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Advantages of
the Seller-Doer

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for Disaster
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Summer
of Service

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Before and
After
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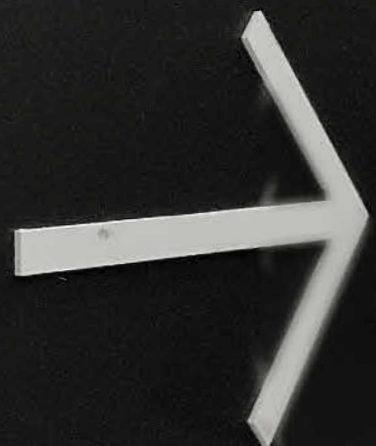
A CULTURE OF RESPECT

Federal laws against sexual harassment in the workplace have not changed, but the nation's mindset has shifted. As a result, engineering firms are reviewing and updating sexual harassment policies and training programs.



"The goal is not to conform to a checklist. It is to create a work environment that is free of hostility and discrimination."

Beverly Tompkins
Simpson Gumpertz & Heger



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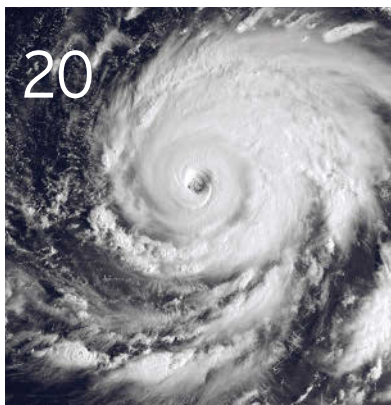
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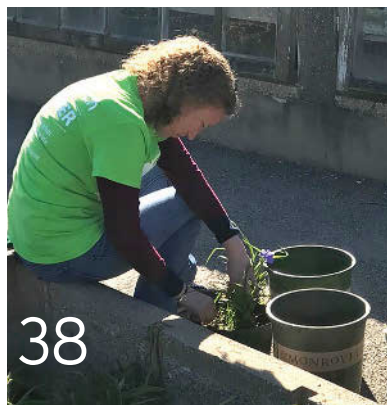
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Listening Tours Provide Valuable Insights, Appreciation of ACEC

Over the last several weeks we have had several meetings with ACEC state leadership throughout the nation as part of a wide-ranging, four-stop listening tour.

Beginning in New York City, followed by Atlanta and Denver before wrapping up in Napa Valley, the tour allowed us to meet with more than 80 officials from 28 Member Organizations.

Each meeting centered on ways the national office can work more effectively with Member Organizations. Along with aligning educational programs, non-dues revenue and committees, we examined past and future practices involving communications and transparency; member recruitment; private client firm recruitment; advocacy; ACEC/PAC; and the Minuteman Fund.

State leaders did not hesitate in providing honest assessments of national office operations, programs and resources—some functions that are truly appreciated, and others where changes are warranted.

The overriding takeaway from the talks was the respect and admiration Member Organization leaders have for the Council and its impact—whether through advocacy or business education—to positively affect bottom line success for our members.

We listened, and more importantly, we heard. Many of the suggestions are already or soon will be incorporated in national office operations.

Our *Engineering Inc.* cover feature examines one of the nation's most disturbing issues—sexual harassment in the workplace—and how many engineering firms are establishing important new policies and practices to keep the lines of workplace respect from being crossed. (see page 10).

This issue also presents a report on engineers taking the lead in developing disaster mitigation strategies to better prepare structures and infrastructure before a natural catastrophic event occurs. (see page 20).

Manish D. Kothari

Manish D. Kothari
ACEC Chairman

Linda Bauer Darr

Linda Bauer Darr
ACEC President & CEO



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Power Transmission Sector Exhibiting Strong, Durable Growth

By Gerry Donohue

Engineering firms operating in the power transmission sector are brimming with optimism about the market. The sector has almost doubled in size since 2011, and, while the market is expected to flatten, it still promises to stay strong for the next several years.

“The market has been outstanding,” says Robert Mechler, director of T&D project development at Black & Veatch. “The amount of spending has gone up tremendously, and the forecast remains robust for the next four to six years.”

The overall power sector is forecast to be one of the strongest A/E/C markets through 2022, with industry analyst FMI Corporation projecting average annual growth of 4.5 percent. “Within the sector, transmission is the healthiest portion,” says Bill Shelley, senior vice president for power at Stantec. “We have seen 22 percent growth since 2015 in our transmission, substation and distribution revenues, and we expect that growth to keep going.”

Replacing and updating system assets accounts for a lot of that growth. “Utilities are updating and strengthening the existing infrastructure, upgrading poles, improving conductors and raising substations out of flood plains,” Shelley says.

Natural disasters have also had a big impact. “There has been strong investment needed due to hurricanes and other weather impacts,” Mechler says. “When natural disasters do their damage and things get knocked down, we are going back and putting in something that is more robust and resilient.”

One of the biggest drivers, according to Ben Edgar, business development manager for renewables and distributed energy resources at Black & Veatch, has been the utilities shifting their investment dollars from generation to transmission.

“The utility-scale generation market does not look as good as it did in the past, so they are turning to transmission,” says Edgar.

Transmission systems are regulated and can provide annual returns ranging from 7 to 12 percent. “That is a pretty good return over the 40-year life of those assets,” Edgar says. “Why would you not invest in transmission?”

CHANGING MARKET

Two market trends that are driving demand for new transmission lines are renewable energy and distributed energy resources.

“Energy policy and customer preference are really pushing renewable energy,” says Blair Loftis, national director of power generation and transmission at Terracon. “Twenty-nine states have renewable energy portfolio standards requiring that they raise the percentage of power generated by renewables, and a lot of customers have turned the corner and are willing to pay more for cleaner energy.”

As a result, Loftis expects the wind industry to blow past its target of 100 gigawatts of installed capacity by 2020 and solar power to stay close to the 59 percent annual growth rate it has enjoyed over the past 10 years.

Because the best locations to generate solar and wind power are often far from the load centers, the continued expansion of renewable power will boost the need for transmission lines. Texas recently invested \$7 billion to build transmission lines from the Panhandle to its urban areas.

The growth of distributed energy resources also presents a lot of opportunities for engineering firms. “Utilities are working on figuring out how to handle loads from different types of sources,

Historical and Projected Transmission Investment (Nominal Dollars)	
Investment of investor-owned utilities and stand-alone transmission companies	
	Billion \$
2011	12.0
2012	15.1
2013	17.2
2014	19.7
2015	20.2
2016	20.8
2017	22.9
2018	23.9 (Projected)
2019	22.6 (Projected)
2020	21.6 (Projected)

Source: Edison Electric Institute



changing from a one-directional business model to a future that will be totally bi-directional,” says Shelley.

While these projects do not tend to be utility-scale, they are plentiful, and the trend line is accelerating.

Edgar points to one likely application: “We have gotten to the point where 99.9 percent reliability of the grid is not good enough. We will see utilities incorporating distributed assets to strengthen reliability and complement transmission.”

MARKET OPPORTUNITIES

Firms in the transmission sector operate in a bifurcated market. A small number of investor-owned utilities (IOUs) serve around 70 percent of the U.S. population, and several thousand small municipal and co-op systems serve the rest.

Black & Veatch does the bulk of its work with the IOUs. “A lot of these clients like having a turnkey approach, so 40 percent of our business in the sector is engineering, procurement and construction,” says Mechler. “We have in-house construction resources and centralized procurement.”

Terracon takes a niche approach to the sector, focusing on the foundations for the wind turbines, solar grids and transmission monopolies. It is not, however, a small niche. “Of the capital expenditures for a wind farm, 25 percent is in the foundation,”

says Loftis. “Anything we can do to make the foundation design more efficient, more cost-effective and more constructible has a huge impact on our clients’ bottom line.” Terracon has developed a foundation system that is up to 40 percent less expensive than traditional designs.

Shelley sees big opportunities for firms in the burgeoning area of energy storage. Stantec already has been involved in a lot of these types of projects—battery storage, compressed air storage in mines. The company has even studied taking the reactive power of braking action from locomotives on a major railroad to act as battery storage in critical train stations, he says. “Technology has not identified all of the new ways we are going to generate and transmit power,” Shelley says. ■

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

The overall power sector is forecast to be one of the strongest A/E/C markets through 2022, with industry analyst FMI Corporation projecting average annual growth of 4.5 percent



Congress Clears Major Water Infrastructure Package

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Congress completed work on the final version of the ACEC-backed America's Water Infrastructure Act of 2018, which the president has signed into law. Also referred to as the Water Resources Development Act, this legislation represented a key part of ACEC's infrastructure agenda for 2018.

The bill authorizes \$6.1 billion for construction of 12 new Army Corps of Engineers projects, as well as \$4.4 billion for the Drinking Water State Revolving Fund program. The bill also sets aside \$100 million over the next two fiscal years to rebuild drinking water systems in areas where natural disasters have occurred since 2017.

The bill reauthorizes and expands the Water Infrastructure Finance and Innovation Act to provide states and water utilities with additional financing options for needed water system upgrades. The new law also includes provisions to streamline federal permitting in the re-licensing of hydropower. For more information, visit ACEC's website at www.acec.org.

The Army Corps has \$96 billion worth of backlog projects that have been authorized but not appropriated. The bill provides new tools for local government to partner with the Corps to leverage existing resources to address the backlog.

ACEC Works with Commerce Department to Weigh in on NAFTA Talks

ACEC worked with industry colleagues through the Commerce Department's Industry Trade Advisory Committee on Services (ITAC-10) to review and comment on the draft update to the North American Free Trade Agreement (NAFTA).

ACEC Chair Manish Kothari, president and CEO of Sheladia Associates, represented the Council on the Committee.

Regarding engineering services, the advisory report says: "ITAC 10 supports U.S.

government efforts to negotiate new trade agreements designed

to open international markets for U.S. engineering firms. The engineering services sector as related to design, construction, environment and infrastructure believes that it can operate successfully under the provisions of the Trade Agreement.

"Building on the elements of the original NAFTA, which necessarily focused on important licensure standards, comity and reciprocity among other salient matters, the Trade Agreement offers provisions that support the ability of the U.S. engineering services sector to offer creative, innovative and cost-effective solutions to North America's infrastructure challenges and the built-environment's needs."

The agreement now moves to Congress, where this must be approved in an up-or-down vote without amendment.

ACEC Supports Passthrough Tax Deduction Proposed Rule

After receiving input from Member Firms, ACEC submitted comments to the Treasury Department in support of the proposed rule to implement the new Section 199A passthrough tax deduction.

The Tax Cuts and Jobs Act (TCJA) lowered the corporate tax rate from 35 percent to 21 percent, which provides tax relief for engineering firms organized as C corporations, including personal services corporations. The law also created the Section 199A 20 percent tax deduction for passthrough firms, including S corporations, partnerships and sole proprietorships.

The original House and Senate tax reform bills excluded many engineering passthrough firms from tax relief. Due to an intense advocacy campaign by ACEC and its grassroots network, Congress included engineering and architecture passthrough owners in the Section 199A deduction. The Treasury Department's proposed rule reflects congressional intent that engineering and architecture firms are fully eligible for the deduction.

ACEC also signed a coalition comment letter asking for improvements to the section of the rule that allows firms with multiple legal entities to aggregate them for the purposes of claiming the Section 199A deduction. This is a key concern for larger engineering firms that operate in multiple states.

The Treasury Department expects to release the final rule by the end of 2018. ACEC will continue engaging with Congress and the regulators as implementation of the TCJA proceeds.



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Congress Approves FAA Reauthorization Bill with QBS Expansion on Airport Projects

In one of the last legislative actions before the midterm elections, lawmakers finalized a five-year reauthorization of Federal Aviation Administration (FAA) programs and airport funding.

