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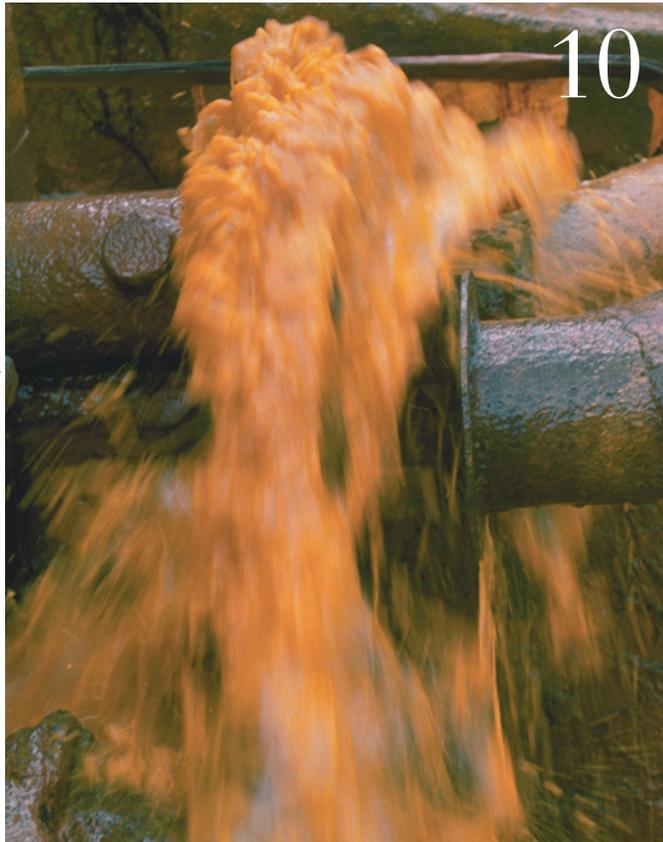
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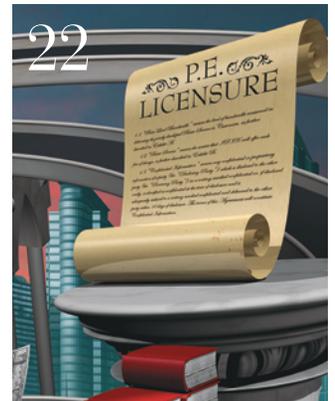
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THE OFFICIAL PUBLICATION OF THE AMERICAN COUNCIL OF ENGINEERING COMPANIES

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PROJECT MANAGER Mary Mieszczański

ADVERTISING SALES

- Nina Goldman
Assistant Director, Advertising & Sales
ACEC
1015 15th Street, NW, 8th Floor
Washington, D.C. 20005-2605
(202) 347-7474
ngoldman@acec.org

Council Seeks to Complete Water Infrastructure Funding Puzzle

When the U.S. House and Senate voted in November to override the president's veto of the Water Resources Development Act (WRDA), fully funding Corps water projects for the first time in seven years, the nation's water infrastructure investment puzzle moved one step closer to completion, but still lacks a major piece.

That piece is H.R. 720—the \$14 billion water bill which gained House approval early last year and authorizes much-needed funding for the Clean Water State Revolving Fund. It aims to close a growing funding gap between investment in the nation's wastewater infrastructure and the escalating water needs of local communities.



The Senate will introduce a companion bill to H.R. 720 early in 2008. Floor consideration is expected this spring.

Our nation's water systems are at a critical juncture in

their lifecycles. A combination of reduced federal spending over the past decade and increased demand is taking its toll.

The federal government puts the onus on states, local governments and utilities to finance water and wastewater projects. ACEC believes the federal government should share this responsibility, and its advocacy program is committed to achieving that goal.

This issue of Engineering Inc. focuses on the plight of the U.S. water/wastewater infrastructure and examines the effect of deteriorating conditions on the nation's health and economic welfare.

A look at the growing "green building" market also is featured, including a report on how the business side of "green" can affect the overall success of a project. Also, don't miss the results of our latest professional liability insurance carriers survey, which shows that liability premiums will remain steady through 2008.

Handwritten signature of Orrin B. MacMurray.

Orrin B. MacMurray ACEC Chairman

Handwritten signature of David A. Raymond.

David A. Raymond ACEC President & CEO

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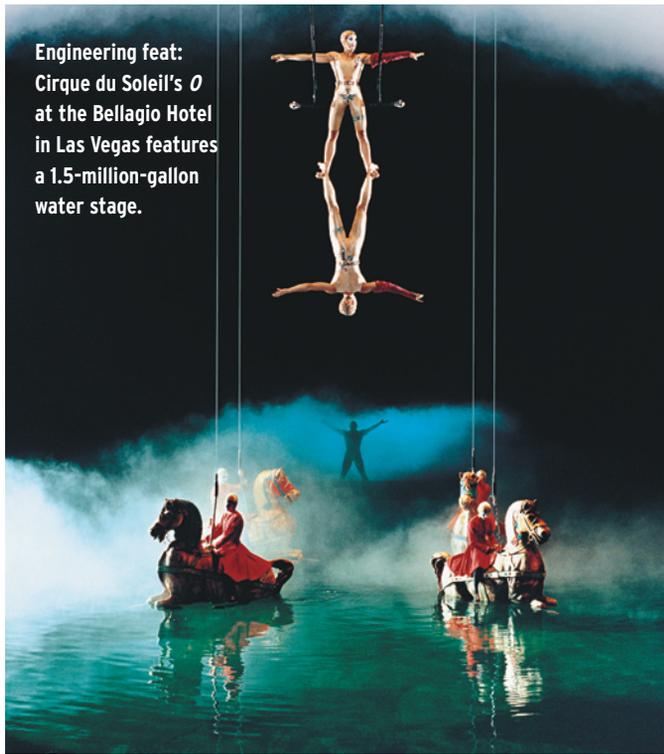
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Engineering feat: Cirque du Soleil's *O* at the Bellagio Hotel in Las Vegas features a 1.5-million-gallon water stage.

W. PERRY CONWAY/CORBIS

UNLV Offers First-Ever Entertainment Engineering and Design Degree

The University of Nevada at Las Vegas (UNLV) will offer the nation's first undergraduate degree program in entertainment engineering and design beginning in fall 2008.

Entertainment Engineering and Design will be an interdisciplinary program of UNLV's College of Engineering and College of Fine Arts. Both disciplines will be interwoven to prepare students for emerging technologies in the entertainment industry.

Joe Aldridge, coordinator of UNLV's College of Fine Arts,



Joe Aldridge

said the new program aims to meet the increasing technical design demands of the entertainment industry, including the multimillion-dollar megashows growing in popularity in Las Vegas and throughout the world.

"The shows just keep getting bigger and more complex," Aldridge said. "When hotels and casinos invest hundreds of millions into these massive show productions, there are some serious engineering considerations that ultimately make it happen."

He pointed to several Cirque

ACEC Wins Multiple National Media Awards; *Last Word* and *Engineering Inc.* Praised

In a national competition where more than 400 publications were entered for awards, ACEC has again received multiple honors.

The Council's weekly electronic newsletter, *Last Word*, earned a Silver Award. The newsletter has won first or second place six consecutive years, including three Gold Awards in the annual all-media contest sponsored by *Association TRENDS*.

The Council's new membership recruitment video, *The Voice of the Engineering Industry*, won a Bronze Award. The video was praised for its effective depiction of the importance and influence of ACEC.

Engineering Inc. received a Bronze Award for its print edition and a Silver Award for its new digital version—making it a winner four of the last five years.

ACEC's Institute for Business Management Fall 2007 Course Catalog also earned a Silver Award.

"ACEC consistently wins multiple awards each year in this competition—quite an accomplishment considering the number of associations and media products that are entered," said Jill Martineau Cornish, president and publisher of *Association TRENDS*. "ACEC's awards are a testament to the high quality of its publications and communications efforts."

du Soleil events as examples of state-of-the-art entertainment engineering. Canada-based Cirque du Soleil is a billion-dollar enterprise that performs megashows throughout the world, including five permanent shows in Las Vegas.

Cirque du Soleil's *O* at the Bellagio Hotel, for example, features a 1.5-million-gallon water stage as part of an aquatic tapestry of swimmers and divers. Cirque du Soleil's *Ka* at the MGM Grand Hotel features a giant 50' x 25' floating platform powered by the world's largest hydraulic cylinders.

Daniel Cook, a coordinator at UNLV's Department of Engineering, said the

program will help put to rest the common belief that engineering is not an exciting profession. "Engineering is extremely creative, and this program will go a long way in attracting students who want to be part of an exciting profession," he said.

Faculty in the new degree program bring expertise in mechanical design, microelectronics, magnetohydrodynamics, 3-D design and foundations and robotics.

"Las Vegas is the perfect location to launch the Entertainment Engineering and Design degree program," Aldridge said. "We have the largest laboratory right in our own backyard."

Building Information Modeling on the Rise

The pace at which Building Information Modeling (BIM) is being adopted in the engineering industry is accelerating rapidly, according to a new survey. Despite increased popularity, hurdles still impede effective BIM use.

More than a third of the construction project and program owners responding to the Eighth Annual Construction Management Association of America/FMI Survey of Owners reported using BIM on one or more projects. The survey also found that more project owners are employing BIM than ever before.

The survey set out to shed

light on the perceptions and implementation of BIM among public- and private-sector project owners. The 200 survey respondents combine for an estimated \$115 billion in annual construction spending.

Some 35 percent of respondents said they have used BIM on one or more projects. The rate at which BIM is being deployed industrywide also is increasing, according to the survey. After growing by a modest 3 percent in 2003 compared to the previous year, the use of BIM increased 6 percent in 2005 and 11 percent in 2006.

The survey also found that

users of BIM—the practice of creating an organic digital portfolio that details all aspects of an ongoing building project—often are large companies with more than 50 projects, have capital construction programs that are one-third larger than nonadopters', and are much more likely to hire a construction manager or program manager to oversee their projects.

Whether project owners adopt BIM or not, all respondents recognized certain benefits inherent in the technology.

Among the potential benefits reported by users and non-users: improved communication and higher-quality project execution and decision-making.

Still, many respondents said, challenges to effective BIM integration remain. "Lack of expertise and industry standards are two of the greatest hurdles to collaborative construction processes and BIM adoption," wrote the survey's authors.

Lingering impediments aside, 74 percent of project owners using BIM said they would recommend the practice to others.

For more on BIM, attend the upcoming seminar: Building Information Modeling (BIM): The Promise and the Reality for A/E/C Firms, Feb. 7-8, 2008, in Las Vegas (See page I-6 in the enclosed IBM catalog). Also, for an in-depth report on the "state of BIM" at the federal level, see the March/April 2008 issue of *Engineering Inc.*



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Green Construction: A Design Must for Engineering

By Joe Salimando

Engineering firm executives might think they have a handle on the sudden surge in popularity of green building projects. This trend, however, includes a fair amount of hype about the green marketplace, and more than a little corporate gamesmanship.

But, no matter how you feel about “green building,” or the practice of creating healthier and more resource-efficient models of construction, renovation, operation, maintenance and demolition, one fact remains: Green is here to stay.

Research and experience increasingly demonstrate that when buildings are designed and operated with their life-cycle impacts in mind, they can provide significant environmental, economic and social benefits.

Green building proponents claim that a total energy savings of 30 percent or more is achievable in buildings built using a green approach, not to mention a potential 35 percent reduction in carbon emissions and a water-use savings of 30 percent to 50 percent.

What's Turning Green Fastest?

Conventional wisdom says that institutional buildings—those owned by governments and nonprofits, including schools and hospitals—are going green faster than other structures.

However, a CB Richard Ellis report issued this past summer, “Green Downtown Office Markets: A Future Reality,” says prospective tenants are forcing office building owners to go green faster than they’d like: “Green building tenant attraction and retention continues to grow stronger...making a green building a better long-term value than an ‘SUV property,’” the report said.

The green building movement gained momentum last year with the release of a report from the U.S. Green Building Council (USGBC), which showed cost increases for various certification levels in USGBC’s Leadership in Energy and Environmental Design (LEED) program:

- Certified: + 0.66 percent
- Silver: + 1.9 percent
- Gold: + 2.2 percent
- Platinum (highest level): + 6.8 percent

Green Numbers

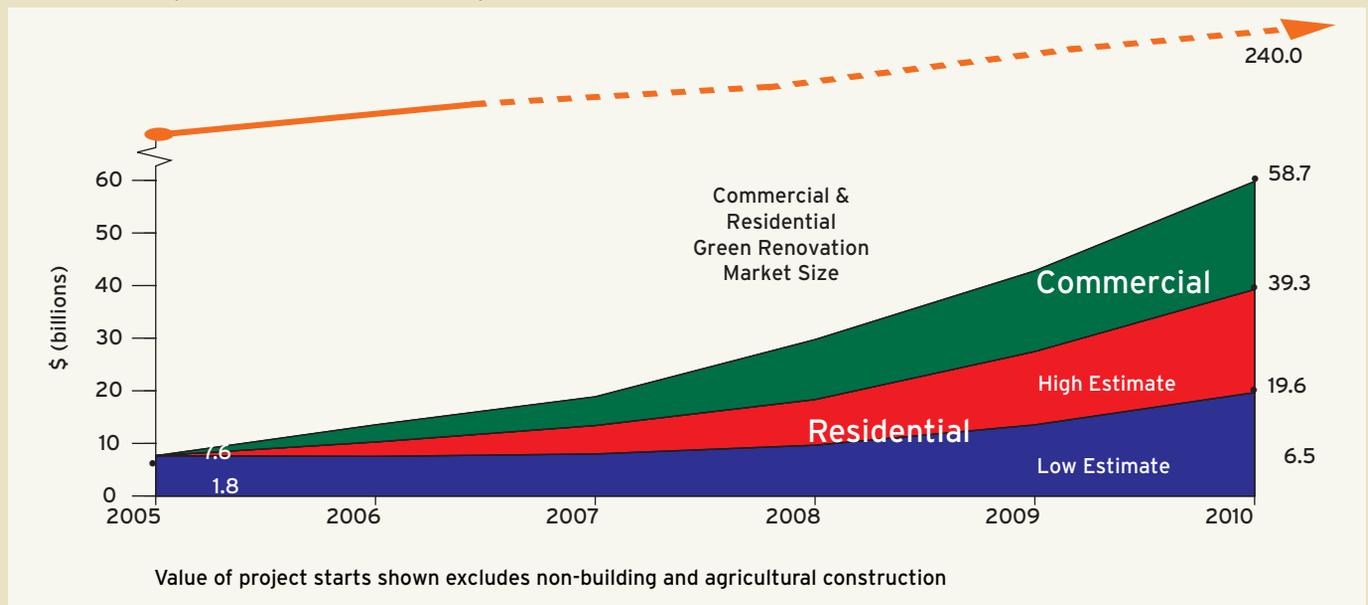
According to McGraw-Hill Construction (MHC), green building was a \$10 billion industry in 2006 and is projected to reach \$29 billion to \$59 billion by 2010—with the majority of that in new residential construction (see Figure 1).

An MHC survey of home builders in 2006 predicted that 40 percent to 50 percent of new homes built in 2010 would contain green elements. MHC reports the green home building market was worth \$7 billion in 2006 and is expected to eclipse \$20 billion to \$38 billion by 2010.

States and municipalities also are interested in green construction. An example is the new \$600 million baseball stadium in Washington, D.C., which is being built to green standards. Additionally, the nation’s capital has adopted a law requiring that all new commercial buildings and city-funded residential construction meet new green standards starting in 2012.

Industry consultant Jerry Yudelson estimates that at least 50 additional major U.S. cities will adopt “some form of green building ordinance or mandate” over the next few years.

FIGURE 1: Projected U.S. Green Building Market



Source: McGraw-Hill Construction, *Green Building SmartMarket Report, 2006*; *Greening of Corporate America SmartMarket Report, 2007*

Productivity Increases

Reports show the return on investment in a green building, when done right, is nothing short of remarkable.

USGBC studies have shown, for example, that students achieve higher test scores in greener buildings; patients heal faster (leading to shorter stays) in green hospitals; and workers in office and industrial buildings designed for sustainability are more productive.

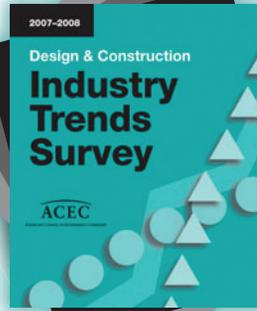
At green office buildings, the payback of increased productivity is a potential goldmine. Consider a building where 1,000 people are employed for roughly 2,000 hours each per year (8 hours/day x 240 work days) or 2,000,000 hours. If a greener workplace makes these people just 1 percent more productive, that equates to 20,000 additional hours of productive work per year...without creating a single new position.

There is no disputing the fact that green elements often raise public support for major construction projects. A firm's willingness to go green also can impact customer contract decisions.

Case in point: A specialty contractor, who requested anonymity for this column, was recently courting a large customer for a sizeable contract where several green elements were required. The contractor took client representatives on a tour of his company's prefabrication operation where recycling is a common practice. Customer reps reportedly observed this trend and noted it with approval.

The contractor's company is large and qualified, but there are others out there like it. The difference? As with many clients these days, the customer was looking for green...he found it...and the contractor got the work.

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



2007-2008 Design & Construction Trends Survey

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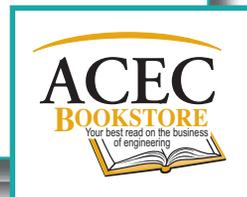
The Survey includes chapters titled Employment and Training, Business Performance, Industry Capacity, A/E/C Markets, Current Business Condition Assessment, Firms' Practices and Processes, Practice Trends and Business Outlook.

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CONGRESS OVERRIDES PRESIDENT'S WRDA VETO; HOUSE CLEARS ACEC-BACKED BRIDGE LEGISLATION

Congress Overrides President's WRDA Veto

The U.S. House and Senate were successful in an ACEC-backed effort to override President Bush's veto of the Water Resources Development Act (WRDA). The House vote was 361-54, and the Senate vote was 79-14—far in excess of the needed two-thirds majority and including large numbers of Republicans who broke with the president.

ACEC and its industry allies orchestrated a grassroots effort ahead of the votes. ACEC member firms played a major part in making the override happen through targeted letters, e-mails and phone calls to congressional offices.

WRDA authorizes the U.S. Army Corps of Engineers to proceed with more than 900 projects. Its \$23 billion price tag—with \$7 billion for coastal restoration in Louisiana, nearly \$2 billion for the Florida Everglades and the remainder for water infrastructure and flood restoration projects throughout the country—was more than the president wanted. ACEC told Congress that the bill's cost reflected a sizable backlog resulting from a seven-year delay in enacting a WRDA bill. Projects authorized by the bill still need appropriations funding from Congress next year.

The bill also requires independent peer review of large Corps projects and mitigation measures to lessen environmental impacts.

Congress Clears Short-Term AMT Fix

The U.S. House of Representatives and the U.S. Senate passed legislation prior to adjournment in December to protect middle-income taxpayers from the alternative minimum tax (AMT). The AMT, designed to prevent upper-income taxpayers from avoiding federal income tax, was never indexed for inflation and would affect millions of middle-income taxpayers without congressional action.

The original House bill also would have extended a number of popular tax credits, including the research and development tax credit, which is used by some engineering firms. But disputes between the House and Senate delayed consideration of these tax "extenders" until 2008.

ACEC will remain closely engaged with the House and Senate tax-writing committees to ensure that Congress does not adopt measures that will add to the tax burden of engineering firms.

House Committee Clears ACEC-Backed Bridge Legislation

The House Transportation and Infrastructure Committee approved legislation prior to adjourning for the holidays to improve the nation's bridge inspection program.

H.R. 3999, the National Highway Bridge Reconstruction and Inspection Act of 2007, authorizes \$1 billion each for F.Y. 2008 and F.Y. 2009 to repair deficient bridges within the National Highway System.

The measure includes a key ACEC recommendation requiring the secretary of transportation to develop a new risk-based process for identifying bridges in greatest need of repair and rehabilitation. Structurally deficient bridges, as well as bridges with fracture critical members, will be inspected annually at a minimum.

