online Training an Increasingly Viable Education Option

One important consideration for prospective graduate students is whether to pursue a degree through traditional on-site classes, or through a growing selection of distance and online learning options, such as online education.

Online courses are becoming an increasingly popular choice because of lower costs and greater convenience, especially for professionals wedging graduate study into full-time jobs and family responsibilities. Advancements in distance learning technology also are improving connections among far-flung students.

"We must remember too that this generation of young

engineers finds computer-based instruction a more natural environment," Drexel's Güceri says. "Online interaction also has an educational element, as tomorrow's project managers will be coordinating more of their work across multiple offices and time zones."

ACEC Online Seminars

ACEC offers one of the industry's most comprehensive online seminar programs. The seminars are interactive learning events accessible anywhere the Internet is available, typically given in an hour-and-a-half format, and offering 1.5 PDHs.

With one registration fee per connection, a room full of staff can participate at no additional

cost. The constantly updated session topics range from strategic planning and professional ethics to risk management, better contract negotiating, safer electronic information transfer, structuring merger and acquisition deals, and new ways of thinking about recruitment and retention.

Today's hot topics such as calculating carbon footprints as a client service, developing a "cleantech" business strategy, and risk management in green building, provide current industry best practice education.

"As the cost of travel rises and budgets for professional development are tightened, we're seeing increased demand for our online seminars," says Deirdre McKenna, deputy

director of ACEC's Institute for Business Management. "Our response to this demand has been to add topics to the calendar of seminars so we're offering dozens of titles over the upcoming months."

As part of the online seminar calendar, ACEC offers its Market Forecast Series, which feature federal agency leaders presenting an inside look at budgets for upcoming projects, timing and scope. Upcoming Market Forecast Series participants include the General Services Administration (October 9) and the U.S. Army Corps of Engineers (November 13).

For a complete calendar of ACEC Online Seminars, visit www.acec.org and follow the Education link.

Shaw says MEM programs offer the potential to master a new technology or pursue a technical discipline that is different from what one might encounter when earning an undergraduate degree.

"The classic example today is the need for computer technology, but not a computer science degree," he says.

MBA programs promote interaction with a more diverse range of students, whereas many SEI and BDC graduates often point to the industry-specific backgrounds of their fellow graduates as one of the highlights of the programs.

"All my classmates were in the same business," says Fraese. "That's something no other program of its kind could offer. The connection to what we do is of the highest value."

Regardless of which direction an engineer chooses, postgraduate education remains important.

"Anyone who wants to grow in this profession should seek additional education," says DeGood. "Along with enhancing your value to your company and your profession, it's always helpful to go back and catch up on new technologies and new ideas in your field."

The need for technical, business, financial and personnel project-management skills will grow in step with the scope of the challenges that society confronts in the coming decades.

"There are many major lifestyle changes ahead, with many complex, large-scale projects to address them," says Drexel's Güceri. "Who will make the decisions, and who will carry projects through? It won't be lawyers or MBAs; it will have to be engineers." ■

Jim Parsons is a freelance business writer based in Bristow, Va.



The University of Utah's Engineering Management Program is in collaboration with the Department of Civil & Environmental Engineering and the David Eccles School of Business. The MS program is designed to give students a solid engineering background and the tools of business management and decision making.



For more information visit our web page, www.civil.utah.edu, or contact Christi at forsyth@civil.utah.edu.



TRENDS SURVEY REVEALS INDUSTRY CHALLENGES; MAKING THE CASE FOR SUSTAINABLE ENGINEERING

Competition, Higher Standards of Care Join Engineer Shortage Atop List of Industry Concerns

Increased competition throughout the marketplace and higher standards of care were among the top practice challenges cited by engineers in preliminary findings from the American Council of Engineering Companies' (ACEC's) *2008–2009 Design and Construction Industry Trends Survey*.

For a second straight year, respondents also voiced concerns about a worsening engineer shortage—a problem many firms say makes it difficult to replenish employee ranks in light of massive baby boomer retirements.

The annual survey, which includes statistics and trends for business performance and markets as reported by more than 200 ACEC Member Firms, sheds light on a range of industry-related topics: strategic planning, the outsourcing of business functions, and training and leadership, among other concerns.