The legislation includes an ACEC-backed amendment to expand the application of Qualifications-Based Selection (QBS) requirements on federally funded airport projects. The provision requires that airports comply with QBS procedures if any portion of a project utilizes Airport Improvement Program (AIP) funds. This is designed to prevent segmentation of funding for A/E services. For example, if federal funds are only applied to the construction portion of a project, QBS rules must still be followed on the preliminary engineering and design.

For airport infrastructure, baseline AIP funding is kept flat at \$3.35 billion annually for fiscal years 2018-2023. The bill also authorizes an additional \$5.3 billion over 5 years for airport improvement grants for small and midsize

airports, subject to annual appropriations. The FAA Facilities & Equipment account is authorized at \$3.33 billion in FY 2018, growing to \$3.7 billion in FY 2023, and is also subject to annual appropriations.

The cap on Passenger Facility Charges collected on airline tickets is kept at \$4.50 per flight segment, although the bill gives flexibility for more airports to collect the maximum amount. U.S. DOT is directed to conduct a study of airport infrastructure needs and make recommendations on financial resources and options to upgrade the aviation system to meet the growing travel demand and projected passenger volumes.

The bill also features an extensive section on unmanned aircraft systems (UAS), including provisions to facilitate the integration of drones into the national airspace; bolster research, development and testing programs; and authorize more risk-based permitting for commercial UAS, including operations beyond the visual line of sight and over people on the ground.

ISSUES ON THE MOVE	WHAT'S NEXT
FAA Reauthorization	Signed into law
Water Resources Development Act	Signed into law
Tax Reform Implementation	Final regulations expected end of the year
U.S., Mexico, Canada Trade Agreement	Congressional vote in early 2019

Congressional Appropriators Forbid Transfer of Army Corps Civil Works Program

Bipartisan lawmakers in the House and Senate have included language in a major spending bill to prohibit the administration from moving forward with a proposed transfer of a significant portion of the Army Corp of Engineers Civil Works program to the Departments of Transportation and Interior.

In the \$147.5 billion spending package, appropriators state: “the conferees are opposed to the proposed reorganization as it could

“None of the funds made available by this act or any other act may be used to reorganize or to transfer the Civil Works functions or authority of the Corps of Engineers or the secretary of the Army to another department or agency.”

ultimately have detrimental impacts for implementation of the Civil Works program and for the numerous nonfederal entities that rely on the corps’ technical expertise, including in response to natural disasters.”

House and Senate lawmakers also included binding provisions in the spending package that will prohibit the administration from moving forward: “None of the funds made available by this act or any other act may be used to reorganize or to transfer the Civil Works functions or authority of the Corps of Engineers or the secretary of the Army

to another department or agency.”

The White House proposal, included in a government reform plan titled Reshaping American Government in the 21st Century, would move commercial navigation functions, such as maintaining channels, harbors and waterways, and operating, designing and engineering locks and dams to the Department of Transportation. It also proposed to move programs such as estuary and aquatic restoration and various additional regulatory functions to the Department of Interior.

For More News

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





A CULTURE OF **RES**

**FEDERAL LAWS SURROUNDING SEXUAL
HAVE NOT CHANGED;**

BY SAMUEL GREENGARD

Few events have had such an enormous impact on society as the #MeToo movement. When the social phenomenon exploded onto the scene in the fall of 2017, it reshaped thinking and discourse in profound ways. Although the laws against sexual harassment had not changed, the mindset of society had clearly shifted: Sexual harassment and misconduct are no longer tolerated.

“There has been a huge shift in the broader workplace from simply handling

PECT

**HARASSMENT IN THE WORKPLACE
HOWEVER, PUBLIC DISCOURSE HAS**

incidents and investigations to creating an environment where people can be treated fairly and respectfully,” says Erin Davies, chief human potential officer at Haley & Aldrich.

In recent months, a steady stream of news stories has dominated the media—and numerous high-profile executives have been fired, forced out and even prosecuted. As a result, engineering firms are evaluating and re-evaluating risks, reviewing and updating sexual harassment

WESTEND61 / GETTY IMAGES



policies and expanding training programs. They are looking to raise awareness and sensitize employees about potential sexual harassment—but also to avoid legal consequences and media exposure that can stem from violations.

Although most organizations have sexual harassment policies in place—the Society for Human Resource Management (SHRM) says the figure is around 90 percent—there are vast differences in how organizations structure policies, and how they oversee and enforce them. Moreover, the nuances of what constitutes sexual harassment continue to evolve.

“We have reached a point where excuses and rationalizations for acting unprofessionally are no longer accepted. There is a much higher likelihood than in the past that there will be consequences,” says Sharon Sellers, president of SLS Consulting, a firm that specializes in human resources consulting and training.

OUT OF TOUCH

Federal law surrounding sexual harassment in the workplace is clear. Title VII of the Civil Rights Act of 1964 prohibits “unwelcome sexual advances, requests for sexual favors and other verbal or physical harassment of a sexual nature,” according to the U.S. Equal Employment Opportunity Commission (EEOC). Yet, harassment is not strictly relegated to behavior of a sexual nature. It also includes remarks about a person’s gender. Although an EEOC study found that about 79 percent of victims are women, the remaining 21 percent are men—and sexual harassment can occur in same-sex situations. Essentially, harassment is unlawful when it becomes a condition for continued employment; when it is pervasive enough to be considered intimidating, hostile or abusive; and when it results in an employee being demoted or fired.

Yet, how people interpret sexual harassment varies. Virtually everyone understands that demanding sexual favors or groping another person is forbidden. However, slightly off-color jokes, words and phrases—or something that may seem as innocent as a touch or hug—can mean drastically different things to different people. In addition, different generations do not share the same sensibilities.

“There was the *Mad Men* era where there was almost an expectation that a secretary was told she looked good. There was a time when it was almost expected and acceptable to treat women differently,” says Davies. Today, some workers may use words and phrases that would have seemed crude and unacceptable in the past.

A hostile work environment can result in lawsuits, a loss of talent and diminished productivity. It can also derail careers and cause permanent emotional damage to people. Yet, at the same time, sorting through claims and counterclaims—the classic *he said* and *she said*—can prove extraordinarily challenging. Additionally, the instance of false accusations, while relatively rare, does occur.

“You have to have a clearly defined policy and a framework for dealing with these issues,” says Beverly Tompkins, vice president and corporate counsel at Simpson Gumpertz & Heger. “You cannot minimize or dismiss anything. You have to create a culture of support and accountability.”

Make no mistake, sexual harassment—or at least the realization that it is taking place—is a bigger problem than many people would like to acknowledge. A 2015 survey conducted by *Cosmopolitan* magazine found that among 2,235 full-time and part-time working women, roughly 1 in 3 between the ages of 18 and 34 had experienced sexual harassment at work. *Cosmopolitan* also found that sexual harassment has taken on new forms in the digital age. This includes seeing pornography on a co-worker’s computer and receiving text messages or e-mails that are lewd.

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work**

Source: 2015 survey conducted by
Cosmopolitan magazine.

DEFINING TERMS AND LIMITS

Avoiding sexual harassment begins with employees clearly understanding the concept of boundaries. While most people recognize that sexually suggestive remarks are inappropriate and exchanging favors for preferential treatment is completely wrong, it is also crucial to help employees understand another basic concept: Not everyone thinks the same. It is necessary to honor a person’s preferences and boundaries.

“Maybe you are a hugger, and you like to be affectionate.



“There has been a huge shift in the broader workplace from simply handling incidents and investigations to creating an environment where people can be treated fairly and respectfully.”

ERIN DAVIES
HALEY & ALDRICH

“You have to get past the idea that reporting suspected inappropriate behavior is viewed as snitching. The idea is to create the best possible workplace.”

HOLLY GIBNEY
VOLKERT

This does not mean that the recipient feels the same way. If the person says ‘no,’ you have to fully respect his or her feelings,” says Gaylene Brennan, human resources manager at Lamp, Rynearson & Associates.

On the other hand, employees should be encouraged to speak up when they find words or behavior objectionable—including situations that involve contractors and outside companies.

“People must feel OK saying, ‘You know, I do not find that funny,’ or ‘I really do not think that your comment is appropriate,’” says Holly Gibney, vice president of human resources at Volkert. They cannot fear repercussions or reprisals—including losing their job.

“You have to get past the idea that reporting suspected inappropriate behavior is viewed as snitching. The idea is to create the best possible workplace,” she says. When the offender works at an outside firm, it is critical to work with the HR director or legal counsel at the partner company to address the matter.

But there is also a need to raise awareness about what constitutes sexual harassment and what can lead to realizations that it is taking place.

“Inappropriate comments about looks and physical features have no place in the workplace,” says Tompkins.

Another danger is a supervisor or manager dating a subordinate. This is never a good idea and can create a quid pro quo situation. In other dating scenarios, Tompkins says that it is often wise to ask two romantically involved parties to inform the human resources department of their relationship.

“If and when they break up, you wind up with two potentially unhappy people who still have to work together,” says Tompkins. “This type of situation can sometimes evolve into a claim of sexual harassment. You cannot prevent fellow employees from becoming romantically involved, policy or not, but you can create expectations of responsibility surrounding such involvement.”

According to Davies, it is important to adopt a framework that focuses on diverse but related issues that lead to greater empowerment: helping employees understand the company’s expectations as well as their rights, establishing clear and understandable policies, offering appropriate information during the onboarding process, providing ongoing training and establishing a framework for reporting and dealing with incidents. If an employee does not feel comfortable speaking up to a boss or that person is a problem, it is essential that they know there is another trusted supervisor or HR representative available. “You have to adopt a multilayered approach,” she says.

A MATTER OF POLICY

Not surprisingly, a framework for addressing sexual harassment must be flexible enough to deal with a wide variety of situations, but also specific enough to define terms, boundaries and what is unacceptable. It must be built on a foundation of mutual trust and respect but explain what a lack of trust and respect looks like. It is vital to pay attention to EEOC guidelines—as well as state laws that may have been updated since the #MeToo movement appeared.

“It starts with leadership saying and doing the right things and extends to building a framework that revolves around

5 Ways to Reduce the Risk of Sexual Harassment

1. Establish clear policies

Address federal and state laws concerning sexual harassment. Create mechanisms for reporting, investigating and adjudicating all claims—while maintaining privacy.

2. Communicate policies upfront

Ensure that new employees view policies and positions during the onboarding process. Consider having new employees sign a statement acknowledging policies and expectations.

3. Provide training

Ongoing computer-based training or live training is essential.

4. Take all claims seriously

Any complaint should initiate a thorough investigation. This may include possible observers. Look for clues that a person is saying she or he is fine but showing signs of severe stress.

5. Act decisively

Those who clearly violate standards should be put on notice or terminated. Besides creating legal risks, they destroy morale and undermine productivity.



“Inappropriate comments about looks and physical features have no place in the workplace.”

BEVERLY TOMPKINS
SIMPSON GUMPERTZ & HEGER

safety, respect, honesty, integrity and accountability,” says Davies.

“The goal is not to conform to a checklist. It is to create a work environment that is free of hostility and discrimination,” adds Tompkins. Training can go a long way toward enlightenment, but it is also necessary to codify expectations. At some companies, it may be necessary to define how employees travel together, how lunches, dinners and meetings take place, as well as how employees fraternize during nonworking hours. For others, specific rules and guidelines about touching, joking and interacting may be required.

There may also be a need for policies that address reassigning employees who are in a consensual relationship—especially if one of them is in a supervisory role. Employers

should exercise care, however, to ensure that any new assignment is not seen as a disciplinary measure, according to Sellers. In fact, she recommends that an employer not automatically reassign an employee who has made a harassment complaint. It may send a negative message to other employees that if a person speaks up he or she will face retaliation.

Brennan adds that there is also an element of common sense, which can be emphasized in training sessions, if not codified into policy. For instance, meeting with a client for dinner and sitting at a romantic and secluded table probably is not a good idea. Going back to a co-worker’s hotel room to work on a presentation probably is not wise. It is typically smarter to work in the hotel lobby or at the business center.