Ray McCabe, senior vice president and national director of bridges and tunnels at HNTB, who represented ACEC at a hearing of the House Subcommittee on Highways and Transit in late October, stressed the importance of a "risk-based" approach to bridge inspections and the need to allocate resources more efficiently.

In September, Mark Bernhardt, director of facility inspection with ACEC member firm Burgess & Niple in Ohio, testified before the House Committee on Science and Technology on current inspection technologies.

H.R. 3999 also includes provisions to strengthen training standards for bridge inspectors, including a mandate that bridge inspection program managers be licensed engineers.

House floor action is expected in early 2008. Companion legislation still is under development in the Senate.



HNTB Senior Vice President Ray McCabe at a House hearing stressing the importance of a better rating system for bridges and a corresponding methodology to allocate necessary resources for repairs.

ISSUES ON THE MOVE	WHAT'S NEXT
Congress passes AMT fix	Tax "extenders" to be considered in early 2008
Bridge bill clears House Committee	Floor consideration in early 2008
Expansion of wetlands regulation	Possible House committee action in early 2008

ACEC Fights Expansion of Federal Wetlands Authority

ACEC is working with organizations representing home builders, local governments and other client organizations to oppose a major expansion of federal authority over wetlands.

At issue is legislation introduced by House Transportation and Infrastructure Committee Chairman Jim Oberstar (D-Minn.) and Energy and Commerce Committee Chairman John Dingell (D-Mich.) to amend the Clean Water Act and declare all "waters of the United States" subject to federal permitting jurisdiction. The bill, H.R. 2421, would delete a current requirement that limits federal jurisdiction to "navigable" waters and all but eliminate the traditional authority of state governments to regulate development and water quality.

If enacted, H.R. 2421 would overturn a precedent set by the 2001 U.S. Supreme Court case, *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*. The landmark case prohibited the Corps from requiring a permit for man-made wetlands isolated from navigable waters.

ACEC and coalition allies have joined together to educate House members about potential problems associated with the expanded federal jurisdiction provided for in the current draft of H.R. 2421.

For more information, contact Diane Shea, ACEC's director of environmental and energy programs, at 202-347-7474 or dshea@acec.org.

ACEC Action Protects Use of QBS at Government Agency

ACEC successfully challenged a price solicitation for engineering services from the Millennium Challenge Corporation (MCC), prompting the foreign aid agency to comply with the federal Brooks Act.

MCC's original solicitation required interested firms to submit combined technical and price proposals and would have based 50 percent of the selection criteria on price.

ACEC argued that consideration of price prior to identifying the most qualified engineering firm is a violation of federal policy.

Upon review of the solicitation, MCC concurred and corrected the mistake.

"Ultimately, the agency did the right thing and embraced the idea that QBS is the best approach for selecting professional design services," said ACEC President Dave Raymond. "Protecting QBS is an ongoing high priority for the Council."

ACEC Urges Emphasis on Water; House Honors Clean Water Act

ACEC President Dave Raymond urged a renewed commitment to the nation's water infrastructure as Congress recently honored the 35th anniversary of the Clean Water Act of 1972.

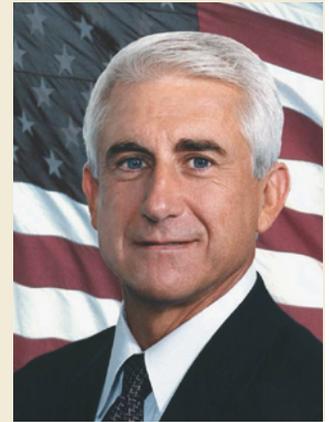
In testimony submitted to the House Transportation and Infrastructure Committee, Raymond implored Congress to

Lawmakers Ask for Consideration Of Good Samaritan Bill

In light of California's recent devastating wildfires, Reps. Dave Reichert (R-Wash.) and Jim Matheson (D-Utah) have asked the House Judiciary Committee to hold a hearing on legislation they introduced to protect engineering companies that volunteer their services following a natural disaster.

The bipartisan Good Samaritan Protection for Construction, Architectural, and Engineering Volunteers Act (H.R. 2067) would give construction, architectural and engineering entities qualified immunity from liability when providing services or equipment on a volunteer basis in response to a declared emergency or disaster.

Engineering companies continue to face the threat of lawsuits stemming from voluntary efforts under difficult conditions in the aftermath of disasters such as 9/11 and



Dave Reichert (R-Wash.)

Hurricane Katrina. The ACEC-supported H.R. 2067 would provide needed relief in this area.

In a letter to the chairman and ranking member of the House Judiciary Committee, Reichert and Matheson said: "Whether it is a terrorist attack like 9/11 or a natural disaster like the most recent fires, we must not impede the good will of companies trying to help."



Jim Matheson (D-Utah)

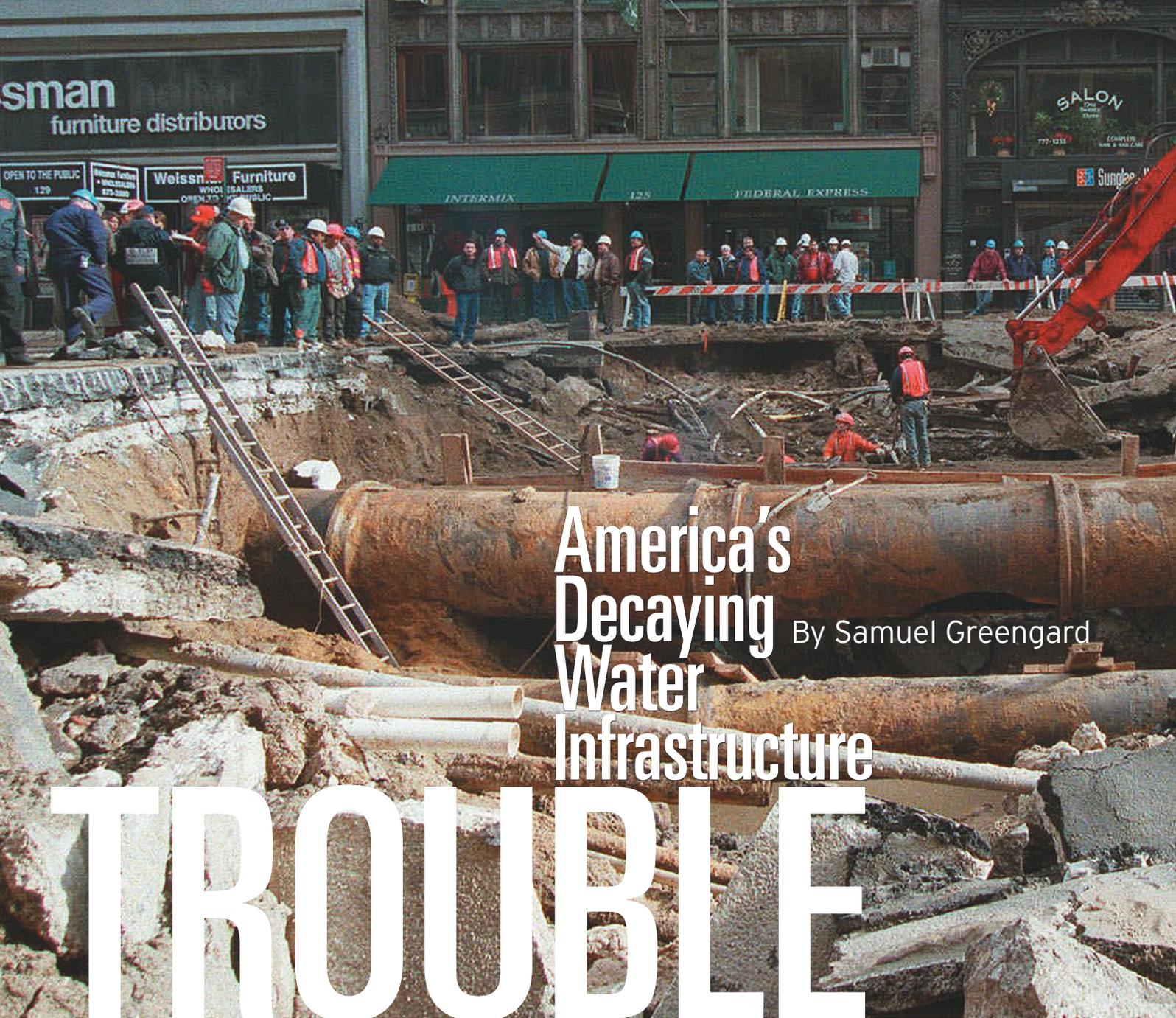
mark the occasion by working to achieve the goals of the act.

"The need for increased investment is tremendous and has been well documented," he said. Raymond also commended Committee Chairman Jim Oberstar (D-Minn.) for driving a landmark \$14 billion water infrastructure bill through the House earlier in the year. The current bill, H.R. 720, "will be of great benefit in helping to close the growing gap between federal, state and local investment in the nation's wastewater infrastructure and the needs of our communities," he said.

The Senate is expected to introduce a companion bill in early 2008. ■

FOR MORE NEWS

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



America's
Decaying
Water
Infrastructure

By Samuel Greengard

TROUBLE

BELOW



Work crews repair a broken water main at 5th Avenue and 19th Street in New York City.

AP PHOTO/LYNSAY ADDARIO

small feat. And even if a consensus can be reached, finding a sustainable approach—one that doesn't depend on the uncertainty of government appropriations—is even more problematic.

Whatever happens, one truth is clear: Decisions made now will have a profound influence on the future. As evidenced by last summer's Minneapolis bridge collapse and the Manhattan steam pipe explosion, potential problems can quickly reach catastrophic heights, especially if left unchecked.

"We're not facing a crisis now, but we could face a crisis if we don't act soon," says Peter Cook, executive director of the National Association of Water Companies (NAWC), a Washington, D.C.-based organization that represents the private water service industry, including drinking water and wastewater utilities. "Every year we delay, the potential for a serious problem grows."

An Age-Old Problem

The problem is that the majority of the water treatment and delivery systems in the United States were built so long ago that an entire generation hasn't had to face building new systems or dealing with expensive upgrades and repairs. It's simply not within their realm of consciousness. As a result, funding has lagged. The federal government has cut back significantly on its investment in local water infrastructure. What was once a flood of federal dollars has, in recent years, turned into a trickle. Funding for the State Revolving Fund (SRF) program, for example, which is the principal federal funding vehicle for wastewater projects, declined from \$1.26 billion in F.Y. 2004 to \$841.5 million in F.Y. 2007 (the most recently enacted level). Thirty-five years after the passage of the Clean Water Act, funding for water projects now amounts to an annual battle on Capitol Hill.

And the fallout from that is felt from coast to coast. A recent engineering industry report rates the overall physical condition of many of the nation's 16,000 wastewater facilities as poor. Many of these

America is facing serious problems related to maintaining aging water systems," says Larry A. Roesner, professor of civil and environmental engineering at Colorado State University (CSU). "The infrastructure is slowly crumbling, and the price tag for fixing things is rising."

In 2003, the U.S. Environmental Protection Agency (EPA) estimated that the gap between spending and needed investment in wastewater treatment infrastructure over the next 20 years will reach \$122 billion. For drinking water treatment, the gap could eclipse \$102 billion. Some estimates run as high as \$500 billion, and

that's not including operating expenses and maintenance costs. Infrastructure, much of it built between 50 and 100 years ago, is now at risk of deteriorating to the point that public safety and health are at risk.

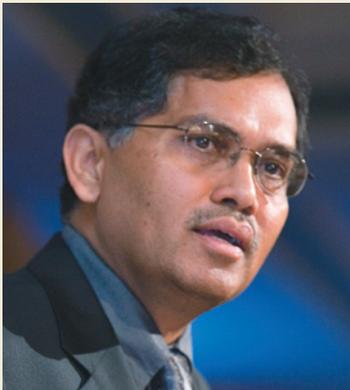
"Repairing and improving the water infrastructure is one of the most significant challenges America faces," says Benjamin Grumbles, assistant administrator for water at the EPA. "It's a top priority. But because there's no single solution, or no one agency that oversees the nation's utilities and facilities, it is a difficult challenge to address."

Indeed, getting elected officials, engineers and other stakeholders to agree on such a breadth of issues, from water treatment to safety to distribution, is no

We need to address more than aging infrastructure. We have to figure out how to deal with expanding populations, growing demand, new regulations and security issues.

NILAKSH KOTHARI

AMERICAN WATER WORKS ASSOCIATION



facilities are nearing the end of their useful lives, and older systems suffer from chronic overflows during major storms. The result: Raw sewage often contaminates U.S. surface waters, including rivers, lakes and oceans. But the problem doesn't end there. Water treatment plants, pipes, control basins, pumping stations and other infrastructure are at risk of failing. More than 200,000 water mains break each year in the United States.

Food & Water Watch, a nonprofit environmental and consumer organization based in Washington, D.C., reports that a majority of states are facing current and projected wastewater infrastructure needs far out of line with available funding. As a proportion of overall wastewater infrastructure spending, federal support, which accounted for 78 percent of funding in 1978, makes up just 3 percent today. Old infrastructure is often unable to handle increased capacity demands, breaking down and releasing untreated sewage. Combined sewer overflows from failing and insufficient infrastructure wreak environmental havoc on a massive scale—23,000 to 75,000 such overflows occur each year, spilling out 1.26 trillion gallons of untreated sewage and incurring \$50.6 billion in cleanup costs.

“The health implications are signifi-

cant,” says Jessica Roach, senior organizer for Food & Water Watch.

Evidence that the infrastructure is crumbling isn't difficult to find. In Boston in late 2006, a series of unexplained water main ruptures flooded city streets, disrupting rush-hour traffic and hurting area businesses. Similar water main breaks, causing flooding and other disruptions, have been reported in places such as Chicago and Arlington, Va. After a water main break in the Florida Keys recently, citizens were ordered to boil their drinking water before consuming it due to risk of contamination.

By 2002, Atlanta's water quality had become so bad that residents in some neighborhoods reported taking baths in water the color of iced tea. The same year, television and radio stations began reporting “boil water” advisories when pathogen levels exceeded health standards. Other cities, including Santa Monica, Calif., and Norman, Okla., have been forced to deal with contaminated wells and groundwater pollution.

Addressing the problem won't be easy. According to the American Water Works Association (AWWA), it costs approximately \$6,300 per household to replace water mains at larger utilities. Factor in water treatment plants, pumps and other systems, and the price tag spikes to just under \$10,000 per household, on average.

But the problem is even more complicated than that. “We need to address more than aging infrastructure,” explains Nilaksh Kothari, president of AWWA. “We have to figure out how to deal with expanding populations, growing demand, new regulations and security issues.”

U.S. engineering firms already are rolling up their sleeves to meet these challenges. But more help still is needed. According to industry consulting firm FMI Corp., the water supply and sewage and wastewater construction market will eclipse \$43.6 billion by 2011.

Industry analysis firm ZweigWhite says U.S. water and wastewater treatment facilities will require more than \$1 trillion in upgrades over the next 20 years.

In the Flow

Changing the way America views and values water infrastructure could prove challenging. Finding sustainable solutions for funding will require a willingness to confront the problem and find new and creative ways to address political, social and practical issues. Although the EPA has identified water infrastructure as one of its top priorities, and almost every utility supports the concept, there's little consensus about how to bring water facilities up to 21st-century standards.

Rather than increased funding, the EPA says effective water management is needed, including:

- Improved management of the water and wastewater infrastructure through better system inventories, asset management and capital improvement programs. The EPA reportedly is working with utilities to identify and implement best practices.
- Full-cost pricing that reflects the actual value of water and the real price for infrastructure—rather than government-subsidized pricing. “The lack of full-cost pricing contributes to the neglect and deterioration of infrastructure, Clean Water Act violations and a mindset that doesn't focus on conservation,” says Grumbles.

Repairing and improving the water infrastructure is one of the most significant challenges America faces.

BENJAMIN GRUMBLES

U.S. EPA



Water Shortage

Droughts and water shortages are nothing new. Indeed, concerns are mounting over the ability to deliver water to large segments of the population. Rapid urban growth, particularly in the arid Southwest, aging infrastructure and global climate change all are contributing to what might one day amount to the perfect drought. “We are seeing a scarcity of water in an increasing number of locations,” says Colorado State University civil and environmental engineering professor Larry Roesner.

Florida is grappling with a scarcity of water and will almost certainly face problems in dealing with its projected population growth. Georgia has experienced a severe drought that threatens the water supply for millions of residents. The Great Lakes are shrinking; Lake Ontario has dropped seven inches in the past year. And, in the western United States, the Rocky Mountains and the Sierra Nevada range—major sources of water for millions—are seeing snow melt earlier and faster every year.

Utilities from coast to coast are employing a number of strategies to head off a crisis. More than 1,000 desalination plants already exist in the United States and more are planned—though operating these facilities is expensive and energy-intensive. Water reuse and reclamation is on the rise. Florida, for example, reuses 240 billion gallons annually—though it’s not nearly enough to offset demand. Utilities everywhere are beginning to recognize the need to improve conservation. Says Roesner: “There is enormous waste in both agriculture and urban areas. We need to place a greater emphasis on landscaping that minimizes the need for water.”

What it comes down to in the end, says the Environmental Protection Agency’s Benjamin Grumbles, is good decision-making. “Ultimately, we must make smart water choices. We must move toward greater sustainability.”

builders should consider dual-plumbed structures—structures that employ separate water systems for recycled water and potable water—which reportedly can cut the demand for treated water by 50 percent.

Likewise, Roesner says, it’s important to rethink and re-examine storm drain management. “We need to find ways to design drainage facilities so that we preserve streams in urbanized watersheds,” he says. In many instances, the cost and problems associated with downstream pollution—as a result of fertilizers, pharmaceuticals and other contaminants in the water supply—add to infrastructure costs, as well as health and public safety concerns. In addition, he says, it’s important to manage aquifers and ground water more effectively. “A lot of incremental improvements add up to a significant gain.”

Peter Carlson, a lobbyist for the water industry, says the litany of federal, state and

local agencies that oversee different aspects of water distribution and infrastructure makes it tough to spur changes. “The lack of communication between federal agencies makes it difficult to address big-picture infrastructure issues,” he says. “That’s why we’re now seeing legislation in Congress to create water commissions and infrastructure commissions. There’s a recognition that something has to be done.”

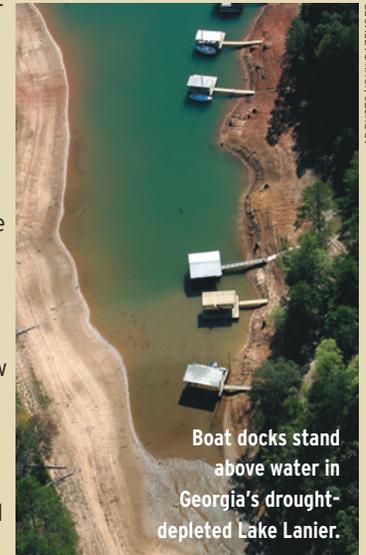
In testimony submitted to the House Transportation and Infrastructure Committee late last year, ACEC President Dave Raymond called for a renewed commitment to the nation’s water infrastructure.

“The need for increased investment is tremendous and has been well-documented as our nation suffers from rapidly deteriorating water infrastructure systems, and a \$300 billion to \$500 billion shortfall in necessary funding over the next 20 years,” he said.

- Conservation and efficiency is critical to helping consumers and utilities save water and reduce the funds needed for new and larger facilities. The EPA has modeled its new incentive-based Water Sense program, which supports the use of water-conserving technologies and products, after its highly successful Energy Star program, which was created to promote energy conservation through smart use and education as opposed to increased government regulation.
- Better management of watersheds, including agricultural runoff and storm drain runoff. “These programs can reduce costs for wastewater utilities downstream by preventing pollution upstream,” Grumbles explains. The EPA also supports a credit-trading program that would create economic market-based incentives for utilities and agencies within a watershed area. Grumbles says such a system would accelerate the restoration of watersheds throughout the United States.