Strategic Planning

Fifty-two percent of firms that responded to the survey reported having strategic plans in place that look forward an average of 4.1 years. Nearly all firms (96 percent) with 200 employees or more reported having strategic plans. Small firms, however, were significantly less likely to have such plans. Just 64 percent of firms with 20 employees or fewer that responded to the survey had a strategic plan.

Outsourcing

As competition heats up across the industry, many firms have taken to outsourcing certain business functions, freeing up time and resources to focus on client needs and areas of expertise.

Key outsourced staff functions as reported by engineering firms that responded to the survey included:

Payroll	38%
Information Technology	32%
Accounting	17%
Design	4%
Other	8%

Training

The No. 1 training need cited by firms of all sizes, regions and market concentrations was project management and project delivery. Smaller firms said technical, health and safety training was second in importance, while larger firms cited leadership and ethics as second and contracts and risk management as third.

The complete survey will be published Oct. 15. To place your order now, go to the ACEC Bookstore at store.acec.org.

The Business Case for Sustainable Engineering

Over the past decade, the notion that our current economic development model is not sustainable has moved from extremist thinking into mainstream opinion. Driven largely by perceived symptoms of global climate change, the public is beginning to question broadly the current assumptions and approaches for our nation's economic growth and prosperity.

Making our development sustainable while maintaining and improving our quality of life is the critical engineering challenge of the 21st century, says Bill Wallace, founder and president of Wallace Futures Group.

Taken to its fullest extent, achieving sustainability will require a complete overhaul of our facilities and infrastructure, incrementally replacing legacy materials, processes, systems and structures with those that contribute to a cleaner, more efficient means of operation. These replacements must use less resources than their predecessors and have a net positive impact on the environment and society.

Regardless of a firm's size or the markets it serves, business will be affected by this move toward sustainable performance. According to Wallace, here are some ways firms must change to succeed in a sustainable world:

- **Reframe the conversation about sustainable development.** Simply telling clients they need to adopt sustainability principles won't work. Firms must demonstrate how the lack of sustainability is seriously affecting operations and how becoming more sustainable will improve performance.
- **Move up the client's project "food chain."** Waiting for the RFP is no longer a viable business development option. Savvy firms must successfully translate sustainability problems and issues into client needs and discuss them at high levels within clients' organizations.
- **Develop tools and techniques for sustainable design.** Improving sustainable performance means applying principles of life cycle assessment, sustainability audits and assessments, environmental and carbon footprinting, context-sensitive design for transportation, use of natural systems for water and wastewater management, whole systems design and more. Wallace will lead a course on sustainable engineering at ACEC's upcoming Fall Conference in Montréal. ■

The ACEC Institute for Business Management provides comprehensive and accessible business management education for engineering company principals and their staffs. Visit <http://www.acec.org/calendar/eventList.cfm> for a complete listing of ACEC programs.



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ACEC Fall Conference
October 19-22, 2008

Sustainability
in the **BUILT**
ENVIRONMENT



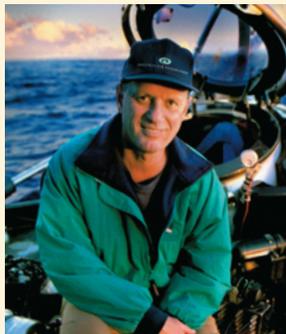
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Legendary Explorer Robert Ballard to Reveal Undersea Secrets

Robert Ballard, world-famous explorer, discoverer and historian who uncovered the wreck of the Titanic in 1985, will share his amazing stories and scientific insights.

In a visually gripping presentation, Ballard will explain his passion for the last great uncharted territory on Earth—the ocean—and his vision for how new technology will continue to advance the frontiers of exploration.

Ballard followed up his discovery of the Titanic—more than 13,000 feet below the surface of the North Atlantic—with discoveries of the wrecks of the Bismarck, the lost fleet of Guadalcanal, the USS Yorktown (sunk in World War II’s Battle of Midway) and President John F. Kennedy’s PT-109. He also discovered new life forms at the bottom of the ocean, where none thought life could exist.

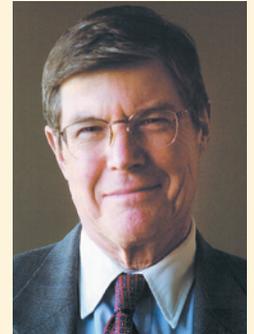


Noted Analyst Morton Kondracke to Provide Election Preview

FOX News commentator Morton Kondracke, one of the nation’s most renowned political columnists, will provide his unique “inside-the-beltway” election insights.