“A good rule of thumb is to not only consider what is appropriate but also think about how it appears to others,” says Brennan. “Many problems can be avoided by erring on the side of caution and avoiding any words or behaviors that could be construed as sexual harassment.”

What happens when there is evidence of actual sexual harassment? It is imperative to take claims seriously, question everyone involved, and provide guidance and warnings, as they are required, according to Sellers. If an indiscretion is perceived to be relatively minor—for example, a person has uttered something mildly inappropriate—a simple discussion may be in order. In more serious cases that involved a warning, counseling or additional training may be necessary. In blatant cases, or when violations reoccur, immediate termination should be considered, she says.


“If you sense that someone is not taking the issue seriously, it is often best to terminate. Repeat offenders cause ongoing damage, and they are a liability for the company,” says Sellers.

Ultimately, there are no easy answers or cookie-cutter strategies for dealing with sexual harassment. Every firm must find its own path to creating a better workplace. However, a few things matter: a zero-tolerance tone from the executive suite, a clear framework for addressing sexual harassment, ongoing training to raise awareness and providing strong support to those who feel violated. The goal is to create an environment where everyone is treated with dignity—and has the same opportunities.

“A culture based on respect is at the core of a successful business. When a workforce buys into this concept—and management fully supports it—everyone wins,” says Sellers. ■

Samuel Greengard is a technology writer based in West Linn, Oregon.

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The Dual Threat of a Seller-Doer

BY BOB VIOLINO

Member Firms can reap benefits from having design professionals who are also responsible for securing contracts

Engineering firms looking for a competitive edge might want to consider bringing on seller-doers: design professionals who are also responsible for securing contracts or projects for their firms, either through repeat clients or relationships with new clients.

Many firms have already adopted this approach. The latest Deltek Clarity study shows that more than 80 percent of responding firms report relying on seller-doers to some degree, with 31 percent using seller-doers only and 50 percent relying on a combination of seller-doers and dedicated business development professionals.

The concept is actually nothing new.

“For as long as professional services firms have existed—perhaps for hundreds of years—they have relied on seller-doers,” says Jim Rogers, president of the Seller-Doer Academy for Civil Engineers, which provides educational services for professionals.

In a competitive global marketplace, however, having seller-doers on board might be more important than ever.

Whereas partners, principals and other executives might be considered rainmakers, seller-doers typically reside in the next several layers down the organization. They are most often project managers and senior technical experts. Many firms know they can get more revenue from those tiers of professionals, and the most forwarding-thinking leaders want to activate seller-doers even earlier in their careers. This is especially appealing to younger workers

who want more challenging work, more responsibility and to be valued, according to Rogers.

POTENTIAL BENEFITS

“Hybrid systems of seller-doers and full-time business development personnel are more effective for winning larger projects and the expansion of service lines, service delivery methods and geographies,” says Don Sherman, principal and director at AEC Market-Masters.com and Don Sherman Group, LLC.

“Even without full-time business development representatives, seller-doers are most effective if the firm has full-time marketing support and integrated marketing and seller-doer programs,” says Sherman.

Among the key best practices for seller-doers, according

to Sherman, are relationship training; client-centered communications training for proposals and presentations; focused networking through professional, civic and social organizations; and the use of a single, central customer relationship management system that leverages input from smartphones for client contact and opportunity tracking.

The potential benefits of having active seller-doers on staff are huge, Rogers says. An obvious one is higher sales. But firms can also see improved financial health. More sales to new clients and markets can create a more balanced portfolio, which in turn mitigates risk.

Another benefit is better client and project profitability. "If the seller-doers who have to deliver the work have to scope and price the work, there will be less opportunity for client misunderstandings or lowballing the work," says Rogers.

There is also greater organizational health, which yields productivity and retention and helps attract the best talent in a tight labor market. "Most professionals like to be challenged at work," says Rogers. "One way to do that is to do the most interesting work for the best clients."

PROGRAMS HAVING AN IMPACT

Firms that have implemented seller-doer programs are seeing a positive impact.

"There is always a balance between utilization and marketing efforts when it comes to winning work," says Sean McCone, vice president and chief marketing officer at Johnson, Mirmiran & Thompson (JMT).

"In our organization, being efficient and effective drives our approach," says McCone. "The majority of the work we pursue is awarded based on qualifications and developing lasting relationships. Our clients want to have a level of confidence with the

staff delivering the work; therefore, they need to cultivate that relationship."

On the proposal side, the firm has found that a team approach led by technical seller-doers is the most successful one. This is particularly true in the early phase of a submission where seller-doers have the most impact on selection. "The approach also ensures a level of ownership in the submissions that we pursue," says McCone.

The seller-doer sales culture is not new for the firm. "But we have taken many steps to refine and continue it," says McCone. "It is prominent in our JMT Brand Values. It is rewarded within our compensation model. It is taught in our internal training curriculum."

While JMT uses business development professionals to do market research and sift through potential new clients, its seller-doers analyze the data and take ownership in cultivating a new client. The firm has sustained an average gross revenue growth of 17 percent over the past 20 years and 20 percent over the last five years, according to McCone.

"Creating a sales program that incorporates seller-doers was not a conscious change that we implemented recently," says Judith Nitsch, founding principal of Nitsch Engineering. "This is the way that I have always operated, and it was natural that we encouraged all employees to do this as well. It is good for the firm, and it is good for our staff."

Most engineers have not had formal marketing or business development training in college, according to Nitsch. She has learned a lot from being a member of the Society for Marketing Professional Services for about 35 years.

"I am a firm believer that people want to do a good job and that we as firm leaders are responsible for giving them the tools to do that," Nitsch says. "We have developed a variety of ways to teach and train our staff to understand marketing and be better at business development."

**The latest
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degree**

Steps to a Successful Seller-Doer Program

Be willing to accept lower billable hours from staff

"If you are demanding 80 to 85 percent billable hours from people and asking them why they are not selling, then you are the problem," says Jim Rogers, president of the Seller-Doer Academy for Civil Engineers. "You have not given them the space to do the marketing work. For folks who really are expected to actively market and sell, you are probably looking at 70 percent billable as a maximum."

Be clear about who is expected to sell and set targets for them, and give partial credit to people who contribute to a sale

"Instead of giving a rainmaker 100 percent credit for landing a project, the project manager and proposal manager might each get 15 percent of the sale booked against their sales target," Rogers says. "Or three people on the short-list interview presentation team may get 10 percent each."

Align rewards and recognition to foster more marketing and sales

"Not all of this has to be monetary compensation," says Rogers. "Access to training, being given special projects, being entrusted with more responsibility, and being publicly praised are all part of a good rewards system."

Create better sales management processes and systems

"We used to have good systems in file cabinets, and I have clients with good ones in Google Sheets or sophisticated Excel sheets rather than an unwieldy, difficult-to-adopt customer relationship platform," Rogers says.



“Creating a sales program that incorporates seller-doers was not a conscious change that we implemented recently. This is the way that I have always operated, and it was natural that we encouraged all employees to do this as well. It is good for the firm, and it is good for our staff.”

JUDITH NITSCH
NITSCH ENGINEERING

The firm’s three-year business development and marketing plan identifies targets within each department who are responsible for specific clients and who are champions for client-based organizations. “We have quarterly check-in meetings with each department to track its activities and progress on the plan,” says Nitsch.

The firm also offers several courses through its ongoing internal training program, Nitsch University.

Another initiative is the firm’s annual BD for Project Staff session, which it offers during the first quarter of every year. In addition to these efforts, Nitsch Engineering has other formal marketing and business development programs, depending on the needs identified each year.

“These programs are either presented by in-house staff on topics such as proposal preparation, or we bring in outside consultants who have done presentation training, interview training, business development management, preselling and other topics over the years,” says Nitsch.

The seller-doer efforts at Nitsch Engineering have paid off. The firm has a repeat work rate that is much higher than its industry’s average, and its sales growth closely corresponds to its sales and strategic planning efforts, according to Nitsch.

Another firm, Walter P Moore, has long relied on a seller-doer system and has set records for new business in each of the last four years. “Some of that is attributable to geographic and services growth. But that also has been fueled by seller-doers,” says Lee Slade, senior principal and chairman.

“I know that we have many more seller-doers actively engaged in the work-winning activity than we used to,” Slade says. “We have also seen the emergence of a few seller-doers who have proven themselves very adept at building relationships that create new business.”

The firm’s clients generally prefer to deal with individuals who have the professional expertise to continue the relationships built during the sales process into the project delivery, according to Slade.

“Our firm relies heavily on repeat business, and our seller-doers are already ‘under the tent’ with clients,” says Slade. “They

have the best access to them and the best understanding of what drives their thinking. We have a very small number of nontechnical business development people who are excellent at opening doors, establishing relationships and getting the right technical professionals in front of the client. But we have found that closing deals is predominantly the province of the professionals who will execute the work.”

MEETING CHALLENGES

Firms might need to address a few challenges in deploying a seller-doer strategy. One is resistance.

“Most resistance will be caused by FUD—fear, uncertainty and doubt,” says Rogers. “Change is difficult. Even if you get people fired up to sell quarterly or monthly, they will go put their heads down and focus on client work. Hiding behind client work is the biggest excuse people have for not selling.”

Another challenge is leaders’ inability to lead. “If they only reward and punish results rather than foster a learning environment, which means allowing people to fail with the ultimate aim of learning, they will be unmotivated to overcome FUD,” Rogers says. “A leader’s job is to help people go where they have not been before. Therefore, they have to communicate their belief that people can succeed and give them room to fail.”

Leaders have to convince people that change is necessary and that they can become effective seller-doers. “Then they need to invest in building their capabilities, whether through formal training or experiential learning opportunities,” says Rogers.

The biggest challenge for JMT is the availability of time. “Balancing client demands, utilization and profitability can be difficult, especially when proposals and deliverable deadlines overlap,” says McCone. “Building solid relationships takes time. We overcome this by distributing the work amongst various staffers based on who can do it most effectively.” ■

Bob Violino is a business and technology writer based in Massapequa Park, New York.

“Our firm relies heavily on repeat business, and our seller-doers are already ‘under the tent’ with clients. They have the best access to them and the best understanding of what drives their thinking.”