Other organizations, such as AWWA, for example, say the answer to the nation’s water woes is dependent upon wholesale changes at the local, state and federal levels, including research and development dollars for new technologies, an increased emphasis on education and better state and federal programs that streamline grants, loans and financing. Cutting red tape also is a priority. According to AWWA, the use of alternative procurement methods and a design-build process for infrastructure procurement trims construction costs by 20 percent to 40 percent. The concept has been used successfully in several instances, though procurement laws in many states and localities often impede the design-build process.

CSU’s Roesner says policymakers, utilities and consumers also must re-evaluate common assumptions and standard practices. “We must think outside the box and look at how we can reduce the need for expensive centralized water treatment facilities,” he says. This includes the use of gray-water (nonindustrial wastewater) for non-potable uses, such as toilets and irrigation. In new housing developments, he says,



AP PHOTO/JOHN BAZEMORE

The infrastructure is slowly crumbling and the price tag for fixing things is rising.

LARRY ROESNER

COLORADO STATE UNIVERSITY



“Congress has considered a number of bills in the last several years to alleviate the water infrastructure funding problem,” added Raymond. “While they represented good steps forward, little has been enacted into law. In the meantime, the federal government has increasingly relied upon states, local governments and utilities to finance the funding gap. It is time for the federal government to resume its shared responsibility for clean water by making a significant commitment to help remedy the problems associated with our nation’s water infrastructure.”

ACEC is actively working with Water Infrastructure Now (WIN), a broad industry, environmental, municipal and labor coalition, to advocate for passage of a multi-year bill that reauthorizes the clean water SRF, mandates the use of qualifications-based selection (QBS) and includes language to study the creation of a dedicated water trust fund. ACEC and its WIN coalition partners continue to participate in meetings with key Senate committee staff drafting the Senate version of an ACEC-supported House bill (H.R. 720), which passed the House in March, 2007. ACEC also is conducting outreach and educational meetings about funding needs and QBS with the relevant House and Senate committees, particularly the Senate Environment and Public Works Committee.

Finding Financial Solutions

Funding needed infrastructure improvements is never easy. But there is hope. In November, for example, the U.S. Senate overrode a presidential veto of the Water

Resources Development Act and authorized \$23 billion for 900 water projects, including the rebuilding of facilities along the Gulf Coast that were damaged by Hurricane Katrina, restoration of the Everglades, improvements along the Great Lakes and flood-control projects nationwide. Congress is now weighing several other bills that would fund future projects and create ongoing funding.

Some, like Jessica Roach at Food & Water Watch, would like a trust fund to be established so that dedicated and sustainable funding is available. “A clean water trust fund would take water funding out of that political process and eliminate the annual battle over appropriations,” she says. A fund could be financed through beverage taxes, fees on chemicals that wind up in waterways and other criteria. “The key is to figure out a way to impose a fee on people or companies that degrade our water sources or benefit from them,” she says.

In Washington, the battle over funding has reached its boiling point. Though some organizations, such as Food & Water Watch, favor the conventional approach of funding projects primarily at the federal level, the EPA and several other organiza-

tions, including AWWA and NAWC, subscribe to a different approach.

NAWC’s Cook says, “Society doesn’t subsidize any of our other utilities: electrical, telephone or gas. Customers pay regular rates. So why should water be any different?” He and industry insiders say that unsubsidized rates likely would jump 3 percent to 10 percent, but also would force utilities to be more accountable.

In the end, the battle over water infrastructure remains a murky issue. Although there’s growing recognition that something needs to be done about the nation’s aging infrastructure, the question is whether elected officials, utility operators and the public can move swiftly enough to avoid a catastrophe. “America must make water quality a priority,” says Ken Kirk, executive director of the National Association of Clean Water Agencies. “The American people are going to continue to demand a very high level of water quality. Improvements are going to cost a lot of money, but they are absolutely essential to our way of life.” ■

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



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Infrastructure Solutions With an Eye on the

ENVIRO

A specially designed greenway in the Linden Estates development in Omaha protects the 385-acre community from flooding.



Greenway Reduces Risk of Flooding

PROJECT:
Linden Estates
Greenway

FIRM:
Lamp, Rynearson
& Associates, Inc.,
Omaha, Neb.

When Horgan Development Co. and the First National Bank of Omaha decided to turn a 385-acre parcel of land into a massive development with 200 upscale housing units and some 51 acres of high-density office space, it wasn't the magnitude of the project that had engineers concerned, but rather what to do about the potential for flooding.

Over time, the steep vertical banks of a waterway running through the land had eroded,

ACEC member firms solve a myriad of infrastructure dilemmas while easing environmental concerns

By Darlene Bremer

DEVELOPMENT

causing flooding in a nearby community. To avoid similar problems in the new development, the group hired Omaha-based engineering and surveying firm Lamp, Rynearson & Associates (LRA). The firm was charged with designing a linear greenway and storm water management system to alleviate the flooding problem and ensure additional construction in the surrounding area did not exacerbate it.

“Our goals were to address the downstream flooding, mitigate the low-quality wetlands on-site, provide recreational amenities for the new development and design a storm water management system,” says Mike McMeekin, president of LRA.

The company incorporated three storm water detention cells into the greenway design,

upgraded an existing farm dam to high-hazard standards and embedded new, high-quality wetlands along the stream channel.

Trails along the greenway were designed for pedestrians and bicycles and included a series of bridges, one of which was incorporated into a stream stabilization structure. “The storm water ponds and wetlands development have encouraged natural habitat growth and reduced runoff,” observes Thomas Marnik, an LRA vice president. Other facets of the project include extensive landscaping and underwater data collection for monitoring silt accumulation in the downstream lake.

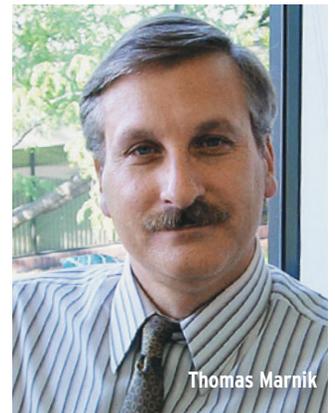
LRA faced two major hurdles on the project. The first was convincing the developer it could solve the flooding



Mike McMeekin

problem by incorporating an open waterway. The second was how to deal with concerns of residents in the existing neighborhood downstream, many of whom believed a new development would only further compound existing flood problems.

But the developers pushed on, eventually winning approval and community buy-in through visual render-



Thomas Marnik

ings that demonstrated how work on the waterway would improve the natural landscape.

“We repeatedly and openly explained how the project would actually solve the flooding issues,” recalls McMeekin. “This project has proven to be an excellent example of how sustainable engineering principles can address multiple design issues and add value to a development.”

PROJECT:
**Mill Site
 Redevelopment
 Project**

FIRM:
**WGM Group,
 Missoula, Mont.**

The historic sawmill on the bank of Montana's Clark Fork River operated for more than a century before it was finally abandoned in the mid-1990s. In the years since, fires have claimed several of the remaining structures. For a time, sawdust, weeds and woodchips cluttered the neglected landscape, creating an eyesore in the heart of Missoula.

Now, after more than two years of planning, neighborhood meetings, on-site evaluations and local government negotiations, the 46-acre site is

being redeveloped to include mixed-use housing, common areas, commercial industry and access to the existing Riverfront Trail and Park system through the addition of a 14-acre park at the river's edge.

For WGM Group, Inc., the process involved working with officials, neighborhood groups and other stakeholders to create a vision—one that addressed the city's important environmental concerns, along with commercial and residential needs. The Missoula-based engineering and design firm also was responsible for surveying the site, floodplain, traffic and parking analysis. "The goal of the redevelopment has always been to revitalize the site and weave it back into the fabric of the neighborhood and community," says Nick Kaufman, WGM vice president and project manager.

In addition to 520 housing

units and 44 office and commercial spaces, WGM also incorporated open, natural spaces into its designs for people to enjoy. "Special care was taken to mitigate the impact on the floodplain and to pay particular attention to keeping the river clean," explains Brent Campbell, a WGM project engineer.

The magnitude of the redevelopment required the cooperation of a complex mix of private, municipal and federal agencies addressing a range of environmental and engineering challenges, from

floodplain constraints and traffic circulation to accessibility and zoning.

WGM sought to meet these challenges by finding common ground between private industry and the public trust.

"Good design doesn't happen in a vacuum, but requires the people of the community to embrace the concept," says Kristin Smith, a WGM project planner. Persistence, patience and education paid off; environmental cleanup is ongoing, and infrastructure improvements get under way later this year.



From left, Kristin Smith, Brent Campbell, Nick Kaufman

A digital rendering outlines plans for a new, environmentally friendly community to replace an abandoned saw mill in Missoula.



Cutting a New Path in Missoula

Winds of Change



Sixty-seven massive wind turbines, part of the Trimont Area Wind Farm in Minneapolis, generate power for more than 29,000 homes.

PROJECT: Trimont Area Wind Farm

FIRM:
HDR, Inc.,
Minneapolis

When a coalition of 43 rural Minnesota landowners banded together to transform 22,000 acres of land into a massive wind-fueled power station, the hope was to create a renewable energy source strong enough to serve the needs of some 29,000 homes.

As construction on the 100-megawatt Trimont Area Wind Farm began in mid-2005, the group tapped HDR, Inc., to help prepare its Large Wind Energy Conversion System Site Permit

application, support preparation of the Certificate of Need and prepare additional permits required for construction.

HDR also assisted in devising an environmentally friendly location for 67 massive wind turbines; performed wetland delineations, biological surveys and reviews for endangered species; and coordinated with outside resource agencies.

Michelle Bissonnette, HDR vice president and project manager, says company scientists “examined proposed construction areas for wetlands, streams, cultural resources and natural areas and used Global Positioning Systems to map features in the field during land surveys.” The information was then uploaded into the project’s Geographic Information System and used to

manage environmental constraints in relation to the evolving site layout, including the future placement of turbines, roads and underground electrical lines.

For HDR, Bissonnette says, one of the largest challenges was ensuring that all project participants had a voice in the process and that the landowners—all 43 of them—could weigh in on the structuring of the massive ownership co-operative. “We provided a constant flow of information concerning turbine placement, environmental impacts, long-term benefits, construction schedules and design implementation,” she says.

“While the environmental perks are easy to explain to consumers, renewable energy projects bring a cascade of sustainable benefits, resulting in



Michelle Bissonnette

communities that are healthier and more attractive to live in,” says Darryl Shoemaker, HDR senior vice president. “People are finding that renewable energy also is good for the economy, providing income, jobs and investment.”

Beyond the obvious environmental and economic upside, the wind project also will benefit landowners, adjoining counties and homeowners that receive electricity—not to mention the state of Minnesota, which is now closer to reaching its mandated renewable energy standard of 25 percent by 2025.

New Water For the Navajo Nation

A water supply and recovery system in Leupp, Ariz., provides members of the Navajo Nation with clean drinking water.



Dale Evans

PROJECT:
Navajo Nation
Water Supply,
Leupp, Ariz.

FIRM:
CDM Industrial
Services Group,
Houston

In an attempt to provide clean water to its community, The Leupp Chapter of the Navajo Nation in Arizona is building several water wells fueled by a natural underground aquifer.

Houston-based El Paso Corp., a natural gas pipeline provider, recently joined the chapter's efforts and donated a 240-gallon-per-minute water well to provide a year-round

source of water for homes, farms, livestock and other uses.

CDM Industrial Services Group was chosen to design and build the water recovery and supply system and fulfill the project's goals of ensuring access to a self-contained, clean well-water recovery, storage and distribution facility.

The project required the company to first drill a 12-inch-diameter well to a depth of 500 feet and to complete it with an 8-inch-diameter casing.

"The 240 gallons per minute pumped by the well from the aquifer are discharged into a 25,000-gallon storage tank," explains Dale Evans, CDM vice president. The system also includes a tablet chlorina-

tor system with analyzer to treat the recovered water. It is designed to optimize operational flexibility using a discharge/fill pipe with a remote user interface to support fill valve operation for discharge into tank trucks and to preset fill volumes.

CDM says logistical hurdles were a major impediment to the project.

The Navajo Nation told the company that, in an effort to support its community, it was required to use subcontractors approved by the chapter. CDM agreed, but soon realized that its choice of subcontractors was severely limited by the project's remote location. Few mechanical and electrical firms were equipped to work

on the project. That's when El Paso Corp. stepped in. The local company, which owns a nearby compressor station and uses Navajo Nation-approved subcontractors for its projects, helped CDM assemble the right team to get the job done.

"By working with El Paso, and with careful planning and scheduling, we were able to ensure proper and efficient construction scheduling and workforce levels," recalls CDM's Evans.

The result: a clean, reliable water supply for the people of the region. ■



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rcep.net

Continuing Education for Engineering Professionals

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Leadership and Ethics

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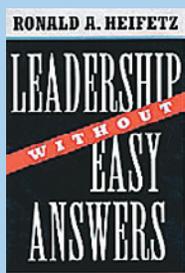
For more information, contact Dee McKenna, deputy director of ACEC's Institute for Business Management at dmckenna@acec.org, at 202-682-4328, or visit <http://www.acec.org/education/sei.cfm>.



Leadership Without Easy Answers

Ronald A. Heifetz

1994, Harvard University Press
\$31.00



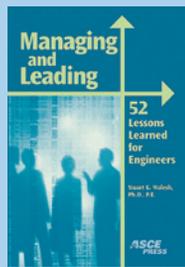
Heifetz presents clear, concrete prescriptions for anyone who needs to take the lead in almost any

situation, under almost any organizational conditions, no matter who is in charge.

Managing and Leading 52 Lessons Learned for Engineers

Stuart G. Walesh

2004, ASCE
\$61.00



Managing and Leading: 52 Lessons Learned for Engineers offers useful ideas on ways engineers can more effectively

approach the non-technical or “soft-side” aspects of working with colleagues, clients, customers, the public and other stakeholders.

Motivational Management Inspiring Your People for Maximum Performance

Alexander Hiam

2002, Amacom
\$18.95



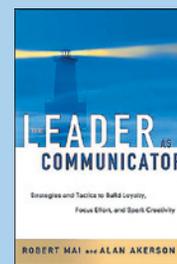
Author Alexander Hiam's training methods and materials are used by hundreds of corporations. He provides an Incentive

Profile for establishing a rewards system, a Motivation Level Inventory for measuring and tracking motivation, and a wide array of activities, techniques and examples from the author's own experiences.

The Leader as Communicator Strategies and Tactics to Build Loyalty, Focus Effort and Spark Creativity

Robert Mai and Alan Akerson

2003, Amacom
\$24.95



The author examines roles as trust-builder and critic, renewal champion and navigator, learning advocate and provocateur.

This insightful book demonstrates how to become a stronger, more confident leader—one who can use communication to build alignment, enthusiasm and productivity.

ONLINE SEMINARS

See page I-20 for pricing and other details.

Resources and Skills for Up-and-Coming Managers

Barbara H. Irwin, HR Advisors Group, LLC

February 19, 2008

What are the important people skills needed as you move into a management position? What are the resources available to you as a new manager? This seminar will provide guidance and direction in the various management responsibilities of your job, including leadership styles, communicating and motivating staff, utilizing the appropriate tools and resources to interview and evaluate staff effectively, and understanding the important HR laws that impact you and your staff.

ON-DEMAND COURSES

See page I-19 for pricing and descriptions.

**Keeping Your Cool When Things Aren't So Cool
Do the Right Thing: Ethical Decision Making
for Engineers
Creating Added Value**

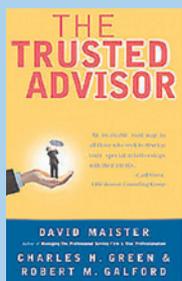


The Trusted Advisor

David H. Maister, Charles H. Green
and Robert M. Galford

2001, Free Press

\$15.00



One key to professional success is the ability to earn the trust and confidence of clients. To demonstrate the paramount importance of trust, the authors use anecdotes, experiences and examples—successes and mistakes, their own and others'—to great effect. The result is an immensely readable book for both the inexperienced advisor and the most seasoned expert.

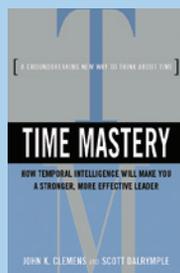
Time Mastery

**How Temporal Intelligence Will Make You a
Stronger, More Effective Leader**

John K. Clemens and Scott Dalrymple

2005, Amacom

\$21.95



Time Mastery includes dozens of examples of leaders whose temporal intelligence has helped them achieve business breakthroughs at organizations. With intriguing examples from sports, science, history and the performing arts, as well as business, the book offers a fascinating, in-depth look at a surprising new leadership skill.

**For a complete list of books
or to place an order, visit
www.acec.org/publications.**

Project Management and Project Delivery

COURSES

Building Information Modeling (BIM): The Promise and The Reality for A/E/C Firms

February 7–8, 2008

Las Vegas, NV

ACEC presents the voices and experiences of industry innovators who are collaboratively transforming the BIM multi-dimensional project planning concept into A/E/C marketplace reality. Presented twice in 2007 to capacity enrollment, the course is a must for firm leaders and project managers considering expansion into BIM.

The 1½-day course examines the concept of BIM, demonstrates how it is being put into practice by the collaborative professional teams involved, presents real-life case studies by engineering firms, explores BIM technology, describes transition plans and related IT budgeting, outlines legal issues and risks associated with the concept, and shows how firms can best prepare for a BIM future.

Registration Fee:

Advance (through January 4):

Member—\$795; Non-member—\$995

Regular (after January 4):

Member—\$895; Non-member—\$1,095

PDHs: 11

(For BIM Course for M/E/P Professionals, see page I-15)

Green Infrastructure and Sustainable Communities Certificate Course Presented with Colorado State University and the University of Florida

February 18–21, 2008

Coconut Grove (Miami), FL

This four-day intensive certificate program was an early sell-out in its debut presentation in July 2007. Developed to meet a growing demand for new skills in a changing industry, it explores emerging trends in civil infrastructure and communities planning, sustainable infrastructure strategies including wastewater and transportation LEED, the nationwide rating system of the U.S. Green Building Council and the international FIDIC sustainable project guidelines. The program is structured for working design professionals, contractors and builders. University faculty and internationally recognized guest speakers bring breadth and depth of professional experience to the classroom.

Registration Fee:

Advance (through January 18):

Member—\$1,445; Non-member—\$1,645

Regular (after January 18):

Member—\$1,645; Non-member—\$1,845

PDHs: 32 (In addition to a *Certificate of Completion*)

The Project Delivery Series:

Developed by ACEC's Management Practices Committee, the Project Delivery Series provides the A/E/C marketplace with balanced and comprehensive information about major project delivery systems. Individual titles cover traditional and alternative systems, including sequential approaches such as Design/Contract-Build and integrated approaches such as Design-Build-Operate.

The Project Delivery Systems Series includes must-read information for owners considering project delivery options, as well as for project delivery professionals advising owners about alternative delivery approaches. All of the sponsors and authors of the Series agree that choosing the right delivery system for a project, given owner needs and project parameters, is a vital first step in any development process.

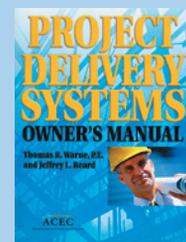
Project Delivery Systems Owner's Manual

Tom Warne and Jeffrey L. Beard

2005, ACEC

Member—\$99.00

Non-member—\$139.00



ACEC presents an in-depth manual designed to help owners select the appropriate project delivery system for every project. Reviewed by ACEC's

Management Practices Committee, this invaluable publication includes chapter-length discussions of each of the major sequential delivery processes.

Advanced Project and Program Management for the Engineering Industry
Co-sponsored by McCormick School of Engineering and Applied Science, Northwestern University
Evanston (Chicago), IL

June 16–17, 2008

Get a state-of-the-art immersion into design-through-construction project and program management in this two-day course co-sponsored by Northwestern University. Industry and academic faculty will take a fresh look at project oversight through case study from both engineering and owner perspectives, incorporate single- and multi-project management overview, and offer comparisons of the differences and important similarities. Participants will learn about the roles of today's IT management and new software program options, personnel/subcontractor motivation techniques, and the changing nature of effective project management, to arrive at new ways of looking at successful project planning, management and delivery in a communication-driven environment.