Kondracke has covered the ins-and-outs of Washington politics for 37 years, as the former Washington bureau chief for *Newsweek*, and executive editor and senior editor of *The New Republic*.

He currently is a commentator on the FOX News’ *Special Report with Brit Hume* and is a weekly co-host of *The Beltway Boys*. He is also executive editor of *Roll Call*, and writes a twice-weekly political column syndicated to more than 400 newspapers nationwide.





Passport Information

If you don't have a current passport, you should know it may take two to six weeks to get one. For more information, visit travel.state.gov/passport.

2008 Distinguished Award of Merit Recipient

David P. Billington

The Council's highest award bestowed upon an individual will be presented to one of the world's foremost engineering educators. *Engineering News Record* named Billington "one of the five top educators in the construction industry over the past 125 years."

He speaks to worldwide audiences on the scientific, social and artistic aspects of large structures, illuminating "structural art" as an art form parallel to but distinct from architecture.

Since 1952, ACEC's *Distinguished Award of Merit* honorees have included Presidents Herbert Hoover and Dwight D. Eisenhower, Admiral Hyman G. Rickover, Carl Sagan, W. Edwards Deming and Astronaut Neil Armstrong.



2008 CASE Convocation

Highlights include:

- The Independent Expert Cost Estimator in Dispute Resolution
- Ethics Reform and New Risks to the Business of Engineering
- Risk Issues Related to Green Design and Green Building Certification

Special Activities and Spouse Programs

- Best of Montréal City Tour
- Ethnic Neighborhoods and Wine Tasting Tour
- The French Canadian Experience and the Sugar Shack
- Cirque Performance
- Post-Fall Conference Tour to Québec City

PAC Activities

- Sweepstakes Drawing Grand Prize: \$10,000 CASH!
Cost: \$200 per ticket
- ACEC/PAC Golf Tournament

Top Educational Sessions

Highlights Include:

- Sustaining the World's Infrastructure
- Turning Wastewater into Wanted Water: A Case Study
- Managing Environmental Permitting Risks in a PPP Environment—Completion of A25 in Montréal, Quebec
- Risk Issues Related to Green Design and Green Building Certification
- "Big Box" Owner Panel Discussion
- Lessons Learned from the PBS&J Embezzlement Incident
- Special CAMEE, COPS Sessions

Hotel Information

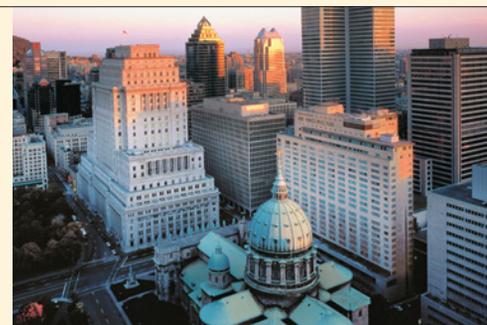
Fairmont The Queen Elizabeth Hotel

This internationally renowned hotel has attracted luminaries from around the world and has carved an enviable place for itself in the hearts of Montréalers. Join in the celebration of the hotel's 50th anniversary and discover thematic menus, special packages and commemorative activities.

Important note about registration and hotel reservations: All attendees must be registered and paid in full for the Conference in order to book a room at the Conference hotel. A special housing code is required. Detailed hotel information is available at www.acec.org.

For more information or to register online, go to:

www.acec.org



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Guest Fax: 514-954-2258
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On The Move



Ken Rudolph

Nolte Associates, Inc., has named **Ken Rudolph** president and CEO. Rudolph will replace **George S. Nolte**, who has served in the role since the early 1980s when Nolte acquired the firm from his father, who founded it in 1949. Nolte will remain as chairman of the board of directors.



Brian S. Funkhouser

Brian S. Funkhouser was named president and CEO of **Buchart Horn, Inc.** Funkhouser previously served three years as the senior vice president of PACE Resources, Buchart Horn's parent company.



William C. Siegel

Kleinfelder announced that **William C. Siegel** is the company's new CEO-elect. Siegel will take over for Kleinfelder's current CEO, **Gerry Salontai**, in April 2009. Siegel is Kleinfelder's senior vice president for corporate development and sits on the company's board of directors.