LEE SLADE
WALTER P MOORE

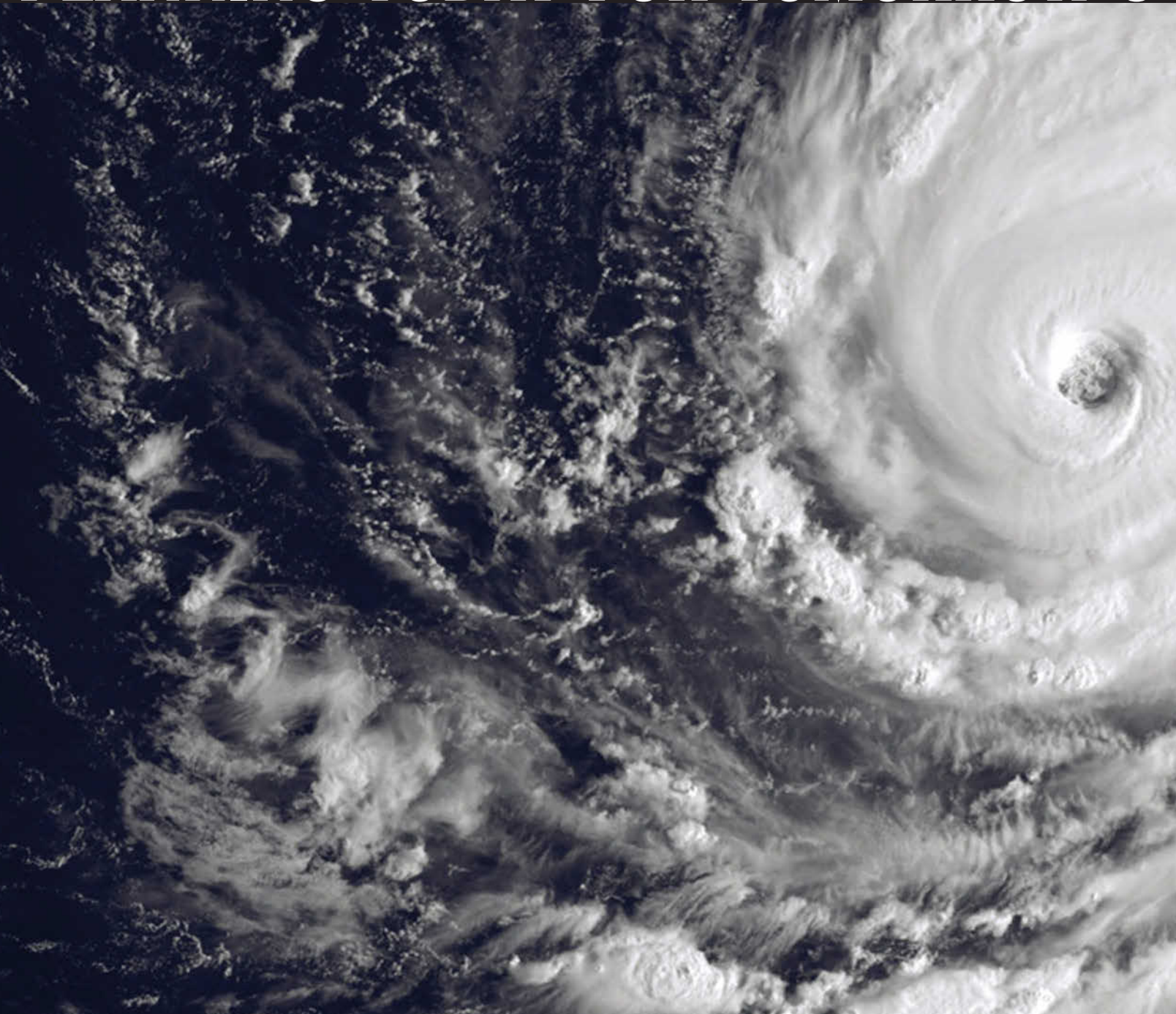




BY BOB WOODS

TERRAY SYLVESTER / GETTY IMAGES

PLANNING TODAY FOR TOMORROW'S



As weather-related events such as hurricanes multiply and intensify, states and municipalities are recognizing the urgent need to fund mitigation strategies. Because the occurrence and intensity of calamitous events have increased dramatically in recent years—largely due to climate change-related weather patterns and rising sea levels as well as increasing development in vulnerable areas—rebuilding and then waiting for the next disaster to strike, over and over again, is no longer a sustainable strategy.

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DISASTERS

**ENGINEERING FIRMS
ARE DEVELOPING
DISASTER MITIGATION
STRATEGIES THAT
BETTER PREPARE A
WORLD FACED WITH
EVER-INCREASING
NATURAL CALAMITIES
BEFORE THEY OCCUR**

NOAA / GETTY IMAGES

CHAD COWAN / GETTY IMAGES



Construction of the Sinclair Levee, a former Brownfield site in Cedar Rapids, Iowa.



The levee to floodwall transition located at a future closure gate for the Sinclair Levee in Cedar Rapids, Iowa.

As a result, more engineering firms—which play a critical role in the aftermath of catastrophes, helping restore dams, levees and other flood-protection systems; getting transportation systems back up and running; reconstructing residential and commercial buildings; and mending other types of broken infrastructure—are increasingly looking at disaster mitigation strategies that can reduce or even prevent the devastation.

“We are engineers and architects, but you have to morph, adjust and adapt to the marketplace,” says Ted Van Kirk, executive vice president of Dewberry.

Despite the shifting mindset on addressing mitigation of risks from major disasters, the federal government remains largely focused on post-disaster cleanup. That fact is reflected in the funding levels for disaster response efforts, which have not kept

pace with the increase in frequency and intensity of these events and, in some cases, has even been reduced. Of the \$277.6 billion the government obligated on disaster assistance from 2005 to 2014, very little went to reducing communities’ risks before hurricanes and floods hit.

Pre-disaster mitigation spending by the Federal Emergency Management Agency (FEMA) fell to \$19 million in 2014 from \$157 million in 2005. And funding is not the only hurdle to overcome. Various federal rules favor rebuilding rather than resilience. For example, the Robert T. Stafford Disaster Relief and Emergency Assistance Act, which was signed into law in 1988 and amended in 2016, requires money be used to replace exactly what was there before a storm.

THE CASE FOR FUTURE RISK MITIGATION

With the rates of incidence, and associated cleanup costs, on the rise, more and more experts agree that the better solution is to develop plans and complete projects beforehand—in the vein of practicing preventive medicine today to avoid illnesses tomorrow.

“You can do mitigation and resiliency projects as part of disaster recovery, and certainly need to when rebuilding,” says Van Kirk. However, creating a strategy that allows communities to access funds for proactive resiliency gives those communities an opportunity to pre-emptively assess their vulnerabilities and prioritize projects to address them, he says.

There is already evidence that this sort of planning pays off.

For every \$1 spent on pre-event mitigation, both before and after disasters, U.S. taxpayers save an average of \$4 in future disaster recovery costs, according to The National Institute of Building Sciences (NIBS) findings in its “Natural Hazard Mitigation Saves: 2017 Interim Report.” Not only does it cost less,

but the 2017 interim report, which is an updated and expanded version of NIBS' 2005 study that only considered investments FEMA made through its Hazard Mitigation Grant Program, also found that the return on investment is considerably higher.

After the NIBS project team examined the results of 23 years of federally funded mitigation grants provided not only by FEMA but also the U.S. Economic Development Administration and the U.S. Department of Housing and Urban Development as well as private investments, it found that the nation saves \$6 in future disaster costs for every \$1 spent on hazard mitigation. Two addendums will be issued in the next few months.

These strategies are also paying off for engineering firms as states, municipalities and the private sector—tired of waiting on the powers that be in Washington, D.C.—are increasingly focusing on future risk mitigation.

HOLDING BACK THE CEDAR RIVER

In 2014, city officials in Cedar Rapids, Iowa, selected Stanley Consultants, which has planned and designed flood risk reduction systems for decades, to provide design services for a project to mitigate flooding caused by the Cedar River, which runs through the middle of the city. During a devastating flood in June 2008, the river crested at over 31 feet, surpassing the previous record of 20 feet, with waters inundating 10 square miles, or 14 percent of the city.

Until 2008 Stanley Consultants worked with the U.S. Army Corps of Engineers (USACE) on a variety of projects along the Mississippi River valley and the upper Midwest, from Minneapolis to New Orleans.

"Previously, there was not as much money going into the federal budget to execute systems," says Dan Miller, senior project manager and principal water resources engineer at Stanley Consultants. "However, the supplemental funding bill has dramatically increased the funding for USACE flood risk management projects. For example, the Galveston District received \$3 billion as a response to Hurricane Harvey."

Currently, Stanley Consultants is working on the \$550 million flood mitigation project in Cedar Rapids, which is expected to take up to 20 years to complete and features a system of flood

barriers made up of levees, floodwalls and pump stations, as well as numerous gates to close streets and railroads that pass through the lines of protection. In July, the Corps of Engineers approved \$117 million in funding, and the state of Iowa will contribute \$267 million. The city has pledged \$110 million for the project, on top of the \$10 million it has already invested.

**The nation
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on hazard
mitigation**

**2017 was the
most expensive
year ever in
the U.S. for
weather and
climate-related
disasters,
totaling
\$306 billion**

"It is a good time to be in this business," says Van Kirk. "The critical issue is finding qualified people who understand disasters. There are not enough people out there for all the firms who want them."

The urgency to mitigate future risks of flooding has increased alongside growing evidence that climate change is intensifying weather-related events. Those unprecedented weather events, such as Hurricane Harvey, which dumped 4-plus feet of rain in and around Houston last year, mean astronomical financial costs for relief, recovery and rebuilding operations. Case in point, 2017 was the most expensive year ever in the U.S. for weather and climate-related disasters, totaling \$306 billion, according to the National Oceanic and Atmospheric Administration (NOAA). And the cleanup efforts in Puerto Rico after Hurricane Maria, one of three Category 4 hurricanes that made landfall in the U.S. and its territories, are estimated at \$139 billion—15 times that of the island's \$9 million annual budget. The first quarter of 2018 saw three nor'easters, followed by historic wildfires that ravaged California. All that before Hurricane Florence hit the East Coast in September.

The costs are not limited to weather events. Climate change is also causing rising sea levels, including a new phenomenon known as "sunny day" flooding in coastal cities, especially along the East Coast, on days when it is not even raining.

A University of Florida study published in 2017 found that from 2011 to 2015, sea level rose up to 5 inches—an inch per year—in some locales from North Carolina to Florida. That includes Virginia Beach, Virginia, where sea levels in the Hampton Roads region—home to the world's largest naval base—have risen nearly 12 inches since 1960, according to NOAA. The result is frequent flooding of low-lying coastal areas and a storm water system often unable to drain the overflow. A study by the



"The critical issue is finding qualified people who understand disasters. There are not enough people out there for all the firms who want them."

**TED VAN KIRK
DEWBERRY**



"We look to have full integrated services and diverse skill sets to take event management to the next level."

DAVE MULHOLLAND
VHB

Hampton Roads Planning District Commission estimated that the region could face direct economic costs of \$12 billion to \$87 billion due to rising seas by the end of the century.

LETTING COMMUNITIES DEFINE RESILIENCE

Dewberry was hired by the city of Virginia Beach in 2015 to evaluate the impact of long-term sea level rise on the built environment throughout the community, assess vulnerabilities and develop mitigation approaches.

"We have proposed solutions to hold back the water and protect five watersheds," says Michael Walsh, executive vice president of Dewberry and resilience solutions group manager. "We are working with the community and having them define a resiliency plan." Toward those efforts, the Virginia Beach City Council has allocated \$3 million from its capital-improvement funds, while NOAA has provided a Coastal Resilience Grant of more than \$844,000.

And disaster mitigation can extend beyond hardening physical infrastructure to include pre-emptive planning to efficiently move people and assets during major events. VHB continues to work with the Florida Department of Transportation to improve traffic flow, which became an issue when Hurricane Irma struck the state last year.

"As a result of Irma, many of the traffic signals in Central Florida were found not to be working," says Dave Mulholland, senior vice president and southeast regional manager at VHB's

Orlando office. That may sound trivial, but in the midst of storm-related power failures, crews needed to bring in generators to operate signals and keep traffic moving safely. In some areas of the state, cellphone service was out, so workers had limited ways of talking to each other.

The firm has since developed a mobile application that uses satellite technology to better coordinate communications among emergency responders.

"Our app can see where repair trucks are located, helping to quickly mobilize equipment and keep it operating," says Mulholland. "The satellite technology will reduce response times in order to improve efficiency in responding to the impacts of an event."

To take on such mitigation projects, VHB employs technology experts, environmental scientists and other professional staff members in addition to its traditional response teams.

"We look to have full integrated services and diverse skill sets to take event management to the next level," Mulholland says.

As a result, engineering firms specializing in disaster mitigation are hiring experts in finance, grant applications and government relations.

"If you do not have employees who understand the political and financial landscape of how you get local projects funded, you only bring part of the solution," says Van Kirk. ■

Bob Woods is a technology and business writer based in Madison, Connecticut.

**A University of
Florida study
published in 2017
found that from
2011 to 2015, sea
level rose up
to 5 inches—
an inch per
year—in some
locales from
North Carolina to
Florida**

Dewberry worked with FEMA to develop Advisory Base Flood Elevation data to inform communities and homeowners of their current hazards resulting from Superstorm Sandy.