Registration Fee:

Advance (through May 20):

Member—\$895; Non-member—\$1,095

Regular (after May 20):

Member—\$995; Non-member—\$1,195

PDHs: 15

ONLINE SEMINARS

See page I-20 for pricing and other details.

Improving Contract Negotiations for Better Profits

Gary Bates, Roenker Bates Group

February 13, 2008

Knowledge gained from this seminar will facilitate understanding of the importance of conflict resolution in our business and per-

sonal lives. Attendees will acquire insights necessary to recognize different techniques others use to negotiate; learn which skills are required to be an effective negotiator; understand the importance of proper planning for negotiation; practice the methods for conducting an effective negotiation session; and realize the proper sequence for reaching a win-win engineering contract.

Effective Project Planning to Improve Profits

Gary Bates, Roenker Bates Group

March 11, 2008

From the initial contact with the potential client or the receipt of an RFP, the project planning process when done well is the single most important factor in ensuring a successful project. It is also the portion of the total project effort that typically receives the least attention. This extended three-hour session describes how to do it right and the benefits to all involved.

ON-DEMAND COURSES

See page I-19 for pricing and descriptions.

Project Management for Engineers

This 35-hour course covers all aspects of project management, including Client Relations, Contract and Procurement, Planning, Scheduling, Budgeting, Accounting and Finance, Quality, and Monitoring Planning and Administration. The interactive course, with graphical interface, sound and quizzes with explanations, allows students to move at their own pace and structure their own learning paths.

Price: 6-Month License:

Member—\$495; Non-member—\$595

12-Month License:

Member—\$895; Non-member—\$995

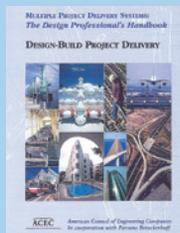
PDHs: 35

Design-Build Project Delivery

2001, ACEC

Member—\$49.00

Non-member—\$69.00



This book examines the basic differences in Design-Build in the private and public sectors, variations of this delivery method, guidance on how to manage risk and attain rewards, method pros and cons, legisla-

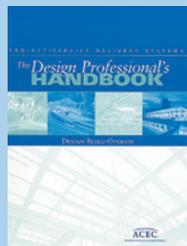
tion and how the process itself works. Discover new marketing techniques in the Design-Build environment, how to manage risk and how to attain rewards.

Design-Build-Operate

2005, ACEC

Member—\$89.00

Non-member—\$109.00



Learn and examine key differences between the Design-Build process and the Design-Build-Operate delivery

system as well as the long- and short-term opportunities, obligations, responsibilities and liabilities that exist.

Design/Contract-Build

2005, ACEC

Member—\$89.00

Non-member—\$109.00



Design/Contract-Build is an important title in The Project Delivery Series. Regardless of the delivery method chosen, it is in the best interest of owners to evaluate fully their options during a project's formative stages, with the assistance of design professionals and other advisers.

Business Management and Quality

COURSES

Business of Design Consulting (BDC) *A Best Practices Educational Course for the Engineering Firm of the 21st Century*

March 19–22, 2008

New Orleans, LA

June 18–26, 2008

Chicago, IL

The Business of Design Consulting (BDC) is presented for design professionals seeking to sharpen their business practice knowledge to compete more successfully. Attendees will hone management skills with new insights from leading practitioners who specialize in the A/E/C environment.

The intensive four-day program offers engineering firm professionals a logical sequence of focused learning in eight essential management areas and delivered through application exercises, extensive discussion and interactive workshops.

BDC offers expertise from some of the industry's leading authorities on:

- Leadership
- Human Resources
- Finance
- Business Management & Ownership Transition
- Contracts and Risk Management
- Information Technology
- Marketing

Faculty: Paul Doherty, Satellier; Peggy Pound, The Pound Group; David S. Cohen, Matheson Financial Advisors; Tom Porterfield, Victor O. Schinnerer & Company, Inc.; David Stone, Stone and Company.

Schedule: Sessions will be held from 8 a.m. to 5 p.m., Wednesday through Friday, and conclude at 2 p.m. on Saturday. The agenda will cover one in-depth topic area in the morning and a second in the afternoon.

Registration Fee:

Advance (through February 15):

Member—\$1,445; Non-member—\$1,645

Regular (after February 15):

Member—\$1,645; Non-member—\$1,845

PDHs: 28

Commended Master's Program *Earn a Master of A/E/C Business Management from Northwestern University*

ACEC and Northwestern University, Evanston, IL, have joined forces to offer the nation's premier design and construction master's program, created specifically for business-minded A/E/C professionals. Northwestern's 12-course A/E/C business management curriculum leads to a Master of Science degree from the McCormick School of Engineering and Applied Science. The Master's program is for individuals with several years of experience who already hold a professional degree (scientific or technical) in engineering, architecture, construction or a closely related field of study.

Over three semesters, student-professionals will enroll in a variety of courses:

- Financial Issues for Engineers
- Strategic Management for Engineers
- A/E/C Entrepreneurship
- Construction Industry Technology and the Project Manager
- Accounting Issues for Engineers
- Sustainability in Construction
- Corporate Real Estate Management
- International Construction
- E-Business in the Construction Industry
- Engineering Law
- Construction Business Strategy
- Program Management

2007–2008 Design & Construction Industry Trends Survey

2007, ACEC

Member—\$299.00

Non-member—\$399.00



Business practice trends for A/E companies are detailed in ACEC's comprehensive *2007–2008 Design & Construction Industry Trends Survey*. Company finance and operating ratios, costs of health care and retirement, retention and training data, and much more are contained in this in-depth study. All of the vital statistics are shown in the aggregate and categorized according to region, market focus and firm size.

Ownership Transition

Options and Strategies, Third Edition

Lowell Getz and Paul Lurie

2002, ACEC

Member—\$69.00

Non-member—\$89.00



An invaluable resource for design professionals considering the possibility of transferring ownership, the book also serves as a step-by-step guide with plenty of helpful forms and contracts to ensure an efficient and profitable transfer.

- Management of Project-Centered Organizations
- Computer-Integrated Project Delivery

For more information about the Commended Master's Program, contact Jeffrey Beard, vice president, ACEC, and director of the Institute for Business Management at 202-347-7474 or by e-mail at jbeard@acec.org.



ONLINE SEMINARS

See page I-20 for pricing and other details.

Strategic Planning for Your Company's Next *Bus Drivers*

Greg Churchman, Churchman Consulting

January 16, 2008

You've probably heard the phrase "having the right people on the bus." In your organization, who will be *driving the bus* in the future? Planning for your firm's future supervisors, managers, and leaders will become more important as more Baby Boomers are exiting the workplace. Churchman will present guidelines for identifying, developing and retaining potential leaders.

Developing and Implementing Winning Strategies for Engineers, Architects and Construction Companies

Clare Ross, The Clare Ross Organization

March 19, 2008

Success and growth in the highly competitive business environment for design and construction services requires a continuing stream of innovative business strategies. This expanded two-hour seminar offers new insights, plus time-tested ideas and principles to provide participants with useful tools to dramatically improve strategic focus, growth and profitability.

ON-DEMAND COURSES

See pages I-19 for pricing and descriptions.

Do the Right Thing: Ethical Decision Making for Engineers

Facing Recessions

Increasing Production and Profits

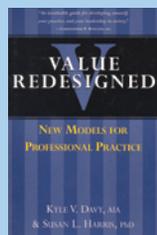
Value Redesigned

New Models for Professional Practice

Kyle V. Davy and Susan L. Harris

2005, Greenway

\$39.50



Authors Davy and Harris reveal a landscape where innovative models for professional practice are already beginning to flourish, providing firms avenues of escape from the cycle of commoditization and low prestige within the architecture and engineering community. Aligned with the dynamics of the emerging knowledge-based economy, these new models of practice offer value propositions combining new ways of creating value with innovative pricing strategies.

ACEC Quality Management Guidelines with CD

2003, ACEC

Member—\$69.00

Non-member—\$89.00



Here's help for you and those in your organization in identifying and addressing the issues most critical to customer satisfaction and retention, effective and efficient operations and a healthy bottom line. This book includes a CD, so you can customize your own quality management procedures.

Human Resources

COURSES

Human Resources Forum

Fall 2008

Chicago, IL

The HR Forum is a 1½-day meeting structured for peer networking in an interactive roundtable format to help human resources professionals seeking professional growth. Facilitators develop a basic agenda and each participant's input will formulate the ensuing discussions on emerging trends and problem solving in the workplace. An HR professional Listserv is available to participants, facilitating education, idea sharing and informal communication year-round.

Registration Fee:

Member—\$350; Non-member—\$450

PDHs: 8

ONLINE SEMINARS

See page I-20 for pricing and other details.

Now That I Have Them, How Do I Keep Them?

Greg Churchman, Churchman Consulting

February 5, 2008

Organizations focus a great deal of their time and effort on hiring... but that is often the easy part! Based on declining workforce projections, your firm's ability to keep valuable staff members will become more and more essential. A creative and solid retention strategy is key to the future success of every business, large or small.

The Talent War—Recruitment and Retention in Today's Competitive Engineering Industry

Lori Oakes-Coyne, ZweigWhite

March 25, 2008

The number one factor limiting a firm's growth potential and competitive advantage is the ability to attract and retain top performers. While firm leaders understand their biggest asset is their staff, few know how to position their firm as a choice employer. This session will examine the state of today's HR industry, explore the hiring and retention secrets of successful firms, and provide best practices to help companies become "employers of choice."

ON-DEMAND COURSES

See pages I-19 for pricing and descriptions.

Recruiting Stars

Construction Site Safety



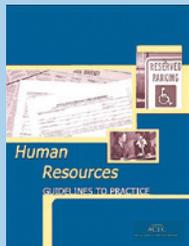
2004 ACEC Human Resources Guidelines CD

Kathleen A. Forrand, Editor

2004, ACEC

Member—\$89.00

Non-member—\$119.00



This jam-packed CD contains HR forms for virtually every need—hiring, promotions, performance appraisals, benefits, raises, commendations, exits and more. Included are sections on e-mail and

Internet policies, and violence in the workplace.

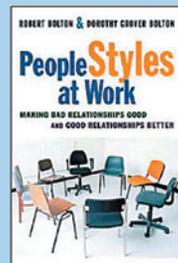
People Styles at Work

Making Bad Relationships Good and Good Relationships Better

Robert H. Bolton and Dorothy G. Bolton

1996, Amacom

\$19.95



With the diversity in today's workplace, people problems abound. This book presents a behavioral science model for understanding different "people styles," including the characteristic strengths and weaknesses of each style, and how these

characteristics can create stress in the other behavior types.

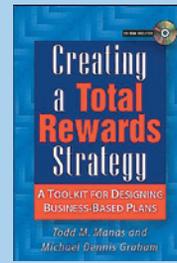
Creating a Total Rewards Strategy

A Toolkit for Designing Business Based Plans, 2nd edition with CD

Todd M. Manas and Michael Dennis Graham

2002, Amacom

\$69.95



Salary, bonuses, benefits and "perks" may be the most visible elements of a rewards program, but other components are just as valuable to employees. This book and CD set details how non-financial rewards can be quantified and combined with monetary measures in ways that

meet business objectives.

Finance and Economics

COURSES

Finance Forum

September 15–16, 2008

Chicago, IL

ACEC's Finance Forum is a 1½-day meeting of industry finance professionals with the goal of gaining new insights and information in order to be more successful for their firms. The Forum gives attendees the opportunity to network with peers and exchange valuable information and experiences. Content typically includes perennial topics such as executive compensation, sales and growth, mergers and acquisitions, and government contracts and systems in the current environment.

Registration Fee:

Member—\$350; Non-member—\$450

PDHs: 8

ONLINE SEMINARS

See page I-20 for pricing and other details.

Merger and Acquisition Transactions—Looking Ahead

Colvin Matheson, Matheson Financial Advisors

April 2, 2008

Setting the stage with a look ahead at the marketplace through year-end, this seminar will review the basics of firm valuation in anticipation of mergers and acquisitions. The discussion also will cover the nuances of deal structures and closing transactions. The interested seller will gain information to help manage expectations about the worth of a typical engineering firm and what to expect in a deal structure. On the buyer side, the session will examine the entire M&A process and provide tips on getting to closure.

ON-DEMAND COURSES

See pages I-19 for pricing and descriptions.

Getting Paid Promptly

Increasing Production and Profits



Smart Financial Management

William Sihler, Richard Crawford and Henry Davis

2004, Amacom
\$29.95

Financial Management for Design Professionals

Stephen L. Wintner and Michael Tardiff

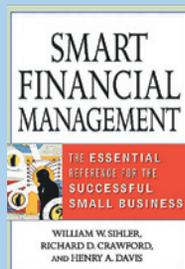
2006, Kaplan
\$49.95

2004 ACEC Financial Management Guidelines CD

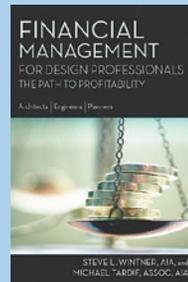
2004, ACEC
Member—\$69.00
Non-member—\$89.00

The Essentials of Finance and Accounting for Nonfinancial Managers

Edward Fields
2002, Amacom
\$19.95



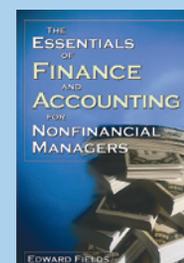
Long on practical guidance, while refreshingly short on math, *Smart Financial Management* helps owners and managers of small businesses solve everyday financial dilemmas and avoid potential problems.



You don't need to be a financial wizard to ensure the future success of your design firm! For design professionals looking to advance their careers, the book is an indispensable reference and training guide.



Achieve financial goals and re-familiarize yourself with key lessons in financial management. Topics include using financial information to improve performance, planning, trend analysis, assembling a budget income statement, invoicing and collections, developing a Net Revenue Forecast and using IT effectively.



An indispensable book that demystifies accounting and finance and demonstrates how financial decisions are manifestations of company goals. Crystal-clear examples show how managers can connect corporate financial information directly to their own strategies and actions.

Contracts and Risk Management

COURSES

Legal Counsels Forum

April 29–30, 2008

Washington, D.C.

Held in conjunction with Winning in 2008—ACEC's Annual Convention and Legislative Summit, the Legal Counsels Professional Forum is a 1½-day meeting, structured as an interactive roundtable for networking among legal counsels employed or retained by ACEC member firms. The goal is to provide a setting for the exchange of information by participants to enhance their ability to serve their firms. The Forum encourages input to enrich and promote conversations on emerging issues and problem solving in the workplace. A professional Listserv is available for participants so that education, idea sharing and communication can continue year-round.

Registration Fee:

Member—\$350; Non-member—\$450

ONLINE SEMINARS

See page I-20 for pricing and other details.

Arbitration and Mediation... for the People Who Write the Checks

Darrel V. Holmquist, CTL/Thompson Texas, LLC, and Robert Meade, American Arbitration Association

January 15, 2008

Arbitration and mediation can be coordinated for better results. This seminar outlines the processes and provides the tools to control the cost, time, and frequently, the outcome. Participants will also examine responses to the often-cited reasons for avoiding the Alternative Dispute Resolution processes: “too long,” “too costly,” and allowing “no appeal.”

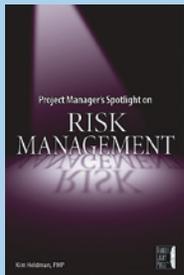


Project Manager's Spotlight on Risk Management

Kim Heldman

2005, Jossey-Bass

\$16.95



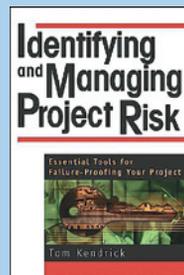
This book is a quick and practical guide to applying the disciplines of proven risk management practices without the rigor of complex processes.

Identifying and Managing Project Risk

Tom Kendrick

2003, Amacom

\$32.95



This practical guide takes readers step-by-step through every phase of a project, showing how to consider the possible risks involved at every step in the process. Relevant figures and diagrams support the text and illustrate key scenarios.

Risk Management for Design Professionals

William G. Ramroth, Jr.

2007, Kaplan

\$39.95



William G. Ramroth explains the principles of risk management and how any design firm can apply them to every project. By reducing the process to simple steps and comparing professional risk to familiar themes like games of chance, Ramroth demonstrates how to avoid risk at every stage of the design process.

Economic Loss Doctrine: Peculiar Name, Critical Loss Prevention Tool

Richard Nakamura and Nicholas M. Wierczorek, Morris Polich & Purdy LLP

March 12, 2008

The Economic Loss Doctrine is a legal principle with broad practical effects on design practice. Recognizing its application can avoid potential “unlimited liability” for claims, and enforce mutually negotiated contractual terms and provisions. Participants will learn the status of the Economic Loss Doctrine in jurisdictions across the country, how to recognize it in design practices, and how to interface effectively with insurance carriers or third-party claims professionals to handle legal disputes.

Watch for new courses...

Our calendar of online seminars is continually adding new hot-topic events. See what’s new at

www.acec.org/calendar/index.cfm

ON-DEMAND COURSES

See page I-19 for pricing and descriptions.

**Construction Site Safety
Legal Impacts of Technology on Engineering Practice
Protecting Your Engineering License and Your Wallet**

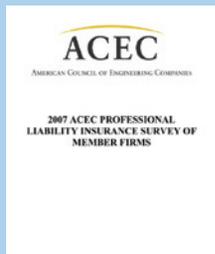


2007 ACEC Professional Liability Insurance Survey

2007, ACEC (Download)

Member—\$29.00

Non-member—\$39.00



Insurance availability, rates, types of coverage, pre-claim assistance, claim processing, and related issues all have direct bearing on the financial strength of a firm. ACEC’s Risk Management Committee conducts an annual survey on member firms’ liability insurance coverage and experience to provide this overview of the current industry insurance landscape.

EJCDC Contract Documents



ACEC offers a broad array of contract documents, including environmental and funding agency contracts. These are available individually or in specially priced sets.

Go to www.contractscentral.net to purchase downloadable documents.

Marketing and Business Development

COURSES

Professional Sales and Marketing Forum

April 27, 2008

Washington, D.C.

Held in conjunction with Winning in 2008—ACEC's Annual Convention and Legislative Summit, the Professional Sales and Marketing Forum is a day-long meeting designed to help sales and marketing professionals network with peers and gain valuable insights that can be implemented in their firms. A professional Listserv is available for participants so that education, idea sharing and communication can continue year-round.

Registration Fee:

Member—\$325; Non-member—\$395

PDHs: 8

ONLINE SEMINARS

See page I-20 for pricing and other details.

The PR Plan: A Strategy to Increase Visibility

Susan Frost, SEF Consulting Inc.

January 22, 2008

As a vital integral component of a firm's overall marketing plan, a strategic public relations plan can create recognition and favorable public perception, strengthen brand and position, and facilitate the ability to develop new business. Research, participation, content, strategies, tactics and buy-in will be explored in this seminar.

Escaping the *Wal-Marting* of Engineering

Robert vanArsdall, XL Design Professional

April 15, 2008

External pressures are forcing a commoditization of the engineering industry—the *Wal-Mart effect*. To succeed, firms will need to learn how to differentiate themselves from competitors, understand and deliver on client demands, and maximize the knowledge value of their workers. This session will look at both internal project delivery processes and external demands of clients.

Strategizing Winning Proposals from Value Proposition to Differentiation... on Deadline

Clare Ross, The Clare Ross Organization

May 13, 2008

What are the essentials of a good proposal? What are the key content points a decision maker wants to see? How should content be organized? What about differentiation from the competition? How can proposals be written faster? This seminar offers answers and ideas for writing powerful, persuasive proposals that win business.

ON-DEMAND COURSES

See page I-19 for pricing and descriptions.

Recruiting Stars

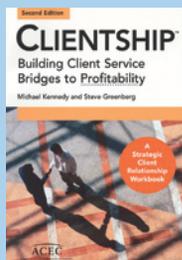
Clientship™, Second Edition

Michael Kennedy and Steve Greenberg

2005, ACEC

Member—\$49.00

Non-member—\$69.00



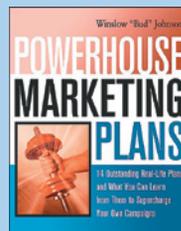
This updated title illustrates again that good client service is part of a firm's competitive advantage. Like the original edition, this book will become a staple as a sales and customer service training tool used by successful firms and agencies.