Richard L. (Rick) White

Richard L. (Rick) White, current COO of **Howard R. Green Company**, has been promoted to president and COO. White succeeds **Ralph J. Russell**, who has been president of Howard R. Green Company since 1983. White has been with the firm since 1996 and has served as COO since January 2007.



Virginia Grebbien

Parsons Corporation appointed **Virginia Grebbien** executive vice president and global business development manager of Parsons Water & Infrastructure, Inc. (PWI). PWI, a primary business unit of Parsons Corporation, provides customers worldwide with full-service engineering, construction and management services.



Angela S. Musselwhite

Murray, Smith & Associates, Inc., a consulting engineering firm specializing in public infrastructure engineering, named senior principals **Jim Helton**, **Chris Uber** and **Troy Bowers** senior vice presidents. Senior principals **Kevin Thelin** and **Tom Perry** have been named vice presidents.



C. Mike Cashio

Engineering and environmental firm **S&ME** announced two senior promotions: **Angela S. Musselwhite** was named a vice president of the company and is based in the firm's Charleston, S.C., office. **C. Mike Cashio** was named a vice president and will be based in the firm's Charlotte, N.C., office.



Jeffrey Cerquetti

Jeffrey Cerquetti has joined **Johnson, Mirmiran & Thompson** as vice president. Cerquetti will provide senior management for structures and port and coastal engineering under the firm's facilities division.

Awards

DMJM Harris, a part of AECOM, is among 100 companies recently recognized by the readers of *Diversity/Careers in Engineering & Information Technology* magazine as a 2008 Best Diversity Company.

The June/July issue of the magazine features DMJM Harris, along with other corporations, government agencies and organizations—all employers of technical professionals—that are doing the best work in diversity. DMJM Harris was recognized for its support of minorities and women, attention to work/life balance and commitment to supplier diversity.

“It’s not only a recognition of some of the recent steps we’ve taken to encourage and support diversity—such as the launch of our Women’s Development Forum—but it also shows that we’re headed in the right direction and will motivate us to do even more,” says Ira Levy, DMJM Harris’ president.



Ira Levy

Mergers & Acquisitions

North American design firm **Stantec** recently completed the acquisition of **McIntosh Engineering**, a leader in underground mining engineering. McIntosh’s services range from mine conceptualization through mine feasibility, detail engineering and design for construction, procurement and construction management.

“McIntosh adds the experience we need to start growing our presence in the mining sector and gives us the ability to offer a complete package of environmental, scientific, engineering and project management services to McIntosh’s existing clients,” says Tony Franceschini, Stantec president and CEO.

Scott McIntosh, McIntosh president and CEO, will continue with Stantec as vice president. “We are excited about the opportunities that joining Stantec will bring to our employees and clients,” said McIntosh.



Tony Franceschini



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Park

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Mount Washington
Pike Technical Services,
Inc., Pikeville
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Inc., Austin
Savant Group, Inc., Dallas
The Hearnberger
Company, Kingwood
Ward, Getz & Associates,
LLP, Houston

Calendar of Events

2008

SEPTEMBER

- 16** Creating a High-Performance Workplace (online seminar)
- 17** Strategic Planning for Your Company's Next *Bus Drivers* (online seminar)
- 18** Getting Deals Done in Today's Market (online seminar)
- 23** Shortage of Engineers: There Is No Quick Engineering "Fix" (online seminar)
- 24** Effective Project Planning to Improve Profits (online seminar)
- 24-27** Business of Design Consulting (BDC) for the Engineering Firm of the 21st Century, San Antonio

30

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

OCTOBER

- 6-7** Information Technology Forum, Chicago
- 14** Future Leaders Focus: A Study of the Needs and Priorities of Young Design Professionals (online seminar)
- 15** Negotiating Better Engineering Contracts: A Win-Win Situation (online seminar)
- 19-22** ACEC Fall Conference, Montréal
- 22** Show Me the Money: Maximizing the Benefits of Information Technology (online seminar)

27-28

Human Resources Forum, Kansas City, Mo.