WATERFRONT RESTORATION AND REDEVELOPMENT

**MEMBER FIRMS ARE PROVIDING
CREATIVE SOLUTIONS TO A VARIETY
OF WATERFRONT CHALLENGES**

BY TOM KLEMENS

MOFFATT & NICHOL

LANGAN

WHITNEY BAILEY COX & MAGNANI

TIGHE & BOND

BLUEHILLS / GETTY IMAGES

Opened in October 2016, The Wharf has already become one of downtown Washington, D.C.'s favorite shopping and entertainment destinations.



Reclaiming the Riverfront

PROJECT: THE WHARF
WASHINGTON, D.C.

FIRM: MOFFATT & NICHOL
LONG BEACH, CALIFORNIA

The District of Columbia took a bold step forward in reinvigorating the Washington Channel's Southwest Waterfront as a vibrant community and destination waterfront. Known as The Wharf, the \$2 billion redevelopment project incorporates the best of modern mixed-use urban design—waterfront public space, promenades, piers, docks and marinas, as well as ground-floor retail below a combination of condominiums, office space and entertainment venues.

Located in a dense urban setting with existing tenants, multiple stakeholders and overlapping jurisdictions, the project required a vast amount of planning, coordination and engineering. It also required an extensive entitlement effort, necessitating an act of Congress to

decommission the federally owned channel—part of the Potomac River—so it could revert to city ownership and allow for the expansion of the waterside into the former channel.

Moffatt & Nichol was a key member of the development team, providing planning, permitting, market analysis, pro forma, grant application processing, structural inspections above and below water, design services and construction support for all waterside elements of The Wharf. These comprise project components from the sea wall waterward including repair of the existing sea wall, construction of four new public piers, three private piers, three recreational marinas, tall ship and water taxi facilities, and repair and expansion of the existing dinner cruise pier.

Although there is nothing simple about a project of this size and scope, especially in such a high-profile location, the owner and developer took a forward-looking approach to the opportunity.

"The Wharf was planned and designed not as an upland development that happened to have a waterfront



Robert V. Sloop
Senior Coastal and Waterfront
Project Manager and Engineer
Moffatt & Nichol

component, but rather as a waterfront project where everything in the whole project is focused on that space where the land meets the water," says Robert

V. Sloop, senior coastal and waterfront project manager and engineer with Moffatt & Nichol. "That is a very unique approach. The design challenge then became determining how to maximize that interaction and how to provide a wide variety of experiences at The Wharf."

The goal of developing waterside features to enhance the patron experience, draw people to the area and increase area property values did not simplify the engineering challenges of creating a viable waterfront destination with multiple activities—water taxis, tall ships, transient vessels, dinner cruises, human-powered watercraft and marinas—in an area with a limited maritime tradition.

Despite the challenges, Phase 1 opened in October 2016, three years after groundbreaking, and has become one of the area's most popular destinations for both residents and tourists. Phase 2 is expected to open in 2022.

Balancing Protection and Environment

PROJECT: HIGH ISLAND WATERFRONT RESTORATION
NEW YORK, NEW YORK

FIRM: LANGAN
NEW YORK, NEW YORK

High Island, a small private island off the northeast tip of City Island at the eastern end of Long Island Sound, is home to radio transmission facilities broadcasting two of the largest AM radio station signals in the tri-state area. A multiyear waterfront restoration effort balancing hardscape protection with a soft edge has now established environmentally friendly shoreline protection for the island.

The waterfront restoration addressed issues along almost half of High Island's shoreline including where previous stabilization efforts had not been successful.

Washout of slope was compromising the stability of the site's perimeter security fence and the radio tower anchors. The

erosion also was threatening the copper grounding system, a critical component of the transmission system.

Beyond that, the single-lane timber-framed bridge from City Island—the only access to the island—had undergone a significant upgrade in 2010, which included protecting the concrete eastern abutment on the island. However, erosion of the surrounding area continued, with washout behind the bridge headwall destabilizing the abutment and undermining nearby duct banks. This also was adversely affecting the asphalt service roadway, all of which put the ability to provide basic utility service and needed fuel transport to the island in jeopardy.

The complex wind, current and wave dynamics required a robust system to counter the environmental conditions, although the island location prevented the use of large-scale equipment and materials.

The desire to balance long-term protection with minimal maintenance requirements was only part of the challenge. The design and construction plan also had to satisfy environmental constraints to gain state and federal regulatory authorization, and there were practical timing and cost limitations.

The solution was a combination of traditional stone riprap and gabion baskets together with creating a living shoreline that uses green gabion baskets and plantings.

"We did the construction for the bridge abutment protection and utility protection, and some planting, in 2010," says Gregory Biesiadecki, principal with Langan, which provided site assessment and developed the restoration plan. "But storms in 2011 wreaked havoc on a lot of the plantings. Our contractor replanted, but to provide more overall protection from the wave action, we also planted on the north side."

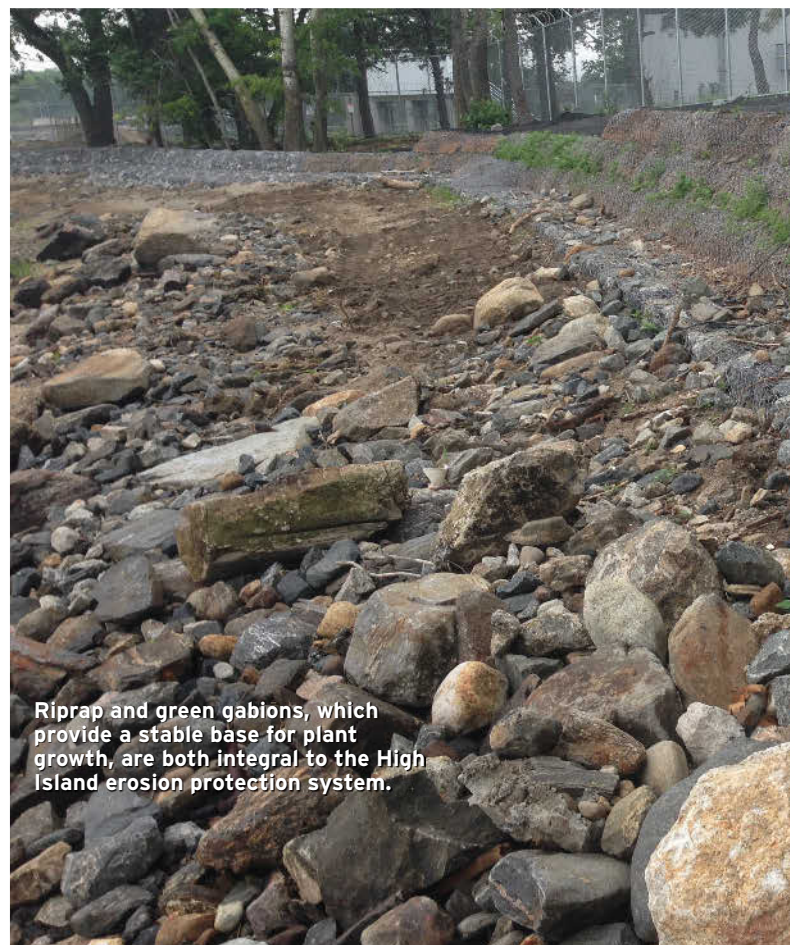
Ultimately, gabion mattresses—wider and thinner than the standard gabion basket configuration—strategically located on the southerly end of the island provided the needed stability.

"These are more flexible, so if the soil does begin to erode, the mattress drapes down and continues to limit the potential for undermining," says Biesiadecki.

The High Island waterfront restoration was completed in 2016. The living shoreline and plantings continue to be monitored for survivability and growth together with the performance of the shoreline protection.



Gregory Biesiadecki
Principal
Langan



Riprap and green gabions, which provide a stable base for plant growth, are both integral to the High Island erosion protection system.





Baltimore's renovated historic Recreation Pier is now home to the three-level, 128-room luxury Sagamore Pendry Baltimore Hotel.

Mixing Heritage and Elegance

PROJECT: SAGAMORE PENDRY
BALTIMORE HOTEL
BALTIMORE

FIRM: WHITNEY BAILEY
COX & MAGNANI
BALTIMORE

Baltimore's Recreation Pier opened in 1914 as a commercial pier. Located in Fell's Point, across the river and just a mile upstream from historic Fort McHenry, Rec Pier was put to many uses over the years. Following World War II, it served as part of the country's second-largest point of entry after Ellis Island. By 2014, when Sagamore Development purchased the property, 15 years of continuous deterioration and disuse had turned the once-iconic headhouse and pier into a derelict structure.

Today it has been transformed into a three-level, 128-room luxury hotel that features world-class amenities while preserving a key part of the area's history.

Whitney Bailey Cox & Magnani

(WBCM) provided a complete structural, civil and marine engineering package for the renovation of the historic pier, and coordinated the design between the architect and the engineers.

The pier's status as a registered historic building by numerous entities dictated many of the renovation parameters.

"We had to retain the steel substructure of the warehouse, as well as the entire headhouse, and renovate those," says Mark Shafer, executive vice president with WBCM. "We could not just demolish the entire pier and build new, which probably would have been easier."

WBCM's innovative design reused the existing structurally deficient pier as formwork for a new pier. New piles were driven through holes cut in the existing pier, and a new 24-inch structural concrete deck was poured in two 12-inch lifts. The new structural two-way slab encapsulated all base plate connections of the existing historic columns and transferred the load to the new pile caps. The fast land bulkhead portion of the old pier was encapsulated with new steel sheet pile



Mark Shafer
Executive Vice President
WBCM

bulkhead and concrete cap beam with a soil anchor and transverse tie rod system. The combination of the bulkhead section and pier marine structural renovation accommodates the hotel, an

interior courtyard, an extended deck and an integrated infinity pool.

The headhouse work included restoring, replacing or reconstructing all brick and stonework and all wooden windows and interior restoration. After determining the structural integrity of the existing structural steel framing, WBCM incorporated much of it into the hotel design. A new second hotel floor was placed between the existing first floor and the high bay roof, and the existing high bay roof framing was modified and reused to support the hotel's third floor—both key elements in meeting the requirements of the Maryland Historic Trust.

Also, the at-grade level of the renovated structure was raised 3 feet to get above the 500-year Design Flood Elevation, and the exterior of the building was flood-proofed above the 500-year Flood Protection Elevation.

Preserving Coastal Heritage

PROJECT: WOOD ISLAND LIFE SAVING STATION AND WATERFRONT RESTORATION
KITTERY POINT, MAINE

FIRM: TIGHE & BOND
PORTSMOUTH, NEW HAMPSHIRE

Situated on a small rocky island at the mouth of the Piscataqua River, between New Castle, New Hampshire, and Kittery, Maine, the Wood Island Life Saving Station for many years served as a base for those who went to the aid of mariners in distress in this busy shipping channel. Built in 1908, the station later was used to defend the harbor, then decommissioned after the end of World War II.

In 1973, the Town of Kittery took possession of the island from the federal government. The station had been unused and vacant since 1948 and continued to deteriorate until the Wood Island Life Saving Station Association (WILSSA) spearheaded a renovation effort.

The project includes restoration of the original station building, a dock and marine railway for lifeboats and replacement sea walls. WILSSA plans to establish a public maritime museum in the fully renovated station and build a replica lifeboat that can be launched from the station's restored marine railway.

The most recent phase of the project, completed in the summer of 2018, was the restoration of the badly deteriorated sea wall along the island's north side. Logistics were a major challenge. All equipment and materials had to be brought in by barge, timed to coincide with the tides, which made transporting concrete trucks very difficult. Because of that, the use of cast-in-place concrete was limited to rebuilding the sea wall foundation. Massive blocks of precast high-performance concrete were then placed and tied together using fiberglass rebar dowels secured with epoxy to form the sea wall.