Powerhouse Marketing Plans

Winslow "Bud" Johnson

2004, Amacom

\$29.95



Here are the tools to create successful marketing campaigns using proven strategies of well-known companies that have done it right. Maximize market research such as phone surveys, ethnographic studies, focus groups, online surveys, trade research and more.

Communications and Information Technology

COURSES

Building Information Modeling (BIM) for M/E/P Professionals

June 20, 2008

Salt Lake City, UT

ACEC and the Council of American Mechanical & Electrical Engineers (CAMEE) present industry innovators who are pioneering BIM project planning and integrated project delivery in the marketplace. Designed for M/E/P professionals, the course is a must for principals and project managers considering expansion into BIM. The course examines the concept of BIM and demonstrates how it is being put into practice by the collaborative professional teams. Discussion will cover state-of-the-art BIM software levels and features, useful contract models, benefits, and more.

Registration Fee:

Advance (through May 9)

Member—\$425; Non-member—\$525

Regular (after May 9):

Member—\$475; Non-member—\$575

(For BIM A/E/C Course, See page I-6)

ONLINE SEMINARS

See page I-20 for pricing and other details.

Market Forecast Series

ACEC's Market Forecast Series presents up-to-date contracting opportunities and procurement approaches from federal agency programs. Key representatives discuss budget outlooks, agency or industry organization, and procurement. Find out how to do business and win projects with federal agencies and various private-sector owner representatives. These hour-long presentations are announced in advance, and are held from 12:30–1:30 p.m. Eastern time. Agencies represented may include:

- U.S. Army Corps of Engineers (**January 17, 2008**)
- Naval Facilities Engineering Command
- General Services Administration (**February 21, 2008**)
- U.S. Air Force

Registration Fee:

Member—\$199; Non-member—\$249

PDHs: 1 per session

rcep.net: The NCEES/ACEC Nationwide Portal to Continuing Education for Engineers

Jeff Beard, ACEC, and Erin Carroll, NCEES

April 16, 2008

Now there's a solution to the challenge of keeping track of needed PDHs: *rcep.net*. This new online education management system being built by NCEES and ACEC enables engineers to search out, find and select relevant courses; maintain personal educational and professional history; record PDHs; and track continuing education requirements in all states.

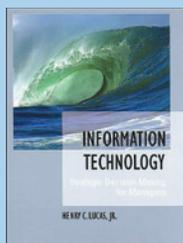
ON-DEMAND COURSES

See pages I-19 for pricing and descriptions.

Legal Impacts of Technology on Engineering Practice

Information Technology Strategic Decision-Making for Managers

Henry C. Lucas, Jr.
2004, Wiley
\$82.95



From new business models to new types of business, information technology has become a key driver of business and essential to corporate strategy. Lucas focuses on the key knowledge and skills needed to take an active role in managing IT to maximize the benefits of the investment.

The Executive's Guide to Information Technology, 2nd Edition with CD

John Baschab and Jon Piot
2007, Wiley
\$75.00



The sophisticated and comprehensive guide to running a cost-effective, efficient and delivery-focused corporate information technology unit, this book offers specific policies, approaches and tools for each critical IT management function. Spreadsheets, documents and checklists can be accessed on the CD that is included.

Don't miss ACEC's annual Washington, D.C., meeting of A/E/C business leaders with key policymakers in Congress and federal agencies on critical business issues and opportunities. Program highlights include:

Top-Tier Business Education

- Education programs to make your business more successful, complete with PDH credits
- New business models for design firms
- How to find engineering talent
- New ideas in risk management
- CEO Roundtables—peer networking at its best

Premier Legislative Summit

- Lobbying Congress on key industry issues
- Legislative briefing and advocacy training
- Speakers Chris Wallace, host of *Fox News Sunday*; Paul Begala, political analyst and CNN commentator; and Tucker Carlson, journalist and host of MSNBC's *Tucker*
- Briefings on new business opportunities from U.S. Army Corps of Engineers, DOT, GSA and other agencies

Engineering Excellence Awards Gala

The "Academy Awards of the Engineering Industry" hosts business leaders, Congress and the Administration to honor our industry's most outstanding achievements of 2007... a "can't miss" event for convention attendees.

Visit www.acec.org for the most up-to-date listing of sessions and events. Plan now to join us!

SESSIONS HIGHLIGHT TODAY'S 'HOT TOPICS'

Leadership and Ethics

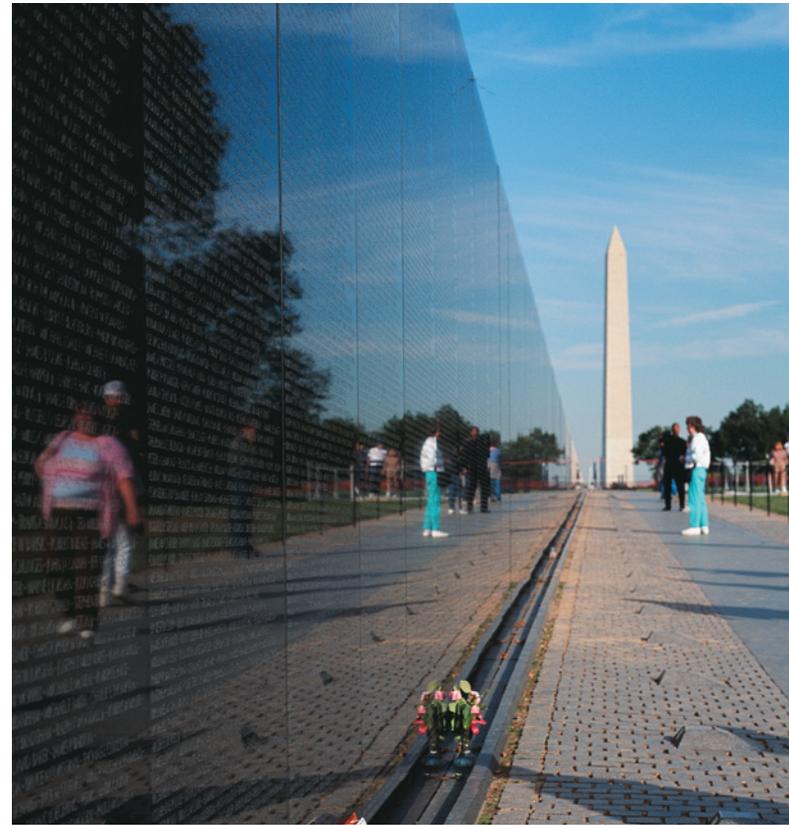
Leadership Through the Movies

P. Thomas Gard
McDonough Bolyard Peck, Inc.

Leadership can be a dry and overworked subject, but this presentation looks at leadership (and lack of leadership!) through a new lens: the movies. Seven styles directly applicable to the leadership of design teams, construction projects and cross-functional teams are illustrated by leading actors through movie clips—in a memorable and compelling format. Each style is readily identified and application in our business, our projects and the different teams we lead is clear... but you'll see Tom Hanks and George C. Scott showing how it's done.

Rapid Leadership Development in Engineering and Design Firms

Scott W. Braley
Braley Consulting & Training
No matter how hard we try, some of us are unsure of where or how to begin, while others can't maintain the momentum to design, implement and sustain high level leadership performance. This session looks at *rapid* leadership development and deployment—what works and what doesn't as we seek to identify, define, develop, keep, challenge and support up-and-coming professionals and new leaders. Braley will focus on key issues and equip you to address leadership development quickly, effectively and



with many of your own in-house resources.

Professional Ethics: A Preventive Maintenance Approach

Christopher Bauer
Bauer Ethics Seminars
This unique program is designed to demonstrate the ethics risks you never knew you had, and how to make sure those risks don't turn into ethics problems—in an entertaining and engaging way. Bauer will lead you through a re-thinking of your definition of ethics and ways to help yourself, colleagues, and co-workers keep ethical principles constantly in mind during day-to-day decision-making. He'll look at the "do's" and "don'ts" of confronting others on ethics issues, how to significantly build your bottom line by integrating sound, new ethi-

cal principles with existing business practices, and more.

Project Management and Project Delivery

Leveraging Collaborative PM Technology to Eliminate Communication Delays, Streamline E/C Business Processes

Jonathan Knowles
Autodesk

Collaboration technology can maximize resources, reduce costs and ensure access to the right information when and where it is needed, without compromising accuracy, security or intent of the original data. Gain insights on how information can be kept current and how to reduce information loss in the sharing process among numerous internal and external stakeholders. Knowles will describe how digital technology stream-

2008, Washington, D.C.

lines workflows and reduces planning costs by eliminating paper-based processes that lead to inefficiencies and delays.

Getting It Right the First Time—Why Designers and Construction Managers Should Collaborate...and Early!

Joshua Lawrence, James Peck, Mairav Mintz, and John Koplaski
McDonough Bolyard Peck, Inc.

Design professionals can “ensure a quality deliverable” and this session will “challenge your assumptions about what designers and construction managers do, and more importantly, what they can do together.” Presenters will demonstrate through eight case studies, the services of a constructability review, cost estimating and review, CPM scheduling, change order evaluation and management, construction quality assurance and quality control, total project commissioning, proactive disputes resolution, and project and contract closeout.

Business Management and Quality

Offshoring Goes Mainstream: Design Firm Panel Discussion

Paul T. Bryant, and Chandra Weiss
Pivotal Management Consulting, LLC

Firms experimenting with offshoring of design services have produced mixed results. There are currently no standards for creating the business case and implementing an offshoring plan and managing the resulting changes within their firms. These two consecutive sessions offer a unique forum to increase the success ratio and fully realize the benefits from

offshoring. The first session panel of design firm executives will bring to light the issues, questions and problems of the process, followed by a second session panel of offshoring provider firms to discuss solutions.

Unlocking the Secrets of the Generational Engineering Workforce

Jim Kissane
RedVector.com, Inc.

For the first time, four distinct generations are thrust together in the workplace, all too often fueling inter-generational conflicts. Misreading the unique dynamics, design firms are at risk for miscommunication, resentment or hostility, and finger-pointing...and all parties lose. Failing to understand this issue increases business risks and related costs from loss of key employees to damaged customer relationships. This timely session looks into interpreting the “generation factor” and its bottom-line impacts on your firm, and identifying “friction points” and their effects.

Human Resources

Best Practices: How A/E Firms are Leveraging Their Human Resources for Competitive Advantage

John Geddie
Martin-Simonds Assoc.

Improved retention of employees has an immediate bottom-line impact on your firm's expenses. The current tight labor market makes it imperative that A/E firms develop and retain a competitive hiring advantage. This session examines how to leverage human capital within a firm to improve productivity; how to win the talent war

by employing best practices in human resources; and how to improve the motivation and loyalty of technical professionals.

Future Leaders' Focus: A Study of the Needs and Priorities of Young Design Professionals

Barbara H. Irwin
HR Advisors Group, LLC and Cara Bobchek
Management Consultant

What attracts young engineers to a company? What keeps them loyal? How do they view their careers in comparison to older generations? This session presents the combined voices of young engineers through their responses to an original 2007 survey in over 50 firms nationwide. Results of this survey provide insight into the minds of a firm's younger staff, as well as ideas, direction, and guidance to firms focusing on overall retention and development of the workforce of today and tomorrow.

Finance and Economics

Crafting a Successful Deal: An Overview of M&A Activity in the A/E/C Industry

Steve Gido
ZweigWhite

What factors drive M&A activity in our industry? What motivates buyers and sellers? Why are only half of all merger or acquisition deals generally considered successful? According to Gido, the past three years have been a strong period for merger and acquisition activity in the industry as a result of “a willingness to buy rather than build as a means of strategic growth.” This session looks at the current M&A environment, the outlook for

2008, and the challenges in putting successful transactions together.

Where Does the Money Go? What Happens Between the Top Line and the Bottom Line?

Robert vanArsdall
XL Design Professional
Too often, engineering firms look at the revenue line on their balance sheets, then the total profit, and wonder *where all the money went*. The gap between money made and money kept can be a large one. In this session, vanArsdall will describe important tools for identifying how and where money disappears inside the firm, on projects and in pricing. He'll focus on price differentiation by client, the elements of activity-based costing and its implications on overhead, and identifying the places where potential profit is being lost and how to stop it.

Contracts and Risk Management

Limiting Liability and Managing Risks Through Contract Provisions: Ceilings, Floors and Trap Doors

Neal J. Sweeney, Esq.
Kilpatrick Stockton LLP
Engineers regularly risk claims that are out of proportion to their modest design fees and even to their *entire net worth*. Realistic risk management requires project owners to confront these economic realities and reflect on them responsibly in the allocation of design risk and limitations on the engineer's liability. Sweeney will explore the concepts of *standard of care* and *professional negligence* in protecting the engineer from liability; marketing efforts and contract language that raise the standard

by which performance may be judged, and performance guarantees that increase liability.

Risk Mapping Workshop

Douglas C. Green
Marsh USA

First, *consider what risks to manage*. Organizations too often look at risk management solely in terms of insurance... but many risks are not insurable. In addition to avoidance and transfer, the prudent acceptance, management and mitigation of risk is critically important. This session will engage attendees in an interactive discussion of business risk, selection of the most significant risks to organizations in the industry, and plotting them on a "Risk Map" as an informal industry profile.

Contracts, Coverage and Jury Interpretation: A Peek Behind the Insurance Curtain

Albert J. Rabasca
XL Insurance

Improved awareness of the claim process can influence decisions and behaviors during design and construction that can afford the design professional added protection in the event of a claim. Rabasca takes attendees behind the insurance curtain to explore pitfalls in contract language from the perspective of A/E professional liability coverage, examining allegations from actual lawsuits in comparison to insurance contract coverage. The importance of clear and concise language will also be examined, understanding that the ultimate interpreter would not be a *jury of your peers*.

For full details and to register, visit www.acec.org.

Work-Family Conflicts: Where Is the Line on "Caregiver" Employees? (C/RM)

Joseph "Trey" Wood, III
Alaniz & Schraeder, LLP
The Equal Employment Opportunity Commission (EEOC) has announced that it will begin a concerted effort to target companies that illegally discriminate against applicants or employees who are also caregivers. What constitutes illegal discrimination? This session will offer insight into how EEO laws apply to caregivers so that employment-related decisions such as hiring, promotion, transfer or termination can be made in a nondiscriminatory manner.

Marketing and Business Development

With Power & Influence: Presentations that Move Decision-Makers to Action!

Joanne G. Linowes
Linowes Executive Development International

When you need to make the impression that encourages others to make decisions help-

ing you move forward, it's crucial to go beyond good presentation skills. This session focuses on the subtle, sophisticated strategies that help you get the right results. Linowes looks at five specific, ready-to-use techniques for presenting ideas effectively and influentially, demonstrates how to change regular content into a more persuasive discourse, and provides targeted techniques to strengthen staff presentations.

Marketing Judgment Day

Mark Goodale and
Mick Morrissey

Morrissey Goodale LLC
All will rise as "Judge" Goodale enters to hear several "cases" involving marketing strategies of various fictitious engineering firms. This highly interactive and clever session will leave attendees with the knowledge to build a marketing and business development "machine," target resources and maximize return on marketing investment (ROMI) and build a high-impact brand name. Goodale's "strategies that actu-

ally work" are aimed at helping firms build "a robust marketing machine in place to insulate them from market volatility."

Show Me the Money: Maximizing the Benefits of Information Technology

Ty Kicklighter
Walter Schoel Engineering Company, Inc.

Leveraged correctly, information technology can affect the financial performance of firms positively in unique ways. Using a firm's financial statements and examples of common IT projects, this session will explore the consequences of IT spending on firm health. Firm management will take away a better understanding of IT project expenditure financial implications, and know-how for evaluating IT projects' effectiveness relative to the firm's financial performance and expectations. IT professionals will learn how to communicate the value of projects to management in financial terms.



Spring On-Demand Courses— Knowledge Whenever You Want It

These interactive web-based courses are archived and available at any time. Just read the description, purchase a course, and work through the content, which is guided by interactive graphics and audio instructions—at your computer and at your convenience.

ACEC has partnered with SmartPros, a leading technical online learning vendor, to offer a variety of these courses to ACEC members at discounted prices. For complete descriptions of the course offerings, to register and take a course, visit <http://education.smartpros.com/main1/engcatalog.asp>.

All SmartPros online courses carry PDHs as noted below.

Business Management Trends

Combining statistical information with macro business trends affecting firms, this course presents a timely, real-world perspective to help you understand why the markets act as they do and how to manage these influential forces to your advantage.

Price: Member—\$37.50

Non-member—\$45

PDHs: 1.5

Construction Site Safety

This course explores the landmark court cases that have shaped engineers' responsibilities for construction site safety and discusses OSHA's safety standards from an engineering firm's point of view.

Price: Member—\$75

Non-member—\$90

PDHs: 3

Creating Added Value

If today's firms are to remain financially healthy, their owners must find ways to add value to their services in order to stem the erosion of profitability. This course presents

creative strategies for the engineering consulting business.

Price: Member—\$37.50

Non-member—\$45

PDHs: 1.5

Do the Right Thing: Ethical Decision Making for Engineers

This course, presented in three separate modules, discusses the importance of and issues inherent in ethics for engineers. It is important for the engineer to develop ethics early and apply ethical standards as constantly as technical standards.

Price: (for all three ethics modules):

Member—\$169

Non-member—\$199

PDHs: 3

Facing Recessions

The recent economy has produced profits and optimism in the engineering community. However, when the cycle shifts downward, will you be ready?

This course explores what a recession looks like and how best to prepare and respond.

Price: Member—\$37.50

Non-member—\$45

PDHs: 1.5

Getting Paid Promptly

For most firms, getting work hasn't been a problem, but getting paid for the work is something else! This course explores ways to attack the issue before it becomes a problem and save time, money and the headaches of cash flow problems.

Price: Member—\$37.50

Non-member—\$45

PDHs: 1.5

Increasing Production and Profits

This course demonstrates how some of the nation's top A/E firms develop organizations full of high achievers, from top to bottom so you can have a high-performance organization that generates the maxi-

mum amount of high-quality work for every hour charged.

Price: Member—\$37.50

Non-member—\$45

PDHs: 1.5

Keeping Your Cool When Things Aren't So Cool

Even in the best consulting engineering firms, things go wrong—schedules slip, budgets are exceeded, errors are made. This course will help you stop "putting out fires" and constructively identify the causes of problems and ways to partner with your staff to prevent their recurrence.

Price: Member—\$37.50

Non-member—\$45

PDHs: 1.5

Legal Impacts of Technology on Engineering Practice

With the ever-changing world of electronics comes a whole new set of liability, licensure, ethical and copyright issues.

This course discusses new technology, how it affects engineers and how you can prepare for electronic practice by minimizing risk.

Price: Member—\$25

Non-member—\$30

PDHs: 1

Mergers and Acquisitions

Mergers and acquisitions offer many firms an opportunity to make a quantum leap into a new service or a new geographic market. This course outlines the potential positives and negatives to these ventures and the key issues that must be addressed to increase the likelihood of success.

Price: Member—\$37.50

Non-member—\$45

PDHs: 2.5

Protecting Your Engineering License and Your Wallet

Engineering codes have become extremely complex. Learn the intricacies of civil codes and state regulations,

how to protect yourself, and what happens if you are accused of a violation.

Price: Member—\$25

Non-member—\$30

PDHs: 1

Recruiting Stars

Different people are motivated by different things. This course outlines a recruiting process that illustrates how to motivate star performers to join your firm and allows you to practice this process by attempting to recruit case study engineers. Course modules include: Define Position, Customize Process, Promote Firm, Promote Fit, Promote Community, and Case Study Application.

Price: Member—\$200

Non-member—\$230

PDHs: 4

PE Exam Review - Civil - All Modules

Seven complete modules reflective of the PE Exam each averaging approximately seven hours of instruction. Modules include: Geotechnical, Hydraulics and Hydrology, Structures, Environmental, Transportation, Water Resources, and Economics.