28

Rapid Leadership Development in Engineering and Design Firms (online seminar)

29

Follow Up! The (Misunderstood) Heart of Business Development and Positioning (online seminar)

30

How Economic Indicators Predict Business Sector Performance and Potential (online seminar)

NOVEMBER

4

Where Does the Money Go? What Happens Between the Top Line and the Bottom Line? (online seminar)

Additional information on ACEC's events is available at www.acec.org.

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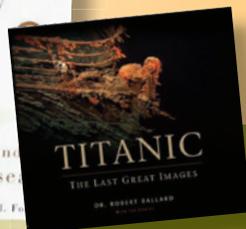
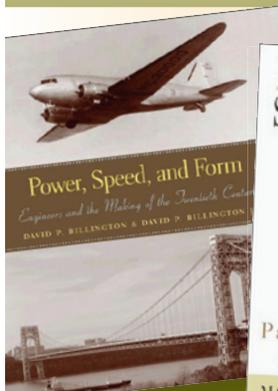
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Tuesday, October 21

1:45 pm - **David Billington** signs *Power, Speed and Form*

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For more information, contact Jackie Pysarchuk @ 202-682-4328 or jpysarchuk@acec.org



Philios Angelides is senior vice president of Alpha Corporation in Dulles, Va.

Industry Challenges, Benefits of QBS, Best Value Procurement, ACEC Influence

Q. What do you see as the major challenges facing the engineering industry in the coming years?

A. The biggest challenge facing our industry is the lack of qualified engineers, both in numbers and skills, to meet the ever-growing demand for our services. This challenge becomes even more daunting as we observe the increased demand for engineering expertise to address the nation's infrastructure concerns and to take advantage of booming international development. It is important that we invest time and capital to further develop our existing workforce, as well as cultivate the next generation of engineers.

The second most important challenge is the trend of diluting the value of engineers through the practice of bidding our services. This practice not only brings an added financial burden in the pursuit of projects, but it also

changes the role of the engineer from one of a trusted partner to one that feels more like a commodity supplier. Owners need to be educated that the perceived benefits or price competition on the front end of a project are not worth sacrificing the broader cost savings achieved when partnering with the most qualified engineering firm selected through a Qualifications-Based Selection (QBS) process.

Q. Does the increased reliance on design-build and Best Value at the federal level dilute the role of the engineering firm, and if so, how should the industry respond?

A. I believe that the increased reliance on design-build (D-B) and Best Value at the federal level not only dilutes the role of the engineering firm in the delivery of a project, but also provides a false sense of understanding of the underlying risks associated with this practice of project delivery. While D-B and Best Value procurement have a place in the industry as project delivery methods, proper advanced preparation and management of the process to preserve the true value gained out of D-B is important. We should work with federal agencies to distinguish

the evaluation of the engineering/design firm as part of the D-B team and assign rating criteria for the firm's qualifications and price. By doing so, the engineer's portion of the proposal is evaluated as a stand-alone element of the value brought to the project, and separated from the commodity parts of the bid. D-B contracts need to "fence" the designer's price, so that the contractor cannot bid out or pressure down that price once the contract is in place.

Ultimately, we need to ensure that D-B and Best Value procurements are not used as a means to bypass QBS, and that they are driven by a desire to blend design and construction innovation in a fast-track project delivery process.

Q. How have you and Alpha Corporation benefited from your very active involvement in ACEC?

A. Alpha Corporation has been an ACEC Member since the early 1980s. I have been active with ACEC, both at the local level (Metro Washington Board Member and President) and nationally (Committee Member and PAC Champion), for over 10 years. This exposure has provided our firm with an outlet to voice our opinion and participate on the front lines on

important business issues.

ACEC has also afforded me personally, and others within Alpha, a platform to develop leadership skills and expand our knowledge in engineering management, business and technical practices through various seminars, conferences and networking activities.

Q. You have always been very active politically—at the local, state and national levels. Why, in your view, is it important for firm owners and principals to get engaged politically?

A. Political decisions affect our industry in many ways. These include priorities in funding for projects, procurement and project delivery practices, accountability and liability issues. Though many groups can offer advice to politicians on what, why and how to do something, nothing can replace the insight offered by the engineering practitioners who bring a unique perspective from the trenches.

As principals of firms, we should continue to seek opportunities to inform and educate our politicians at the local and national levels on the technical and business implications and impacts of certain actions or inactions associated with important issues affecting our industry. ■

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