"The sea levels traditionally have been rising about a foot every hundred years," says Duncan Mellor, principal coastal engineer with Tighe & Bond. The firm did sea wall assessments for WILSSA in 2012 and subsequently provided full permitting and design for the entire

waterfront restoration. "Because we have already had a foot of sea level rise since the original sea wall was built, and the point of the project is to protect the island for the future, we made the new wall 2 feet higher than the old one."

The Maine Army National Guard's services were instrumental to the rapid construction of the north sea wall.

"The challenging location of the project—a small island off the coast of Maine—and the type of work involved were two of the things that appealed to the guard," Mellor says.

Approximately 60 members of the guard's 136th Engineer Company spent the month of June participating in an Innovative Readiness Training to provide cost-free construction labor for the sea wall project. The guardsmen set up a temporary camp at nearby Fort Foster and worked seven days a week, donating approximately \$500,000 in equivalent wage labor. Besides rebuilding the sea wall and importing 600 tons of rock fill, they also rebuilt the historic shed and installed rough electrical and plumbing throughout the station. ■

Tom Klemens is a freelance writer based near Chicago and is a registered Professional Engineer in Illinois.



Duncan Mellor
Principal Coastal Engineer
Tighe & Bond

Large precast concrete blocks were stacked and connected with drilled-in dowels to create the new sea walls on Wood Island.



GETTING INTO

THE FLOW

ENGINEERING FIRMS ARE ADOPTING FLOW EFFICIENCY, AN OPERATIONAL METHOD THAT USES LEAN PRINCIPLES, AS A SMARTER WAY TO MANAGE PROJECTS AND PEOPLE

BY BOB WOODS



Three years ago, AKF Group, located in Boston, began looking for a different way to run its business.

The consulting engineering firm was plagued by escalating payroll costs while client fees remained flat, a dilemma that was cutting into profitability. That is when AKF first experimented with flow efficiency, a client-centric management strategy that emphasizes step-by-step completion of a project instead of relying solely on the traditional utilization method, which focuses on the daily tasks of each individual involved with a project.

"We started with a pilot program involving my eight-member team that looked at how we could improve our on-time delivery rate," says Jay Ierardi, a partner in charge of AKF's architectural code consulting service. The group determined its on-time rate to be 75 percent and wanted to raise it to 100 percent.

"We found a bottleneck in QAQC [quality assurance, quality control], which was dependent on senior project managers who were in and out of the office and not always available," says Ierardi. "But rather than scrutinizing those individuals, the team attacked the process. We started doing peer-to-peer QAQC, which required just a second set of eyes and not necessarily a senior person."

The procedural change relieved the bottleneck and quickly shot the on-time rate to nearly 100 percent. "We have been operating since at 97 percent," says Ierardi. "We need to manage our workload according to clients' expectations."

That may sound rudimentary, yet it is not historically how the A/E world operates, says Mark Goodale, a principal and co-founder of Boston-based Morrissey Goodale, LLC, a management consulting and research firm that advocates Lean as an operating strategy for the A/E space. "To be a Lean organization, three things need to be in play—a preference to flow efficiency over resource efficiency, investigating disruption to that flow and continuous improvement." A special mindset is required, however. While this industry is made up of great problem solvers, great problem finders make it possible. But mindsets do not change overnight. First, new practices need to be introduced and adopted—then the mindset will follow.

FLOWING FROM LEAN

The tenets of flow efficiency are linked to the Lean manufacturing principles established in Japan, most notably by Toyota in the 1980s.

“U.S. auto manufacturers used to view machine downtime as waste. Similarly, the A/E industry views low utilization as waste. However, Toyota had a different perspective. They saw waste as, for example, a system that produces a defect without anyone flagging it, or even noticing it in the first place. The same can be said for utilization in the A/E industry. High utilization does not necessarily translate into great value generation. In an effort to drive up utilization, people will often jump on a task that is not ready to be started and finished (e.g., more information is required from the client), resulting in rework. Therefore, utilization can be a poor proxy for production in an A/E firm,” says Goodale.

The same principles can apply to A/E firms, Goodale notes, most of which operate under utilization or resource efficiency, which measures the percentage of time that each engineer spends performing billable work. A utilization rate of around 67 percent is considered good; the rest of the time is spent on nonbillable activities, such as business development or training. Flow efficiency is calculated based on the actual work time measured against the total wait time. A higher percentage results in better and smoother project performance.

According to analysts, firms that focus on utilization efficiency have a flow rate of around 15 percent, which means that 85 percent of project time is spent waiting for a team member to do something. Flow efficiency can bring that rate up to about 40 percent, contributing to a better bottom line and improved client satisfaction.

“Professional service firms that adopt Lean may achieve 30 percent shorter project durations and spend 10 percent fewer hours expended on those projects,” says Goodale.

Even so, this is not an either/or proposition, according to Goodale. “Rather, it is about giving preference to flow over utilization efficiency. You need both. Essentially, what you are trying to do is make sure that when you are given a task, you can start it and finish it, uninterrupted,” he says. In other words, make the work ready for people and the people ready for the work.

STOP STARTING, START FINISHING

Indeed, “stop starting, start finishing” is the mantra of the flow movement. It is also the title of the appropriately lean (36 pages) but succinct illustrated booklet *Stop Starting, Stop Finishing!* by Arne Roock that has become a handbook for adopters. The adage ties into multitasking, although the ability to do multiple things at the same time is not necessarily efficient.

“I have come to realize that engineers historically looked at multitasking as a badge of honor,” says Jeff Romeo, executive

What Is the Kanban Method?

Kanban is the Japanese word for sign or billboard. As co-opted into Lean principles developed by Japan's manufacturers during the 1980s, the word refers to the visual way of improving how work is planned and delivered.

“It allows you to track the flow of projects and to see when and where they are getting blocked, and creates opportunities for people to collaborate to solve the problem,” says Mark Goodale, principal and co-founder of Morrissey Goodale.

LEAN CONSULTANT AND TRAINER JULIA WEBSTER OFFERS A TWO-PART DESCRIPTION OF KANBAN:



1 A way to organize the chaos that surrounds so many delivery teams by making the need for prioritization and focus clear.



2 A way to uncover workflow and process problems so you may solve them in order to deliver more consistently to your clients.

Applied to A/E work, the **kanban method** is central to flow efficiency, providing everyone working on a project with an illustrated pathway to every step of progress and process, from start to finish, typically with a **Kanban board**.



There are several free computer software and mobile apps recommended for A/E firms that adopt flow efficiency with the help of Kanban boards—Trello, Kanbanize and Microsoft Office 365 Planner.



vice president at Fitzmeyer & Tocci Associates, Inc., in Woburn, Massachusetts. “But that is not really the way humans are able to work. You have to get good at task switching and the concept of stop starting and start finishing. We are getting away from rewarding multitasking. It is work smarter, not longer or more.”

Romeo refers to Fitzmeyer & Tocci’s refined approach to project planning as the best example of how the firm has introduced flow into its operations over the last few years. It utilizes the so-called kanban method, an outgrowth of Lean, which is basically a visual way of improving the way work is planned and delivered. At regular standup meetings, a Kanban board, produced with Microsoft Office 365 Planner, illustrates each project’s workflow across the entire company, from managers to designers.

“Kanban has enabled our project delivery teams to have a clear picture of the next activity that needs to be worked on,” Romeo says. “The idea is that once we have completed a task, there should not be a lot of wondering what the next value-added task is.”

As a result of a focus on flow efficiency, Fitzmeyer & Tocci’s on-time delivery has dramatically improved, according to Romeo. RFIs have been reduced, and the latest round of employee performance reviews has led to 20 percent of staff earning promotions, a sizable increase from the past.

Fitzmeyer & Tocci uses a balanced scorecard, involving clients, employees and the firm to measure the success of Lean principles including flow efficiency, according to Romeo. Clients are looking for technical excellence and innovative solutions. “We are always looking for continuous improvements to our processes,” he says.

For employees, it is about increasing the rate at which they are learning to create growth opportunities. And as for Fitzmeyer & Tocci, it is they are eliminating waste and focusing on completing value-added activities. “It is a competitive industry, and we need to constantly improve our processes and efficiencies to make sure we can continue to create innovative solutions for our clients while being an employer of choice with a strong balance sheet,” says Romeo.

THE KANBAN METHOD

Clark Nexsen, a Virginia Beach-based A/E firm, launched its flow efficiency journey in 2017. “We started with the kanban method to improve the processes in how we did our work,” says Bill Keen, the company’s chief innovation officer. “People were working too hard, and we felt we could be better.”

According to Keen, the visualization procedure exposed repeated bottlenecks, which led to strategies for mitigating them. “We have an abundance of work that can only be done



“We have an abundance of work that can only be done by a few people in the organization... When we see things that are interrupting their workflow, we attack those things collaboratively to get the work flowing again...”

BILL KEEN
CLARK NEXSEN

by a few people in the organization. So now, when we see things that are interrupting their workflow, we attack those things collaboratively to get the work flowing again or improve how we are doing things. It is a very powerful tool for us,” he says.

Without citing exact numbers, Keen says privately owned Clark Nexsen has seen improvements in profitability. He is also seeing happier people in the firm. “In today’s world, people have demands outside of work, so we have to be more effective in how we do things. We can avoid that by not taking on risk before we have what we need to finish it. We still make mistakes, but we try to avoid imposing them on ourselves through bad habits,” says Keen.

The A/E industry is in the early stages of widespread adoption of managing for flow efficiency, according to Hal Macomber, formerly with Lean Project Consulting, Inc., and now head of Macomber Consultants in Campton, New Hampshire, which works closely with Morrissey Goodale, LLC.

“The nice thing about the kanban method is that it is not a big change. You start with what you are doing and make small changes. It is an experimental and evolutionary approach,” says Macomber. Morrissey Goodale also advises reaching out to A/E firms that have already made the leap to Lean for guidance.

Following its successful pilot program, AKF Group has initiated flow efficiency throughout its organization, comprising about 50 people. Ierardi admits there

was some resistance from individuals who did not see the correlation with Lean manufacturing roots and feared learning another piece of software or worried it would mean more work for them.

“It can be difficult to implement at A/E firms because we are changing the way we have always done things and that have served us well,” says Ierardi. Individuals have to let go of long-standing command-and-control management styles and learn to rely on interaction among the whole team. “New ideas are very fragile, and they need strong champions and support to take hold,” he says.

Clark Nexsen has not yet featured flow efficiency in its hiring process and onboarding. “We are creating a value system for the firm,” says Keen. “You want to learn as you do your work, to continuously improve and look for ways to do something better than last time. We are teaching ourselves, in a way, to always be dissatisfied. We always want to be better.” ■

Bob Woods is a technology and business writer based in Madison, Connecticut.

PROSPECT AND THREATS

BY STACY COLLETT

ACEC Coalition leaders point to new technologies and improved infrastructure funding in some states as having major impacts on engineering markets



Geoprofessionals such as **Chuck Gemayel, chair of the Geoprofessional Coalition** and COO and senior vice president of SME, consider themselves leading indicators in the construction industry. Geoprofessional engineers provide such services as foundation engineering and support; construction and materials testing; and retaining structural design.

"If we are not busy, the remaining phases of the projects typically do not happen or are delayed," he says. From his first-on-the-scene vantage point, "most firms in our industry have a good backlog, which is a good sign for the rest of the industry."

Indeed, economic growth and a surge in project activity are good news for the engineering industry as a whole—as well as the specialty units that lend their unique expertise to projects.

The leaders of ACEC's seven coalitions say that new technology, increased project funding by state and local governments, and maturing delivery methods will create new opportunities for Member Firms in the coming year. However, some familiar threats still loom, such as unlicensed competitors, outdated bidding practices and the perpetual shortage of skilled engineers.