The course includes electronic versions of all visual aids and reference materials that an engineer might take into the examination including complete sets of equations, formulas, graphs, tables, diagrams, and where applicable, video clips of sample tests.

Price: Member—\$499

Non-member—\$599

Spring 2008 Online Seminars

What Is an Online Seminar?

ACEC's online seminars are a cost-effective and convenient way to participate in our informative and popular learning events from anywhere the Internet is available. Professionals from leading firms present topics in a tightly packed 1½-hour session in a format that facilitates important learning right at your computer.

At the session start time, participants log on to a website for the live presentation delivered in real-time. Calling a toll-free number provides the audio portion of the presentation and participants can ask questions via the Web.

With one registration fee payable per connection, a roomful of people can participate at no additional cost. ACEC's spring 2008 online seminar lineup features some of the most popular traditional topics, as well as some new ones.

Online seminars generally are held from 1:30 to 3 p.m. Eastern time. Unless otherwise noted, seminar fees are: Member—\$199; Non-member—\$249; and each course offers 1.5 PDHs.

Spring online seminars will include the sessions listed below. Sessions are frequently added or amended to reflect hot topics or cutting-edge ideas as industry issues arise, and the schedule is continually being expanded. Visit www.acec.org/education for the up-to-date list of upcoming topics.

Leadership and Ethics

Resources and Skills for Up-and-Coming Managers

Barbara H. Irwin
HR Advisors Group, LLC
February 19, 2008

What are the important people skills needed as you move

into a management position? What are the resources available to you as a new manager? This seminar will provide guidance and direction in the various management responsibilities of your job, including: leadership styles, communicating and motivating staff, utilizing the appropriate tools and resources to effectively interview and evaluate staff, and understanding the important HR laws that impact you and your staff.

Project Management and Project Delivery

Improving Contract Negotiations for Better Profits

Gary Bates
Roenker Bates Group
February 13, 2008

Knowledge gained from this seminar will facilitate understanding of the importance of conflict resolution in our business and personal lives. Attendees will acquire insights necessary to recognize different techniques others use to negotiate; learn which skills are required to be an effective negotiator; understand the importance of proper planning for negotiation; practice the methods for conducting an effective negotiation session; and realize the proper sequence for reaching a win-win engineering contract.

Effective Project Planning to Improve Profits

Gary Bates
Roenker Bates Group
March 11, 2008

From the initial contact with the potential client or the receipt of an RFP, the project planning process when done well is the single most important factor in ensuring a successful project. It is also the portion of the total project effort that typically receives the least attention. This extended three-hour session describes how to do it right and the benefits to all involved.



Business Management and Quality

Strategic Planning for Your Company's Next Bus Drivers

Greg Churchman
Churchman Consulting
January 16, 2008

Many of us are familiar with the phrase "having the right people on the bus." In your organization, who will be *driving the bus* in the future? Planning for your firm's future supervisors, managers, and leaders will become more important as more Baby Boomers are exiting the workplace. Churchman will present guidelines for identifying, developing and retaining potential leaders.

Developing and Implementing Winning Strategies for Engineers, Architects and Construction Companies

Clare Ross
The Clare Ross Organization
March 19, 2008

Success and growth in the highly competitive business environment for design and construction services requires a continuing stream of innovative business strategies. This expanded two-hour seminar offers new insights, plus time-tested ideas and principles to provide participants with useful tools to dramatically improve strategic focus, growth and profitability.



and competitive advantage is the ability to attract and retain top performers. While firm leaders understand their biggest asset is their staff, few know how to position their firm as a choice employer. This session will examine the state of today's HR industry, explore the hiring and retention secrets of successful firms, and provide best practices to help companies become "employers of choice."

Finance and Economics

Merger and Acquisition Transactions—Looking Ahead

Colvin Matheson
Matheson Financial Advisors

April 2, 2008

Setting the stage with a look ahead at the marketplace through year-end, this seminar will review the basics of firm valuation in anticipation of mergers and acquisitions. The discussion also will cover the nuances of deal structures and closing transactions. The interested seller will gain information to help manage expectations about the worth of a typical engineering firm and what to expect in a deal structure. On the buyer side, the session will examine the entire M&A process and provide tips on getting to closure.

Contracts and Risk Management

Arbitration and Mediation... for the People Who Write the Checks

Darrel V. Holmquist, CTL/
Thompson Texas, LLC, and
Robert Meade, American
Arbitration Association

January 15, 2008

Arbitration and mediation can be coordinated for better results. This seminar outlines the processes and provides the tools to control the cost, time, and frequently, the outcome. Participants will also examine responses to the often-cited

reasons for avoiding the Alternative Dispute Resolution processes: "too long," "too costly," and allowing "no appeal."

Economic Loss Doctrine: Peculiar Name, Critical Loss Prevention Tool

Richard Nakamura and Nicholas M. Wierczorek, Morris Polich & Purdy LLP

March 12, 2008

The Economic Loss Doctrine is a legal principle with broad practical effects on design practice. Recognizing its application can avoid potential "unlimited liability" for claims, and enforce mutually negotiated contractual terms and provisions. Participants will learn the status of the Economic Loss Doctrine in jurisdictions across the country, how to recognize it in design practices, and how to interface effectively with insurance carriers or third-party claims professionals to handle legal disputes.

Marketing and Business Development

The PR Plan: A Strategy to Increase Visibility

Susan Frost
SEF Consulting Inc.

January 22, 2008

As a vital integral component of a firm's overall marketing plan, a strategic public relations plan can create recognition and favorable public perception, strengthen brand and position, and facilitate the ability to develop new business. Research, participation, content, strategies, tactics and buy-in will be explored in this seminar.

Escaping the Wal-Marting of Engineering

Robert vanArsdall
XL Design Professional

April 15, 2008

External pressures on the engineering industry are forcing a commoditization of the engineering industry—the

Wal-Mart effect. To succeed, firms will need to learn how to differentiate themselves from competitors, understand and deliver on client demands, and maximize the knowledge value of their workers. This session will look at both internal project delivery processes and external demands of clients.

Strategizing Winning Proposals from Value Proposition to Differentiation...on Deadline

Clare Ross

The Clare Ross Organization

May 13, 2008

What are the essentials of a good proposal? What are the key content points a decision maker wants to see? How should content be organized? What about differentiation from the competition? How can proposals be written faster? This seminar offers answers and ideas for writing powerful, persuasive proposals that win business.

Communications and Information Technology

rcep.net: The NCEES/ ACEC Nationwide Portal to Continuing Education for Engineers

Jeff Beard, ACEC, and
Erin Carroll, NCEES

April 16, 2008

Now there's a solution to the challenge of keeping track of needed PDHs: rcep.net. This new online education management system being built by NCEES and ACEC enables engineers to search out, find and select relevant courses; maintain personal educational and professional history; record PDHs; and track continuing education requirements in all states.

Human Resources

Now That I Have Them, How Do I Keep Them?

Greg Churchman
Churchman Consulting

February 5, 2008

Organizations focus a great deal of their time and effort on hiring...but that is often the easy part! Based on declining workforce projections, your firm's ability to keep valuable staff members will become more and more essential. A creative and solid retention strategy is key to the future success of every business, large or small.

The Talent War—Recruitment and Retention in Today's Competitive Engineering Industry

Lori Oakes-Coyne, ZweigWhite

March 25, 2008

The Number One factor limiting a firm's growth potential

Other Education and Business Management Resources

Organizational Peer Review

ACEC's Organizational Peer Review (OPR) provides design firms with a review of their business management practices and procedures through the eyes of objective, experienced constituents. The resulting oral and written outlines provide a basis for operation-enhancing changes.

An Organizational Peer Review is a highly cost-effective assessment of a firm's most critical functional areas:

- General Management
- Human Resources, Training and Professional Development
- Project Management
- Quality Management
- Computer Systems Management
- Financial Management
- Business Development

Conducted by a Peer Review Team, an OPR is a confidential process. Because the program is positive and constructive, OPR results are an opportunity for firms to continue to improve their delivery of services to clients and to motivate their employees in the work they do and in their personal career development.



For more information about the ACEC Peer Review Program, contact Sarah Kaska at skaska@acec.org or 202-347-7474, ext. 320.

New Contracts & Risk Management Central Web Site Offers One-Stop Contracts Shopping

ACEC has opened a valuable new website resource for purchase of the contracts and forms used in day-to-day business by design and construction industry firms. **Contracts & Risk Management Central** is a dedicated website, accessible through the ACEC Bookstore at www.acec.org/publications or direct at www.contractscentral.net.



Contracts & Risk Management Central brings together a complete inventory of contract forms and supporting documents that are in use nationwide by over 500,000 professionals delivering facilities and civil infrastructure for public and private owners. Included are:

- Engineers Joint Contract Documents Committee (EJCDC) Engineering and Construction Contracts
 - International Federation of Consulting Engineers (FIDIC) International Contracts
 - Council of Professional Surveyors (COPS) Land Surveying Contracts
 - Construction Management Association of America (CMAA) Construction Management Contracts
 - Council of American Structural Engineers (CASE) Structural Contracts
 - American Institute of Architects (AIA) Contracts
- ...and a wide selection of risk management products.

Specific documents on the site range from Bid Forms and Contractor Forms to Change Orders, Copyright Assignment, Design/Build, Government Funding Contracts, Payment Forms, Surveying Contracts and many more. Time- and court-tested, these documents explain in clear and concise language the functions and responsibilities of parties involved in A/E/C relationships.

State Organization Spring 2008 Programs

ACEC/Colorado

Federal Acquisitions Regulations Seminar
February 27

CCEC Annual Risk Management Seminar
February 27

Scope Creep Seminar
February 28

Future Leaders Supervisory Series
March 5

Future Leaders Management Seminars

- March 5 – Personal Communication Style: The Golden Rule is Good, Platinum's Better
- April 1 – Conflict Resolution: Don't Let the Whine Turn into Vinegar
- May 6 – How to Interview and Hire the Best: Starting with Good Grapes Makes Good Wine
- June 3 – Employment Law: Legal Advice
- August 26 – Performance Reviews: Coaching and Appraising Staff

Sessions will be held at the Police Protection Agency Event Center, 2105 Decatur Street, Denver, unless otherwise noted. For details and to register, visit www.acec-co.org.

ACEC/Delaware

Educational and Training Program
January 23

Legislative Lunch
March/April

Annual Meeting and Program
May 28

For full details and to register, visit www.cecde.org.

ACEC/Florida

FES/FDEP Green Engineering Seminar
January 17

Site Development Permitting
January 22

PE Review Course
February 8–10

Roadside Design
February 19–21

MATHCOUNTS
March 28

GMEC
May 8–9

FICE/FDOT Roadway Educational Expo
May 18–22

FICE/FDOT Consultants' Conference
May 21–22

FES/FDEP SRF Workshop
June 5–6

Orlando-FICE/FDOT Design Conference
July 27–29

For full details and to register, visit www.fleng.org/conftrain.cfm.

ACEC/Idaho
(See joint event under ACEC/Montana)

ACEC/Kentucky

Microstation for Civil Professionals
January 15–18
January 22–25
January 29–Feb. 1

InRoads I V8.09
February 19–22

Sessions take place at the Kentucky Engineering Center, Frankfort, KY. For details and to register, visit www.kyengcenter.org.

ACEC/Michigan

MDOT-ACEC Partnering Conference
February 7

Conference will be held at the Lansing Center, Lansing, MI. For details and to register, visit www.acecmi.org.

ACEC/Montana, ACEC/Idaho, and ACEC/Wyoming

ACEC Ski Conference for Principals and Senior Staff
February 28–March 1

Event will be held at Big Sky Resort-Huntley Lodge, Big Sky, MT. For details and to register, visit www.acecmt.org or contact jay@acecmt.org.

ACEC/Tennessee

Annual Meeting
June 13–14

Event will be held at Franklin Marriott Cool Springs, Franklin, TN. For details and to register, visit www.acectn.org.

ACEC/Virginia

The Top 10 HR Legal Nightmares That Should Keep You Awake at Night and Human Resource Roundtables
March 6–9
Sanderling Resort
Duck, NC

Governance (Day 1) and Thinking Strategically about Consulting Engineering (Day 2)

June 19–22
Lansdowne Resort
Lansdowne, VA

For details and to register, visit www.acecva.org.

ACEC/Wisconsin

Risk Management 201

February 28
Ruekert/Mielke, Inc.
Waukesha, WI

ACEC WI/WisDOT Transportation Improvement Conference

March 11–12
Osthoff Resort
Elkhart Lake, WI

ACEC/Wisconsin Annual Meeting

May 8
Radisson Hotel Milwaukee West
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For details and to register, visit www.acecwi.org.

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(See joint event under ACEC/Montana)

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UNDERGRADUATE - LEVEL
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COURSE WORK



Bachelor's

+30

By Jim Parsons

A Plus for the Profession?

New educational requirements raise the bar on professional licensure

They don't make engineers like they used to. And to many in the profession, that's a serious problem. Amid concerns that the gradual erosion of credit hours needed to earn a bachelor's degree at most U.S. engineering schools is leaving graduates insufficiently prepared, the National Council of Examiners for Engineering and Surveying (NCEES) recently amended its educational prerequisites for professional licensure.

NCEES' new Model Law, which has a target effective date of Jan. 1, 2015, calls for an engineer intern with a bachelor's degree to take at least 30 additional credits of acceptable upper-level undergraduate or graduate-level coursework from approved providers before sitting for the Principles and Practice of Engineering (PE) examination. Exceptions are given to interns who already have post-graduate education credits (see *Examination Essentials*, page 24).

Known informally as Bachelor's Plus 30, the requirement essentially restores the educational component for engineering licensure to the 150-credit-hour degree

standard used by most schools during the first half of the 20th century. Proponents such as Craig Musselman, president of ACEC-member firm CMA Engineers, Inc., in Portsmouth, N.H., say that modern challenges and preparation issues, not nostalgia, are at the heart of the issue.

"Engineering programs have been pressured by legislatures, college administrators and parents to reduce the number of credit hours for graduation," Musselman says. "At the same time, engineering curricula are being expanded with new topic areas, adding breadth of topics at the expense of depth of coverage. There's just no way that

Examination Essentials

Educational and experience prerequisites for taking the Principles and Practice of Engineering Examination under the proposed NCEES Model Law:

Engineering Intern with a Bachelor of Science Degree in Engineering

- 30 credits of acceptable upper-level undergraduate or graduate-level coursework from approved course providers.
- Four years or more of progressive experience on engineering projects of a grade and a character which indicate to the board that the applicant may be competent to practice engineering.

Engineering Intern with a Master's Degree in Engineering

- Degree must be from an institution that offers EAC/ABET-accredited programs, or the equivalent.
- Three years or more of progressive experience on engineering projects of a grade and a character which indicate to the board that the applicant may be competent to practice engineering.

Engineering Intern with a Doctorate in Engineering

- Degree must be acceptable to the licensing board.
- Two years or more of progressive experience on engineering projects of a grade and a character which indicate to the board that the applicant may be competent to practice engineering.

Individual with a Doctorate in Engineering

- Degree must be acceptable to the licensing board.
- Four years or more of progressive experience on engineering projects of a grade and a character which indicate to the board that the applicant may be competent to practice engineering.

Source: NCEES

a bachelor's program can cover everything infrastructure engineers need to know.”

Proponents of the more rigorous requirements contend the advanced education will empower firms to market the increased caliber of their employees to potential clients. What's more, they say, the additional coursework will provide young employees with a broader knowledge base and the competence to tackle tough challenges earlier in their careers.

Ron Ewing, CEO of Dewberry, an engineering and design firm in Fairfax, Va., agrees. “The additional education will give graduates a better understanding of the field, making them better prepared to practice and be successful in their careers. It also sends a message to the public that our professionals must meet a high minimum standard of competency to ensure their safety and welfare.”

Still, some question whether the change is necessary.

“I can't identify where the current process is broken,” says Dale Beebe Farrow,

executive director of the Texas Board of Professional Engineers, one of several NCEES member boards to vote against Bachelor's Plus 30 in its present form. “The scores and pass rates on the Principles exam are pretty consistent with the past, and the exam itself has undergone few changes. So why require additional education?”

Critics, including Farrow, contend the time required to take additional courses might force firms to divert attention away from important projects so that employees can attend classes.

Opponents also charge that further educational requirements for licensure might deter students from pursuing engineering careers—the last thing an already short-staffed profession needs.

Laurie Dreyer-Hadley, director of human resources for Psomas in Sacramento, Calif., believes such concerns are overblown. “I have never seen anyone in this profession with an ‘I don't want to learn more’ mentality,” she says. “Educa-

tion has always been seen as a means for moving up the career ladder. This requirement is no different.”

Down to Details

Though first unveiled by NCEES in 2006, several aspects of Bachelor's Plus 30 are still up for debate by the Council's Uniform Procedures and Legislative Guidelines committee. Among the most salient issues is what those additional credit hours should encompass. Should they provide the depth to technical subjects lacking in undergraduate curricula? Or, should they help graduates further develop the project management, communication, negotiation and other “people skills” needed to fulfill the multidimensional responsibilities of today's engineers?

NCEES Executive Director Jerry Carter says that's not an easy question to answer.

“Every time we feel an issue has been addressed, someone identifies a point that the proposed language doesn't cover,” Carter says. “The feedback is valuable, and we're working to see that all issues are fully addressed.”

Even after a consensus is reached, Bach-

Every time we feel an issue has been addressed, someone identifies a point that the proposed language doesn't cover.

JERRY CARTER
NATIONAL COUNCIL OF EXAMINERS
FOR ENGINEERING AND SURVEYING



Engineering programs have been pressured...to reduce the number of credit hours for graduation.

CRAIG MUSSELMAN
CMA ENGINEERS, INC.



lor's Plus 30 still faces its share of hurdles—more than 50 of them, in fact—when state and territorial licensing boards bring the Model Law before their respective legislatures for approval.

“The change will be difficult to explain to legislators, especially why a 2015 engineering graduate must meet a different set of criteria than a 2014 graduate,” explains Farrow. Reciprocity also might complicate the process. “No state wants to be the first to approve a model law like this,” he says. “[Legislators] prefer to wait until after other states have acted and see how things work out.”

The task of reviewing and verifying student transcripts also could create a problem.

“Right now, all we have to do is make sure the applicant received a degree from an accredited school,” says Farrow. “With the new requirement, we’ll have to examine the transcripts one by one to see what the 30 hours are and where they came from. And it’s almost certain that we’ll face an increase in appeals from people whose applications are rejected.”

As for interstate reciprocity, Carter says that while the lack of uniform adoption could pose a potential problem, “it also presents a potential opportunity to bring more conformity to comity licensure as a whole, which has always been a primary concern of NCEES.”

Knowledge Channels

Engineering firms also will be taxed to help their graduate employees meet the

educational requirements of the law.

“Engineering firms will have to be flexible, and allow interns alternative ways to achieve added education,” Musselman says. “That will enable them to pursue the requirements while still working and being productive.”

Dreyer-Hadley believes that the emergence of online and other distance learning technologies to complement the conventional channels of conferences, seminars and coursework will make continuing education an easier proposition for firms, especially those that lack in-house professional development programs or have offices in rural areas.

“ACEC and other organizations are leveraging technology for high-quality programs,” she says. “This makes a huge difference for younger, tech-savvy staff members who are very comfortable with these types of learning tools.”

Meeting the continuing education requirement is not hard to do, says Dreyer-Hadley. “It just requires commitment.”

Addressing concerns that the added cost of helping interns meet the Bachelor's Plus 30 requirements might compromise firms' ability to compete, Ewing says, “It's already costing me as a CEO when graduate engineers don't have the basic geometry

The additional education will give graduates a better understanding of the field.

RON EWING
DEWBERRY



to do advanced highways or the hydraulics to perform floodplain studies. That means having to pair them with other engineers to help develop that knowledge.”

Besides, he adds, “most firms already provide support and incentives for graduate engineers to pursue their PE license. Bachelor's Plus 30 is simply raising the bar.”

Lesson Planning

The one constant amid these uncertainties is that Bachelor's Plus 30 is here to stay—at least as a proposal. In the final analysis, the states—not NCEES—will determine on a state-by-state basis whether to change the requirements governing PE licensure.