Chuck Gemayel

STATES STEPPING UP

With the fate of federal infrastructure funding still uncertain, large firm leaders are encouraged by a wave of revenue-generating ballot initiatives that raise gas or sales taxes to fund infrastructure. "So far, 27 states have raised or changed their gas tax structure to

support and fund transportation infrastructure programs, and that is just in the last five years," says **Greg Kelly, chair of the Design Professionals Coalition (DPC)** and president/CEO of U.S. and Latin America at WSP USA. Missouri will also ask voters this November for a 10-cent gas tax increase.

"When voters are asked for a tax increase to fund specific transportation projects, the success rate is around 70 percent," says Kelly.

Some states are also asking voters to create a lockbox around transportation funding, where funds designated for transportation projects cannot be used for unrelated projects. Illinois and New Jersey voted in 2016 to support protecting their dedicated funds, and Connecticut is asking the same thing of voters in November, according to Kelly.

TECHNOLOGY CREATES EFFICIENCIES

Technology continues to create many new growth opportunities for Member Firms, most notably

for surveyors, who are vastly improving safety and efficiency by using unmanned aerial systems or drones, according to **Larry Truman, chair of the Council of Professional Surveyors (COPS)** and vice president of Michael Baker International.

"The Federal Aviation Administration (FAA) is working to integrate the drone systems into U.S.

airspace. When that happens, it will be easier to use drones on day-to-day applications for our field surveyors—with quicker topographic mapping, which is easier than a manned aircraft," says Truman.

Currently, the FAA allows drones to be used beyond the line of sight of the operator, as long as the operator has a permit, but getting one is difficult. "If you are in an urban area or near an airport with restricted airspace, it could take longer," says Truman. "The current administration is pushing to relax these rules."

On the flip side, COPS members are fighting off competing organizations

that use nonlicensed surveyors. "The situation is worse than last year because the technology has become more commoditized and easier to use," says Truman.

New technology in the mechanical engineering field is also creating greater opportunities, and a fair share of challenges for the **Council of American Mechanical and Electrical Engineers (CAMEE)** coalition members.

It is widely known how Building Information Modeling (BIM) and 3D laser scanning can greatly increase the speed and accuracy of projects, but the technology and its uses are expanding quickly, and some firms are in a struggle to keep up, according to **Jeff McBride, chair of CAMEE** and principal at EBL Engineers.

"Entering the BIM market is daunting because it is a big jump. There is a huge learning curve for the firm," says McBride. "A lot of firms—if they were not being required to submit a final bid in the form of a BIM model, they probably would not go there. But those who have gotten over the learning curve will now do it in that platform whether they are required to or not. You do not get to charge a premium for a BIM model, but it is just a more efficient way for them to do business."

CAMEE helps its members keep up with BIM and 3D laser scanning developments by updating and adding to its toolkits, and hosting roundtable discussions at ACEC events. "We can allow people to free-form questions and concerns about their business and talk with firms from the other side of the country who they do not view as competitors," says McBride.

DELIVERY METHODS MATURE

Structural engineers are seeing a maturation of delivery methods, such as design-build and public-private partnerships, which has led to growth opportunities, according to **Corey Matsuoka, chair of the Council of American Structural Engineers (CASE)** and executive vice president of SSFM International.

"Design-build used to be pursued by more risk-tolerant companies, but now more firms know what is expected, and more of our members are getting



Jeff McBride



Greg Kelly



Larry Truman

involved in design-build,” says Matsuoka. “P3s and other collaborative delivery models are not very common yet, but there are opportunities, and CASE members are taking advantage of these projects.”

One of the most pressing threats facing the discipline is the debate over the role of government in regulating occupations and professions, according to Matsuoka. “While occupational licensing can include barbers, cosmetologists and the like, it is not uncommon for state legislatures to lump highly educated and trained professionals such as professional engineers in the same category,” he says. Model legislation has been introduced in several states that will eliminate licensing requirements, including those for professional engineers, according to Matsuoka.

Some 32 states currently report threats to professional licensure requirements, according to the National Society of Professional Engineers. “It is scary to think that a bridge or building could be designed by someone who is not a professional structural engineer,” says Matsuoka.

Gemayel says geoprofessionals face a similar lack of respect for their expertise and hopes to bring industry-wide attention to some of their challenges. These include unreasonable liability and contract requirements on some projects, and selections based on low bids versus value add. Gemayel’s goal is to get geoprofessionals a seat at the planning table. “If we are sitting at the table listening to what the project team is planning on and communicating those added values and, as a partner, bringing up concerns, then they could plan and budget time and money,” says Gemayel. “When they discount that phase, that is when things can go haywire.”

SHRINKING BUDGETS

Land developers face shrinking budgets for consultant work, which is impacting Member Firms, according to **Lenny Reidling, chair of the Land Development Coalition (LDC)** and vice president of business and strategic development at Guida Surveying.

“As our homebuilding and commercial clients face monetary issues with labor and material costs, together with entitlement fees, permitting and impact fees, there is little left in the budget for a consultant fee,” says Reidling. LDC and other coalitions also cite the ongoing skills shortage as a continuing problem for their organizations.

“Our industry feels the impact from a young workforce whose mentors are few and far between, creating project managers with limited experience,”

says Reidling. “As an industry, we need to focus on adapting to the changes in our personnel, be fixated on those who are capable of leadership and have a business mindset. Our clients too are challenged with similar issues and, like us, must adapt to the change in this business environment.”

Karen A. Friese, chair of the Small Firm Council and president of K. Friese + Associates, says Small Firm Council members face similar challenges. “The most pressing issue for small firms today is finding talent. The economy is unbelievably strong, and every small firm I know is desperately looking for engineers at all experience levels,” she says.



Cory Matsuoka



Lenny Reidling

Retaining top employees goes hand in hand with hiring challenges, adds Friese. “It is not just about salary and good benefits, like affordable health care, but about providing opportunity for professional development, connection and a sense of purpose in your firm. Small firm owners are challenged on all fronts right now just trying to keep up,” she says.

Coalition chairs share a similar theme of collegial learning that is central to their goals—sharing




Karen A. Friese

tools and information, learning from others and advocating in numbers. “As firms we compete; however, as professionals we are collegial,” says Kelly. “This enables us to join forces and participate in legislative and regulatory advocacy efforts.” ■

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

SUMMERT



Megan Wroclawski, project engineer, and Alyssa Chavez, project assistant, pot plants in Chicago's Garfield Park Conservatory as part of Benesch's Summer of Service.

TIME

When the weather heats up, employees at Alfred Benesch & Co. roll up their sleeves and get to work in their communities

AND THE GIVING IS EASY

BY CALVIN HENNICK

For years, employees of Alfred Benesch & Co. participated in charitable endeavors throughout the company's 33 U.S. offices, but there was no central, organized program to support volunteering and fundraising.

All that changed in 2015 when the Chicago-based professional services firm surveyed company employees to find out what it could do to enhance employee engagement. Among other ideas, employees put their voices behind giving back to their communities.

And Benesch listened.

Benesch dedicated an annual \$100,000 budget toward corporate social responsibility programs. While these programs range from scholarships to food drives, employees devote much of their energy and excitement to a program called Summer of Service, which encourages workers at each branch office to volunteer during the summer months for a cause that is important to them and their community.

"We want to get people out there, giving back, getting their hands dirty and digging in," says Amanda Rackow, director of marketing for Benesch, who served as the first chairperson for the company's corporate social responsibility committee, until her term ended earlier this year. "We encourage every office to come up with an activity of any kind, anything that pulls at their heartstrings."



Benesch employees from the Chicago office participate in the Summer of Service at the Garfield Park Conservatory.



Employees of the Benesch Lincoln, Nebraska, office paint a local house as part of the BuildUP Nebraska Lincoln Paint-a-Thon, an annual event that brings together teams of volunteers to paint houses for people in need. Building a brighter community, one bucket of paint at a time.

Rackow says the Summer of Service initiative is helping to motivate employees throughout the company to volunteer and to cement corporate social responsibility as part of the company's culture. In 2017, over half of the Benesch offices participated, and the company publishes an annual review, so employees can see their collective impact.

"It is not like volunteer work was not happening before," says Rackow. "It was, but mostly on an office-by-office basis, and it needed a local champion. The firm realized that if we just put structure around corporate social responsibility, there would probably be more people who would get engaged, and that is exactly what happened."

INSTANT IMPACT

Benesch's Lincoln, Nebraska, branch has rotated its Summer of Service activity each year. In 2017, employees spent a day sprucing up a local house with the BuildUP Nebraska Paint-a-Thon. The event gathers volunteers to paint the exteriors of houses whose owners are not physically or financially able to do the job themselves.

Approximately 15 Benesch employees teamed up with other volunteers to repaint the home of an elderly man with advanced Alzheimer's disease. When volunteers arrived, the white paint on the home was chipped and peeling; by the end of the day, the entire house gleamed with a fresh coat. "In one day, we flipped the outside of his house," says Emily Molloy, regional marketing manager in Benesch's Lincoln, Nebraska, office and coordinator of the branch's corporate social responsibility program. "We stripped off all the paint and put on new paint, which completely gave this house a face-lift."

Marshall Ford, executive director of BuildUP, says that homeowners often burst into tears when they receive the call letting them know their houses will be repainted. According to Ford, many have lived in their homes for decades and take pride in them, but they simply cannot afford the cost to have them painted professionally.

"The nice thing about painting a house is, it is low-skill," says Ford. "The impact is instant. The feedback that we have gotten from the volunteers is that they love the teamwork aspect of it, getting outside, being able to move around and seeing the reaction from the homeowner."

Molloy says that the homeowner's wife was "thrilled" to have the team's help, and that her enthusiasm helped employees grind through a hot day of hard work. "She was



Benesch employees, family and friends (above) take a break during the BuildUP Nebraska Lincoln Paint-a-Thon.

not happy about the condition of her home, and there was not much she could do about it because she was dealing with her husband's advanced Alzheimer's, which was taking her time, money and effort," says Molloy. "It was peeling all over the place. It was in really bad shape compared to the homes nearby."

At the end of the day, the freshly painted house was a source of pride not just for the couple but for the volunteers who worked on it, as well. "It was a good feeling to come together and accomplish something that would be really hard, or even impossible, to do on your own in just one day," says Molloy. "The impact we made for that homeowner was huge."

BUILDING RELATIONSHIPS

Ryan Fasnacht, a project manager who helps coordinate volunteering at Benesch's Pottsville, Pennsylvania, office, says the Summer of Service initiative has encouraged employees to continue existing charitable programs and initiate new ones. The branch has a relationship with the Schuylkill United Way that predates the Summer of Service program. Through that partner-

ship, employees have volunteered with the Salvation Army and a Boy Scout camp in recent summers, completing landscaping work and performing maintenance tasks. But the Summer of Service also spurred the branch to adopt a stretch of highway where employees clean up litter twice a year.

"Because the company has focused on corporate social responsibility, it reinforces people's involvement," says Fasnacht. "It has spurred on participation. We are blessed to have a good employer and to have flexible working hours to be able to donate our time."

The highway cleanup days typically attract between 10 and 20 employees, according to Fasnacht. Over the course of an afternoon, they might collect 20 garbage bags full of fast food packaging, drink bottles and miscellaneous wastepaper. Fasnacht says the events allow Benesch workers to get to know each other better outside of a work setting. The hands-on nature of the volunteer work, he says, makes people feel more connected to their community than other types of giving back, such as financial donations.

"It engages you more, knowing that there is a direct benefit to the community," says Fasnacht. "You are building a relationship not only with the people you are working with but also with the people you are doing the service work for."

STAY CONNECTED-RETURN WORK

Several Benesch branches, including those in Chicago and Milwaukee, have worked on conservation and landscaping projects at parks near their offices, giving employees the chance to not only work alongside one another in the fresh air but to see the results of their efforts over time.