An attempt to rescind the requirement at NCEES's most recent conference was defeated by a larger margin than the original vote to approve it in 2006. “That means support for the concept is there,” Carter says. “We just need to make sure the details are right.”

And while the 2015 NCEES implementation date was established so as not to adversely affect engineers already in the education pipeline, it is by no means etched in stone.

“People see 2015 as more of a target than it needs to be,” Carter says. “The Model Law won't go to member boards until we achieve consensus on all the details. We're proceeding cautiously and will move forward with the Model Law when it's deemed sensible and fair.”

Dreyer-Hadley compares the experience to how architects wrestled with new educational requirements in the mid-1990s. “The requirement caused some initial anxiety, but firms responded beautifully. Rather than hurting the profession, it actually made it stronger.”

Musselman agrees. “Years from now, we'll look back on all this anxiety and debate as a blip. Considering the benefits the profession stands to gain from Bachelor's Plus 30, the change will be worth it.” ■

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

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By Maureen Conley

A Picture of STABILITY

Low rates and strong competition have engineering firms mulling their insurance options

The time to buy professional liability insurance (PLI) is now, according to the latest survey of insurance carriers conducted jointly by ACEC, the National Society of Professional Engineers (NSPE) and the American Institute of Architects (AIA). With a relatively uneventful 2007 and a bevy of insurance carriers looking to add more engineering clients, rates have stayed low, enabling carriers to compete on the basis of their services and experience as well as on price.

Fifteen PLI carriers responded to this year's survey and participated in interviews this past October with members of ACEC's Risk Management Committee, NSPE's Professional Liability Committee and the AIA's Risk Management Committee. Across the board, premium rates remained flat or declined over the past year. All but one respondent said they expect the trend to continue through 2008. Thirteen of 15 carriers said they expect to achieve increased market share this year.

Such findings translate into good news for engineering companies with a solid risk profile, says John Farrar, vice president of Clark Dietz Engineers, and Timothy Corbett, a former insurance executive who, as president of SmartRisk, advises A/E com-

panies on risk management solutions.

The insurance market today is "about as stable as it gets," says Farrar. Circumstances have changed drastically from a few years ago, when several long-standing carriers dropped out of the market and opened the door for new players.

Now, as newer entrants begin to gather steam and market share, the influence of big carriers is shrinking. Three of the largest—CNA, XL and Lexington—together underwrote about two-thirds of the PLI coverage for the design industry in 2007. The newer players "really haven't seen many claims yet," Farrar says, because it takes several years for projects to get through construction.

Insurance carriers reported that claims severity and frequency remained flat in

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2007, though there was increased activity in certain sectors. Survey respondents, for example, continue to see higher claims in school projects at the K-12 and university levels, where tighter budgets often lead to an increase in claims. Claims are increasing among residential and multifamily projects, especially in Florida—thanks in part to a soft housing market, explains Farrar. Developers are looking to A/E firms—and just about anyone else—to recoup their investment, he says.

The current market offers PLI carriers two choices, says Corbett: Providers can compete on price or choose to distinguish themselves through “value-added services.” He recommends that engineering firms decide on a carrier with an eye to the latter, paying close attention to such factors as underwriting experience, pre-claims assistance, claims-handling experience and risk management services.

But use caution, says Corbett. Not all of these services are created equal, as carriers often differ in how they define their terms. “Certain firms will say they offer pre-claims assistance free of charge until a claim is filed. Others will say they offer pre-claims assistance, but only at their discretion,” he says.

Some firms offer regular risk management training seminars, while others might offer the service, but only at the most basic

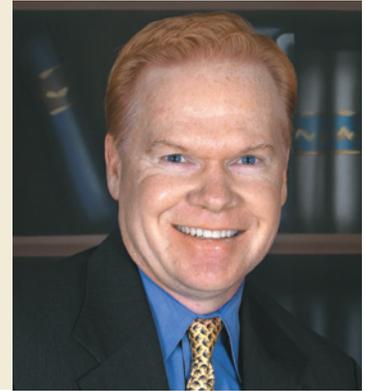
The [insurance market today] is about as stable as it gets.

JOHN FARRAR
CLARK DIETZ ENGINEERS



Certain firms will say they offer pre-claims assistance free of charge... Others will say they offer pre-claims assistance, but only at their discretion.

TIM CORBETT
SMARTRISK



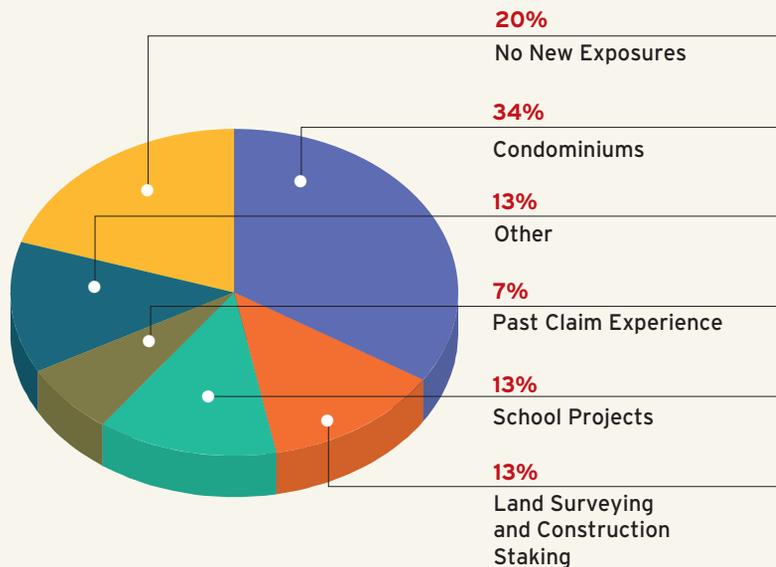
level. Corbett urges design firms “to make sure they know what services the carrier is offering.” Knowledgeable insurance agents or brokers typically are good guides for firms looking to evaluate their options.

Dana Hughes, an underwriter at Beazley Group, a London-based insurer with offices in Connecticut and Florida, urges engineering clients to do their research. Potential clients should review an insurance carrier’s track record and select one with a history of fair pricing, especially during hard markets. A/E firms need a carrier “that’s going to be stable and not try to gouge you,” she says. This is particularly important as rates start to climb, which they inevitably will.

Choosing the right insurance carrier is a challenge for several reasons—not the least of which is that the product (insurance) is priced before its true cost is known, says Lorna Parsons, president and chief underwriting officer of Victor O. Schinnerer & Co., Inc. In today’s market, Parsons says, “there are a lot of competitive pressures to keep prices low, which makes it more likely that you’ll guess wrong.”

As with any professional service, Parsons says, A/E firms need to “check out who’s providing” their PLI. Claims can hurt A/Es that have switched carriers “if you don’t properly give notice to either the carrier you’re departing or the carrier you move to.” Again, a good broker can sort through the fine print of policies to determine whether the new coverage is adequate.

Particular Exposures That Might Lead to Higher Rate Increases Than in Recent Years:



Source: ACEC's 2007 Professional Liability Insurance Survey of Carriers
Numbers might not equal 100 percent because they are rounded.

Paula Selvaggio, president of Cleveland-based Selvaggio, Teske & Associates and the current president of the Professional Agents Liability Network, or PLAN, says engineering firms need to look out for “irresponsible pricing,” which has resulted from today’s “extremely competitive market.” She explains that, “at some point, claims will be higher than what carriers take in in premiums. Then there will be fallout, with carriers either shutting their doors or raising their rates tremendously.”

Selvaggio adds that, above all else, engineering firms should work with a specialist who can help shepherd them through the insurance selection and application process.

At some point, claims will be higher than what carriers take in in premiums.

PAULA SELVAGGIO
SELVAGGIO, TESKE & ASSOCIATES



“Premiums are affected 25 percent by how you complete an application,” she explains. Often, Selvaggio says firms will enter the same information every year, “without elaborating on project types, or quality control measures they might have taken to improve themselves.” She says those steps will go further toward lowering a firm’s premium than bidding on insurance policies each year.

Emerging Issues

As green building design and building information modeling (BIM) practices become more integrated within the industry, PLI carriers say they are keeping a close eye on emerging trends.

“BIM has probably not yet really emerged in terms of impacting professional liability,” says Robert Rogers, assistant vice president of Boston-based Lexington Insurance Company. “Many early adopters of BIM are using it like they would CAD or any other software. Professional liability issues surrounding BIM will change and become much more complicated as more projects exploit the true collaborative capabilities of the software and the lines between designers, contractors, suppliers and owners become blurred. This is at odds with the traditional approach of assigning clearly defined roles and responsibilities among the parties. As a result, the insurance industry will need to respond to this.”

A few carriers reported small claims in the green building design area on this

There are a lot of competitive pressures to keep prices low.

LORNA PARSONS
CNA/VICTOR O. SCHINNERER & CO., INC.



year’s survey, says Farrar. Still, not enough is known about the risks associated with such projects—much like BIM, where “they haven’t had any problems yet,” he says, “but they seem concerned about it.”

Part of that uncertainty stems from an increasing reliance on technology. “When you look at new plans and know they’ve gone through the computer, you get the idea that it’s perfect,” says Farrar. But that’s not always the case. Issues such as software incompatibility or obsolescence generate increased risk. Software interoperability also is a potential trouble spot, says William Farran, practice leader at Travelers insurance company. Can records systems set up by the carrier, for instance, communicate effectively with data introduced by the client? If not, this might cause a problem.

Integrated project delivery (IPD)—an emerging practice that incorporates all members of the project team from the early stages of design to completion—also poses potential new challenges for insurers. Though early input from several parties typically results in fewer conflicts at later stages when such problems are more expensive to resolve, traditional roles can sometimes become blurred and lines of responsibility unclear.

“IPD is a particularly good fit for project specific professional liability insurance,” explains Rogers. “These policies can respond to liabilities arising out of the design team as a whole without the need to allocate liability to individual members. This mirrors the general structure of IPDs where liabilities are shared amongst the stakeholders.” BIM requires changes in

The...BIM system makes it difficult to clearly define the lines between early schematic design, design development and construction documents.

ALBERT RABASCA
XL INSURANCE



workflow and creative processes and redefines the concept of “deliverables,” once thought of as the hard-copy version of the final plans.

The paperless BIM system makes it “difficult to clearly define the lines between early schematic design, design development and construction documents,” explains Albert Rabasca, director of industry relations for the Design Professional Group, part of the larger XL Insurance. Rabasca says circumstances could dramatically change for engineering firms if, for example, the “deliverable” eventually becomes a computer-generated model of the project as opposed to a set of paper-based or digital plans.

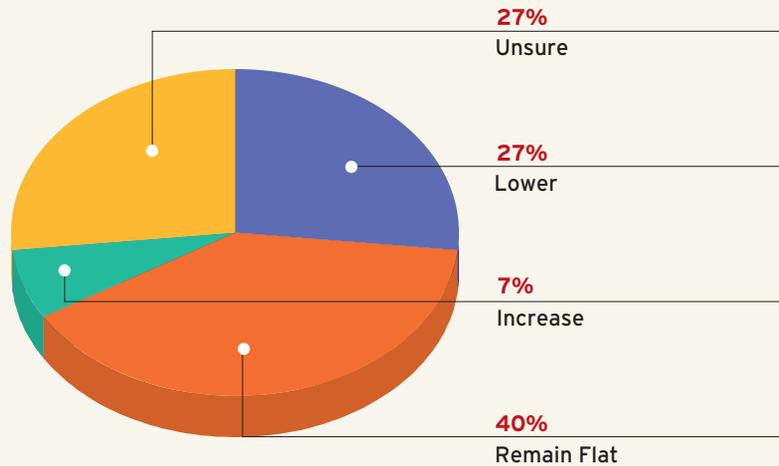
Despite his concerns, however, Rabasca says XL Insurance has yet to encounter any major problems as a result of BIM or IPD projects.

Looking Ahead

As with the engineering industry itself, Farran says, the biggest uncertainty facing the PLI market is “the anticipated shortage of labor in the engineering field with universities graduating fewer engineers.”

He also sees potential fallout from recent infrastructure disasters, such as the eruption of steam pipes in Manhattan and the highway bridge collapse in Minneapolis, which could lead to “more inspection of our decaying infrastructure,” creating the possibility of higher exposures for insurers and A/E firms.

How Do You Expect Your Rates to Change in 2008?



Source: ACEC's 2007 Professional Liability Insurance Survey of Carriers
Numbers might not equal 100 percent because they are rounded.

A/E firms, as a result, need to be diligent in their choice of carriers, says Beazley's Hughes, particularly if they are considering future mergers or acquisitions. Beazley has seen firms hit with unanticipated claims and long-term exposures, which often are difficult to identify in the due diligence process. Such hits can affect a firm's loss history for 10 years or more, she warns.

Though the PLI market is stable now, Parsons says, unanticipated events such as a large-scale natural disaster or terrorist attack could cause prices to fluctuate.

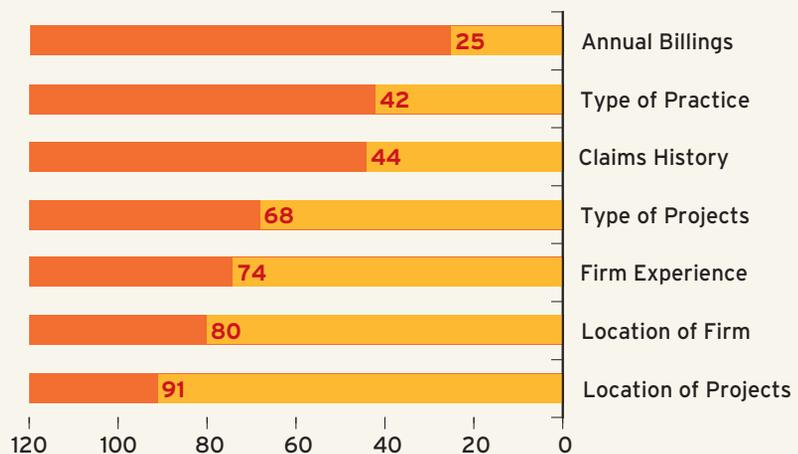
Though it's unlikely that the recent troubles of the subprime mortgage market will affect the price of PLI, she says, interest rates could have an impact. If interest

rates go up, for instance, the soft insurance market might last longer because carriers will want to take in premiums and invest. If rates go down, however, “it actually has the impact of making carriers have to price correctly,” which would mean increases from where rates are today.

Mold, silica and asbestos do not pose the problems once expected, and very few firms exclude such claims today, adds Farrar. Few firms exclude terrorist events, either. In fact, says Farrar, “very little is excluded right now. It has been a non-eventful year.” And that is about as good as insurance news gets. ■

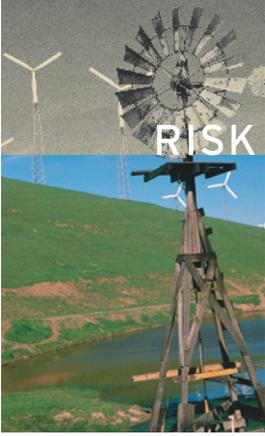
Maureen Conley is a freelance business writer living in Maryland.

Characteristics of Most Importance In Your Premium Determination Process:



Fifteen respondents ranked their choices from 1 to 8, with 1 being the most important and 8 being the least, for a total of 120 points. Lower scores are of higher importance in the premium determination process.

Source: ACEC's 2007 Professional Liability Insurance Survey of Carriers



RISK MANAGEMENT

EMPHASIZING THE BUSINESS SIDE OF GOING GREEN

By Pete Sabeff

When historians look back on the first decade of the new millennium, they will recognize this as the beginning of a new era in the industrialized world—an era in which we found our environmental conscience. Recycling, renewable energy, fuel cells, energy conservation and sustainability are terms that have entered the English vernacular and are here to stay. The construction industry has embraced this new language and fashionable trend, wrapping itself in the color of the day—green.

Going Business Green

Building owners and managers are not in the facilities business purely for the sake of erecting energy-efficient, environmentally conscious structures. Buildings, facilities and campuses are designed to support larger objectives. A hospital, for example, is built to facilitate the delivery of health care services. A manufacturing plant is constructed to produce a product. An elementary school is used to provide an environment in which to educate children. The structure itself is not the objective; its purpose is to support a broader objective. As building owners and managers consider the *greening* of their structures, they must find the means to construct environmentally conscious structures and systems that are in keeping with their business objectives. It's not just green, but Business Green.

Design and construction professionals must help project owners find a balance between the two. We must help them consider, analyze and evaluate options and the impact those options have on the initial costs of their project, as well as the longer-term costs of ongoing operations.

The goal is to improve the overall return on investment. As business owners now consider opportunities for reducing their environmental impact, they must still consider the economic results of their green investment. Business Green is the answer for the environmentally conscious and those concerned with meeting their business objectives. Such an approach allows companies to improve their world while also improving their bottom line.

Numerous case studies have proven the economic benefit of going green. Businesses are lowering energy costs, decreasing maintenance costs and increasing the longevity of their building and its systems. Industries with “rooms to rent” (office buildings, hospitals, hotels and so on) are reporting decreased vacancies and increased “room” rates in their green facilities. Employers are crediting environmental improvements with reducing employee

turnover and sick leave while increasing employee morale and job satisfaction. But not every environmentally friendly building improvement makes smart business sense.

A Business Green approach starts by considering architectural and engineering opportunities that reduce initial costs and improve business economics. Spending a little more on the building construction to keep out heat, cold and moisture allows the engineer to design smaller building systems. Small systems mean smaller boilers and chillers, less wiring and simplified piping and ductwork. This approach lowers the initial cost while reducing energy consumption and its expense. The majority of facilities today are over-designed from mechanical and electrical perspectives. Rather than designing for an extremely hot summer day, designing for a typical summer day often will result in a 15 percent reduction in cooling system size, reducing initial and ongoing energy costs.



Pete Sabeff

Cost Savings Over Time

A Business Green approach often means increasing the initial investment in order to realize substantial savings over time. Studies have shown that the initial cost to construct a building is only 20 percent of the total cost of that building over the course of its useful life.

Unfortunately, business and financial managers often make investment decisions based only on initial costs and miss the opportunity to increase their return on investment over a facility's lifetime.

A Business Green approach helps investors better assess their environmental opportunities from a financial standpoint in terms of initial construction and ongoing operations.

Business Green operates apart from the hype associated with green building certification levels and flashy news conferences. It is rooted in common sense. Measuring energy usage to obtain LEED certification only makes sense if those measurements are used to further reduce energy consumption. Reducing energy makes sense, but not if the energy reduction is temporary. And replacing equipment makes sense only if the energy efficiency of the overall system is improved.

By helping our clients see the value of Business Green, our industry can truly help transition this environmentally conscious movement from “trendy” to “sustainable.” ■

Pete Sabeff is founder and president of ACEC member firm Engineering Economics, Inc., a national facility consulting firm specializing in facility assessment, design review and quality assurance services.



Winning in 2008

ACEC's Annual Convention and Legislative Summit—

The industry's most important political networking and advocacy event—will help determine the outcome of many issues critical to the health of our industry. Your participation in Convention activities and as a “citizen lobbyist” will be vital to political outcomes.

HECTOR MATTA/PIGETTY IMAGES

“Primary Season” Reception/Dinner Sunday, April 27

Experience the excitement of a national political convention at this specially themed dinner complete with patriotic bunting, state buttons and placards. Dinner includes musical entertainment and special political guests straight from the campaign trail.



Campaign 2008 Chris Wallace

Monday, April 28
The veteran host of *Fox News Sunday* will share his views and predict the outcome of the election.

Legislative Summit

Join ACEC's citizen lobbyists in carrying important industry messages to Capitol Hill:

- Addressing transportation funding shortfall
- Increased water, energy infrastructure programs
- Kill unfair 3 percent withholding mandate

Participate in the popular training session “How to Think Like a Member of Congress.”

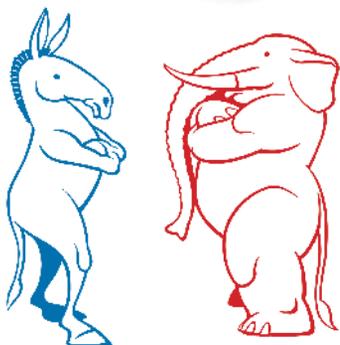
Washington, D.C. April 27-30, 2008



Great Debate Tucker Carlson vs. Paul Begala

Monday, April 28

Two leading political observers will square off in a rousing debate as the national race heads down the home stretch. Representing the Blue states is Paul Begala, former top aide to President Clinton, and on the Red side, Tucker Carlson, host of MSNBC's *Tucker* and former co-host of CNN's *Crossfire*.



Engineering Excellence Awards Gala Emmy Award-Winning Host Ross Shafer

Tuesday, April 29

Known as the "Academy Awards" of the engineering industry, the annual black-tie reception, dinner and awards program honors the year's most outstanding projects.



Business Education Sessions

Learn the latest business insights from more than 30 education sessions addressing important management topics, including:

- Mergers and Acquisitions
- Risk Mapping
- Sustainable Design
- Secrets of the Generational Workforce
- Town Hall Meeting—*Who's in Charge: Should Engineers Be the Prime Designers on Large Buildings?*

Sensational Spouse Program

- Hillwood Museum and Gardens
- Spouse/Guest Only Breakfasts
- The National Cathedral Tour & Tea
- Shopping and Tour—Georgetown
- "Hollywood in Washington" Tour

Hotel Information

Convention activities will be held at The Grand Hyatt, located at 1000 H St., N.W., in Washington. ACEC's discounted room rate is \$260, single/double occupancy, plus tax. Call the hotel at (202) 582-1234 and reference ACEC.

The cut-off date for reservations is April 4. ACEC's discounted hotel rates are available through the cut-off date or until rooms in the block are sold out, whichever occurs first.

Registration Fees

FULL CONVENTION	EARLY BIRD	AFTER 4/11
Member	\$955	\$1,055
2nd+ Member, same firm	\$795	\$895
Non-Member	\$1,300	\$1,500
Spouse Fee	\$350	\$450
Legal Counsels Forum	\$350	\$450

To register, or for more information, go to www.acec.org.

ACEC/PAC Sweepstakes Drawing

Grand Prize: \$10,000

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



Register Now

www.acec.org



THE UPSIDE OF SUSTAINABILITY AUDITS; U.K. A MODEL FOR INNOVATIVE CONSTRUCTION

Sustainability and the 'Triple Bottom Line'

When CDM Vice President and Chief Technical Officer Bill Howard thinks about sustainability in the context of modern-day engineering projects, his mind often shifts to the concept of the "triple bottom line." In today's world, the former ACEC chairman says, environmental and social factors associated with large engineering projects are on par with economic concerns.

One way to address environmental and social concerns is through the creation of a sustainability audit program, says Howard. Howard joined Andrea Ramage, CH2M HILL's director of sustainable solutions, to deliver a recent presentation on the topic. Below is some advice.

A Recipe for Trouble

Clients often find that sustainability audits provide useful information to assist with organizational learning, decision-making or accountability, or to make the business case for sustainable approaches.

The trouble is, if an audit is conducted outside the context of a strategy, global trends and business goals, the audit is likely to fail and disappoint the client for four reasons:

- A sustainability vision for the organization has not been defined, so the auditing process will be out of context.
- The audit criteria aren't clarified; therefore, there is no linkage to core organizational strategies, objectives and goals.
- Key decision-makers or other stakeholders have not been engaged.
- There is no process for establishing priorities on what is audited, which damages the credibility of the audit.

A Recipe for Client Satisfaction

Luckily, by adopting a strategic approach to auditing, the problems described above can be remedied:

- Start by engaging clients and key stakeholders in a discussion about their strategic business or operational context. What are the key issues and drivers?
- Discuss business or operational objectives. What is the client trying to accomplish? What are its main goals?
- Define sustainability objectives with respect to the strategic context and business objectives. Remember to support objectives with sustainability principles. Prioritize.
- Lastly, develop an auditing framework, which consists of key performance indicators, targets (measurable goals) and metrics (the units of measure used to collect data).

Innovation: Learning From the U.K.

As engineering companies try to boost performance and provide greater customer satisfaction, many U.S. firms are tapping into ideas emerging in other parts of the world.

Paul Bryant of Pivotal Management Consulting, LLC, says U.S. firms could learn a lot from a visit across the pond.

For nearly 10 years the United Kingdom has run a coordinated effort to improve the delivery of projects across the construction supply chain. This includes stakeholders from manufacturers to designers to contractors and the environment.

The movement first gathered steam after a brief 1998 report entitled "Rethinking Construction" by a task force under the direction of Sir John Egan, an industrialist and businessman who also served as a minister of Parliament.

"Rethinking Construction" provided the outline of a strategic plan, complete with measurable goals, for the industry to gauge its achievements. Through the U.K. Department of Trade and Industry, a task force was established for the implementation of the strategic plan and measurement of progress.

The task force, Constructing Excellence (www.constructingexcellence.org.uk), has established a set of yearly performance indicators used to track long-term industry improvements.

Measuring Progress

One objective is to encourage experimentation on live projects, or "demonstration projects," with the goal of understanding how principles applied in other industries can be adapted to the construction industry. At the conclusion of each project, a study of lessons learned is written and disseminated.

Constructing Excellence also is responsible for the Strategic Forum for Construction (www.strategicforum.org.uk). This sub-organization focuses on four areas: client engagement, integration of teams and integration of the industry supply chain, people issues and design quality of the final project. Much of the organization's focus is on resolving the adversarial attitudes firms in the industry have toward potential partner firms that could be of assistance in the overall project delivery process. ■

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.

On The Move



Keith J. Hawksworth

Parsons Brinckerhoff (PB) named **Keith J. Hawksworth** CEO, effective Jan. 1, 2008. **Thomas J. O'Neill** remains the firm's chairman of the board. Hawksworth most recently served as COO of the firm's 6,000-person international operations. "He brings to the CEO role an outstanding track record of leadership in the infrastructure business and a strong commitment to the quality of service to our clients that has been the hallmark of PB for nearly 125 years," said O'Neill.



Thomas J. O'Neill



Michael Della Rocca

Michael Della Rocca has joined **Halcrow** as president of its North American business. Formerly president of STV Group, he also held senior executive positions at Washington Group International and Parsons Brinckerhoff. Halcrow, headquartered in Great Britain, specializes in planning, design and management services for infrastructure development worldwide.



Chip Corcoran

Olsson Associates, an engineering, planning, landscape architecture and surveying firm, named **Chip Corcoran** chief operating officer and **Brad Strittmatter** executive vice president. Corcoran joined Olsson Associates in 1999 after eight years with Johnson County, Kan. Most recently, he served as regional manager for the firm's Kansas



Brad Strittmatter

and Missouri offices. Strittmatter joined Olsson Associates in 1996 as a junior in college and later began his full-time career in the firm's Lincoln, Neb., office.



Bradley L. Mallory

Michael Baker Corporation has appointed **Bradley L. Mallory** chief operating officer. Mallory joined Baker in March 2003 as a senior vice president, following more than 20 years with the Pennsylvania Department of Transportation, where he served as department secretary from 1995 until his retirement in early 2003. In October 2003, he became president of Baker's engineering business.



Robert C. Sinn

The Chicago office of **Thornton Tomasetti, Inc.**, recently announced the following appointments: **Robert C. Sinn** has joined the firm as senior vice president. Sinn formerly was an associate partner at Skidmore, Owings & Merrill LP. **Faz Ehsan**, who has been promoted to senior vice president and principal, joined the firm in 1998 and has nearly 20 years of structural engineering experience. **Lance Parker**, who has been promoted to vice president, joined the firm in 2001 and has nearly 20 years of experience in all phases of commercial architecture.



Faz Ehsan

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MEMBERS IN THE NEWS

Mergers and Acquisitions

Jacobs Engineering Group, Inc., completed its acquisition of Carter & Burgess, Inc., a 3,200-person engineering and architecture firm headquartered in Fort Worth, Texas.

Carter & Burgess President and CEO Ben Watts stated, "We are excited about the prospect of joining Jacobs. This combination enables both firms to address the challenges and emerging trends faced in our industry, which include addressing the aging infrastructure in America."



Craig Martin

Jacobs President and CEO Craig Martin added, "We are committed to building a leadership position in the global infrastructure and facilities markets. Adding Carter & Burgess is a strategic step in achieving that goal..."

The combination of Carter & Burgess and Jacobs is a terrific offering to the marketplace. It significantly expands the capabilities of each stand-alone company and provides our clients with more integrated service offerings than ever before."

Awards

Kenneth R. Wright, chief engineer of Wright Water Engineers, Inc. (WWE), in Denver, and his research partner, Ruth Wright, were each awarded the medals of the Order of Merit for Distinguished Service by President Garcia of the Republic of Peru for their civil engineering field research at Machu Picchu and Tipon, two important Incan archaeological sites.



At the October 10, 2007 awards ceremony at the Palacio Torre Tagle in Lima, Peru, from left to right, Vice Minister of Foreign Affairs Ambassador Gonzalo Gutierrez, Dr. Ruth Wright, Kenneth Wright, and Minister of Exterior Relations Jose Antonio Garcia Belaunde.

In an October awards ceremony at the Torre Tagle Palace in Lima, Peru, Foreign Minister José A. Garcia Belaunde stressed that "the work being carried out by the Wrights disclosed the high degree of knowledge used by the Incas in the construction of Machu Picchu and Tipon."

"Our findings show that the Incas were good engineers and built public works with a high standard of care," said Wright. "They practiced sustainable development with an emphasis on longevity. The government of Peru appreciated WWE's engineering research efforts and the numerous publications, which have contributed to the cultural heritage of Peru."

MEMBERS IN THE NEWS

Stantec, Inc., announced in December that it signed letters of intent to acquire **R.D. Zande** of Columbus, Ohio, and **Fuller, Mossbarger, Scott & May Engineers** (FMSM) of Lexington, Ky. These acquisitions will add more than 600 staff to Stantec.

R.D. Zande is a civil and environmental engineering firm with more than 300 employees. "The addition of R.D. Zande will strengthen our Great Lakes region in the Midwest United States, and grow our depth of service offerings to public sector clients in our environment practice," said Stantec president and CEO Tony Franceschini.

"We have been looking to add an appropriate geotechnical engineering practice and FMSM adds expertise in several specialty engineering areas including dams, levees and underwater structures that complement our existing services," said Franceschini.

The addition of Fuller, Mossbarger, Scott & May, which provides civil, environmental, geotechnical, structural, and water resources engineering services, will give Stantec a presence in Kentucky and Tennessee, and create a new practice area in geotechnical engineering. The firm also has more than 300 employees.

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MEMBERS IN THE NEWS

Welcome New Member Firms

ACEC/Colorado

Be Here Now Consulting, LLC,
Greenwood Village

Four Points Surveying & Engineering,
Steamboat Springs

P L Nelson Engineering, Inc., Lakewood

Vista Engineering Corporation,
Grand Junction

ACEC/Florida

Brindley Pieters & Associates, Inc.,
Altamonte Springs

Cambridge Systematics, Inc.,
Fort Lauderdale

Dave Schmitt Engineering, Inc., Orlando

Giglio Group, Inc., Lake Worth

JF Engineering, LLC, Miami

MTH Consultants and Engineers, LLC, Stuart

ACEC/Indiana

GPD Group, Indianapolis

ACEC/Massachusetts

RDK Engineers, Andover

ACEC/Nevada

AMTI Sunbelt, LLP, Henderson

Leobold and Brown, LLC, Henderson

ACEC/New Jersey

The Great Meadows Design Group, LLC,
Great Meadows

ACEC/North Carolina

CLH Design, Cary

ACEC/Oklahoma

Brion Consulting & Engineering, PLLC,
Edmond

NRS, Inc./Brawley Engineering, Tulsa

ACEC/Oregon

Emerio Design, LLC, Beaverton

ACEC/South Carolina

Coleman-Snow Consultants, LLC,
North Charleston

ACEC/Tennessee

Jordan, Jones and Goulding, Inc., Knoxville

ACEC/Washington

Jensen Maritime Consultants, Inc., Seattle
LACHEL FELICE & Associates, Inc., Kirkland

ACEC/Wisconsin

Cooper Engineering Company, Inc.,
Rice Lake

ACEC/Wyoming

Coyote Engineering, LLC, Laramie

Pillar Structural Engineering, Casper

CEC/Texas

Abola & Associates, Dallas

Bury + Partners - Houston, Inc., Houston

Frank X. Spence & Associates, Inc., El Paso

MDP Technical Services, Inc., Anahuac

Metropolitan Infrastructure, PLLC, Dallas

Structural Services, Inc., Richardson

Vic Weir Consulting, Inc., Fort Worth

Windrose Land Services, Inc., Houston

CELSOC/California

CE Prime, Inc., Carlsbad

C.H.J., Incorporated, Colton

JCE Structural Engineering Group, Inc.,
Pasadena

Lee & Pierce Consulting Engineers, Salinas

Marquez Transportation Engineering, Aptos

Medall, Aragon Geotechnical, Inc., Riverside

Mike S. Modugno Consulting, Inc.,
Carpinteria

Nelms Surveying, Inc., Bakersfield

RG&D Design Group, Inc., Tustin

Saddleback Surveys, Inc., Irvine

Sky Engineering, Sacramento

Steven C. Devin, PE, Quincy

Terra Solutions, Inc., Riverside

The Fire Consultants, Walnut Creek

Wallace Group, San Luis Obispo

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SDA enhances the professional development and personal growth of its members and, as a result, the development and growth of their respective firms. SDA accomplishes this through a host of networking opportunities, both in person and online, and by providing educational resources in the areas of Finance, Human Resources, Information Technology, Marketing, Office Administration, and Project Management.

To learn more about the benefits of SDA and to obtain information on becoming a member, visit us online at:
www.sdadmin.org



Calendar of Events

2008 JANUARY 15 Arbitration and Mediation: For the People Who Write the Checks (online seminar) 16 Strategic Planning for Your Company's Next <i>Bus Drivers</i> (online seminar) 22 The PR Plan: A Strategy to Increase Visibility (online seminar)	28-March 1 ACEC/Montana, ACEC/Idaho and ACEC/Wyoming Annual Ski Conference, Sky, Mont. MARCH 11 Effective Project Planning to Improve Profits (online seminar) 19-22 Business of Design Consulting, Charleston, S.C.	JUNE 13-14 ACEC/Tennessee Annual Meeting, Franklin, Tenn. 16-17 Advanced Project and Program Management for the Engineering Industry, Northwestern University
FEBRUARY 5 Now That I Have Them, How Do I Keep Them? (online seminar) 7-8 Building Information Modeling (BIM): The Promise and the Reality of A/E/C Firms, Las Vegas 13 Improving Contract Negotiations for Better Profits (online seminar) 18-21 Green Infrastructure and Sustainable Communities, Coconut Grove, Miami	APRIL 27 Professional Sales and Marketing Forum, Washington, D.C. 27-30 ACEC Annual Convention and Legislative Summit, Washington, D.C. 29-30 Legal Counsels Forum, Washington, D.C.	SEPTEMBER 5 International Employment Solutions for the 21st Century (online seminar) 15-16 Finance Forum, Chicago
	MAY 8 ACEC/Wisconsin Annual Meeting, Milwaukee 28 ACEC/Delaware Annual Meeting	OCTOBER 19-22 ACEC Fall Conference, Montreal NOVEMBER 5-6 Human Resources Forum, Chicago 7 Trends in Business Ethics That Affect Engineers (online seminar)

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



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Edward Garrigan is chairman of the Council of Professional Surveyors (COPS) and vice president of land information services for C.T. Male Associates, P.C., in Latham, N.Y.

COPS Chairman Surveys the Field For Innovation, Opportunity

Q. What are the critical issues facing the surveying profession today?

A. Like engineering, the surveying profession is facing a shortage of new professionals. Today, the average age of a licensed professional surveyor is 54 years old, and the number of new licensees continues to decline. The profession needs to take a more active role in increasing the interest of students at an early age.

I have had discussions with college presidents who say that most high school guidance counselors don't know that land surveying is a profession and think of it in stodgy terms.

What students need to know is that today's surveying is an exciting profession that uses GPS, digital orthometric imagery, robotic total stations, laser scanners and remote sensing. Hydrographic surveying uses sophisticated boats, side-scan sonar and other new-age technologies—and surveyors get to enjoy the great outdoors, to boot!

Q. What are the benefits of being a COPS member?

A. As a coalition of ACEC, COPS benefits from ACEC's advocacy efforts in Washington, D.C., and nationwide. ACEC has developed critical contacts with influential leaders, and this influence gives the surveying profession an effective advocacy presence representing our interests.

We represent firms that offer surveying services from across the country in an organization dedicated purely to our members' bottom-line business and management interests, as opposed to technical training. We provide members with a complete business tool kit, which includes job-estimate spreadsheets, suggested contract templates, job descriptions and sample safety policies and procedures.

Various state boards of licensure have designated data preparation for a digital terrain model an engineering and/or surveying function, which requires professional licensure. COPS believes it is imperative to inform our industry of the realities of the technology and the potential liabilities facing the surveying and engineering communities through proper guidance to project owners and land surveyors. In response, COPS

has prepared suggested language for contracts and plans aimed at reducing professional liability exposure. This information is posted at www.acec.org/coalitions/COPS for ACEC's members to review, comment on and use.

Q. What types of programs does COPS offer its membership?

A. COPS offers seminars at ACEC's Annual and Fall Conferences. COPS made a presentation last April in Washington on suggested language for machine control. At the 2007 Fall Conference in Maui, we hosted a session on the business aspects of laser scanning. At the upcoming ACEC 2008 Annual Convention, we will hold a session on successful business models for surveying firms.

This past May, COPS sponsored a Western Summit with ACEC and CELSOC in San Jose, Calif. The summit, entitled "The Lay of the Land—A Look Ahead for Professional Land Surveyors," included topics such as emerging technologies, electronic field books, the integration of Geographic Information Systems and surveying, as well as a look at the housing industry. COPS is looking to hold similar summits on an annual basis in other parts of the country.

Q. What are some of the "hot" new markets that surveyors are getting into?

A. Technology is a hot market right now for surveyors. Laser scanners are the latest high-tech instruments firms are purchasing. This equipment collects a tremendous amount of data—information down to the smallest detail so that mapping of pipe racks, substations and buildings can be done cost-effectively, and provide designers with critical information for their designs.

Given the nation's current dependency on fossil fuels, alternative energy solutions are being explored throughout the country. Wind farms, for example, are cropping up in areas where such projects traditionally have been deemed cost-prohibitive. Natural gas storage facilities also are being developed at several locations around the country. These projects require surveys for design, acquisition of properties, construction and financing.

The surveying profession is seeing widespread changes in client needs and technology. In many cases, the "new" client turns out to be an "old" client who has evolved as the world around them has. With change comes uncertainty, but also excitement. As a professional land surveyor, I think it's an exciting time. ■



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Indirectly through subsidiaries, Prudential Financial Inc. owns 38% and Wachovia Corporation owns 62% of Wachovia Securities LLC. Nancy Barrette is a Financial Advisor for Wachovia Securities LLC, 1 New York Plaza, New York, NY 10292.



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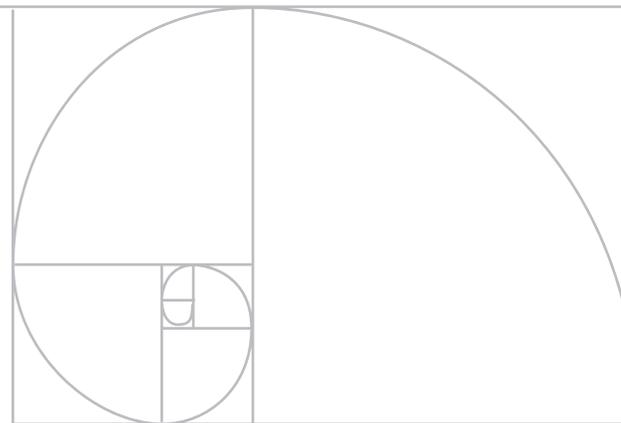
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