During the past two summers, employees in Chicago have worked with the Garfield Park Conservatory, planting trees, picking up trash, clearing land and taking down an old fence. "We planted trees in 2016, and when we went back in 2017, we got to see them again and see what they did with the area," says Alyssa Chavez, a project assistant in the Chicago office. "It



"Because the company has focused on corporate social responsibility, it reinforces people's involvement."

RYAN FASNACHT
ALFRED BENESCH & CO.

is a great bonding experience. The president of our company was out there, sweating and doing his part, along with someone who might have just started at the firm a few weeks before. Them working together and getting to know each other while volunteering, that is really important."

Employees in Milwaukee have volunteered for several years with the Urban Ecology Center, pulling weeds and putting in native plantings at Three Bridges Park. The firm originally performed paid engineering services on the project that converted the 25-acre abandoned rail yard into green space. Bill Zippel, a project manager and structural engineer in the Milwaukee office, says the volunteer work has allowed employees to stay connected to the land.

"We really enjoy seeing the changes and seeing that our efforts are making a difference," says Zippel. "We all bring our kids along, and everybody gets to teach their kids about planting and nature. It is a great opportunity."

"We have a long relationship with the Urban Ecology Center—not just with the people, but watching the plantings take shape over the years," says Zippel. "We have asked around to see what folks want to do, and everybody says, 'Let's keep going there.' I do not see that we are going to stop anytime soon." ■

Calvin Hennick is a business, technology and travel writer based in Milton, Massachusetts.

Seasons of Love

Benesch's charitable efforts do not end when summer does. In addition to the Summer of Service, the company sponsors the following programs:

Matching Gift Program

Benesch provides a dollar-for-dollar match on employee charitable giving, up to \$500 per employee, per year. In 2017, the company matched \$26,438 in employee contributions, including over \$7,000 in donations specifically for Hurricane Harvey victims.

Scholarships

The company awarded \$18,000 in college scholarships in 2017, including five awards totaling \$3,000 for Benesch interns.

Key Partner Program

The Key Partner Program provides financial support for organizations with close ties to the engineering industry, including Engineers Without Borders and the ACE Mentor Program.

Dollars for Doers

This program supports organizations where Benesch employees volunteer on their own time. If an employee puts in 60 hours of time with a charitable organization in a year, Benesch will contribute \$250 to that organization.

Food Drive

Twenty-four Benesch offices participated in the company's food drive last year, donating more than 18,000 food items.

Holiday Giving

Six Benesch offices annually participated in holiday giving initiatives, mostly providing gifts through Adopt-a-Family programs.

2018 ACEC Young Professionals of the Year

At this year's Fall Conference in Las Vegas, ACEC presented five engineers with the Young Professional of the Year Award. The recipients were selected by the College of Fellows for their outstanding contributions to the engineering profession despite being in the early stages of their careers.



RAINE GARDNER
SENIOR PROJECT ENGINEER
MSA Professional Services, Inc.
Baraboo, Wisconsin

Gardner's passion to incorporate and feature accessibility and ADA compliance into park, recreation and open space design led MSA to create an internal Parks and Recreation Community of Practice. As the first chair of the practice, Gardner, 35, leads a team of 25 professionals spread across the firm's 16 offices.

Because of its focus and multidisciplinary composition, the MSA's Parks and Recreation Community of Practice has been successful in winning several large and complex park projects. She has been very active inspiring girls and young women to consider careers in engineering, frequently speaking at local grade, middle and high schools, as well as community organizations and summer camps.

In recognition of her contributions to the firm and the profession, Gardner was named to the MSA Board of Directors in 2017.





AARON GROTE

SENIOR PROJECT ENGINEER

Lamp Ryne, Omaha, Nebraska

Despite being just 34, Grote has worked at Lamp Ryne for 15 years, starting as an engineering intern and progressing to senior project engineer. He has written a series of “how-to” documents that act as step-by-step guides for the setup, design, review and management of a successful project.

Grote is also a co-leader of Lamp Ryne’s Early Career Professionals Group created for employees under age 40. The group meets regularly to discuss challenges and difficulties for young professionals at the firm.

For the past two years, he has served as president of the Nebraska chapter of the Design-Build Institute of America, developing and supporting activities to educate industry professionals regarding the multiple project delivery methods that are available.

KURT LYSNE

WATER RESOURCES GROUP LEADER

Moore Engineering, Inc., West Fargo, North Dakota

Lysne, 34, has rapidly climbed up the corporate ladder. He began as an intern with a specialty in water resources engineering. Three years ago, he was promoted to project manager, working with clients and residents to complete millions of dollars of flood risk reduction projects.

In 2016, Lysne became group leader of the Water Resources team, leading 18 engineers and technicians. In that same year, he was named Young Engineer of the Year by the North Dakota Society of Professional Engineers and recognized as one of *Prairie Business* magazine’s 40 under 40.

Through his participation in the Fargo Moorhead West Fargo Chamber of Commerce’s leadership program, Lysne co-founded Financial Planning Day, a local event that improves the community by enhancing financial literacy.



EDWARD “EDDY” ROBERTS

SENIOR ASSOCIATE

LERA Consulting Structural Engineers, New York, New York

Roberts, 35, served as project manager for the structural design of two super tall towers—the Lotte World Tower in Seoul, South Korea, the fifth tallest building in the world (555 meters); and PNB 118 in Kuala Lumpur, Malaysia, which will rise to over 600 meters upon completion.

Roberts has also worked with many distinguished architects on projects, including the Temple University Library with international design firm Snøhetta, the Miho Institute of Aesthetics Chapel with I.M. Pei and Richard Serra’s “7” sculpture.

For the past 10 years, he has both participated and led LERA’s team for Construction New York, an annual charitable event in which teams of architects and engineers compete to build freeform, larger-than-life sculptures made entirely from unopened cans of food, which are then donated to help feed those in need.

ANDREW WOODROOF

SENIOR PROJECT MANAGER

Digital Engineering, Kenner, Louisiana

Woodroof, 32, joined Digital Engineering as an intern, working his way up to senior project manager. He worked on projects such as St. Bernard Parish Drinking Water Infrastructure Improvements, Jefferson Parish Municipal Separate Storm Sewer Program Management, New Orleans Broadmoor Green Infrastructure and Drainage Upgrades, and Southeast Louisiana Flood Protection Authority Levee Lifts.

While working at the firm, he completed his master’s degree at Louisiana State University, the first graduate in the coastal engineering program. He is director of programs for the Coasts, Oceans, Ports and Rivers Institute, was named the Outstanding Young Civil Engineer by ASCE New Orleans and received ACEC/Louisiana’s Robby Cangelosi Award, which recognizes young engineers who contribute to the profession and their community.



2018 M&A a Seller's Market...Maybe

BY JACKSON WALSH

Entering the fourth quarter of 2018, it would appear to be a seller's market for consulting engineering firms. Fueled by a surging economy, insatiable demand for services in the public, private and institutional sectors and a lack of qualified talent, mergers and acquisitions are at an all-time high—up 20 percent over last year.

Furthermore, firm valuations are at eye-popping levels. The upper quartile multiple on EBITA (earnings before interest, taxes, depreciation and amortization) in the Morrissey Goodale deals database is north of seven times.

But not all firms are created equal when it comes to either finding a buyer or getting a top dollar deal. Here are some observations from the field.

Location, location, location. All things being equal, firms in high-growth regions with robust economies and fewer regulations tend to see higher demand. That is good news for firms in the Southeast and Texas, which are seeing interest from national buyers that want to enter or beef up their presence in these regions.

Be special. Firms that offer traditional, nonspecialized design and engineering services to any client that walks in the door do not command a premium and see relatively less demand. Firms that have a defined and visible service specialization, or that serve a particular in-demand end market, consistently see higher demand in the market, resulting in higher prices and better terms.

Do not be a commodity. Every firm bemoans the commoditization of consulting engineering services. Smart buyers are becoming less and less inclined to invest premium acquisition dollars in services that will continue to be commoditized. Instead, they are seeking out firms that understand big data, technology and map-

ping solutions for the built environment. Buyers are prepared to spend big for these firms.

Be strong. It does not matter if you are in the hottest region, have the most specialized services and understand how to apply artificial intelligence to infrastructure problems better than competing firms if you cannot show a healthy bottom line and a robust backlog. Firms that have a strong documentable track record of earnings, smart investments and a positive outlook get to secure the premium deal structures and prices.

ACEC DEAL-MAKERS

SEPTEMBER 2018

ACEC member **Century Engineering, Inc.** (Hunt Valley, Md.), acquired full-service right of way consultant **Interstate Acquisition Services** (Pittsburgh). Century Engineering is a multi-disciplined consulting engineering firm serving the buildings, transportation, environmental, water and power markets.

Atlas Technical Consultants (Austin, Texas) acquired ACEC member **Piedmont Geotechnical Consultants** (Roswell, Ga.). The acquisition of Piedmont's 50 employees brings Atlas' total staff to nearly 1,200 across 30 offices in the U.S. Atlas is backed by Bernhard Capital Partners.

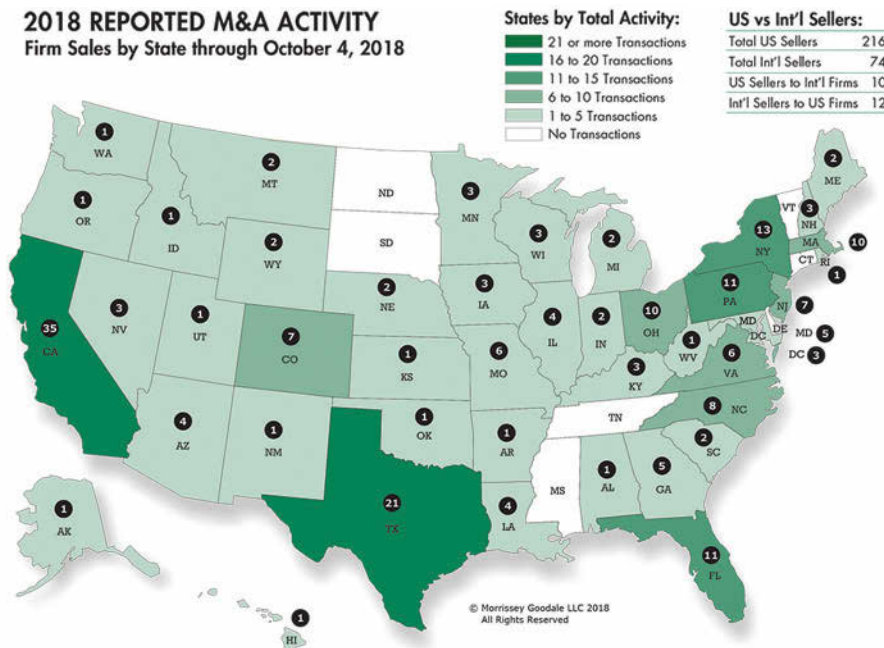
Civil engineering firm **CT Consultants** (Mentor, Ohio), an ACEC member, acquired **Aerocon Geospatial Services** (Willoughby, Ohio). Aerocon provides aerial photography, digital mapping, orthoimagery and geospatial services.

ACEC member **McAdams** (Durham, N.C.), a civil engineering and design firm, merged with **G&A Consultants** (Lewisville, Texas), a civil engineering, land planning, surveying and landscape architecture firm. G&A will operate as G&A | McAdams during the transition.

Gannett Fleming, Inc. (Camp Hill, Pa.), acquired **KEH & Associates** (San Marcos, Calif.), a water and wastewater engineering firm. Both firms are ACEC members.

2018 REPORTED M&A ACTIVITY

Firm Sales by State through October 4, 2018



AUGUST 2018

ACEC member **Stantec** (Edmonton) signed a letter of intent to acquire **True Grit Engineering** (Thunder Bay, Ontario), a provider of infrastructure engineering, project management and environmental services. The two firms have a previous working relationship via Stantec's Winnipeg office. The transaction is expected to close in the fourth quarter of 2018.

ACEC member **LandDev Consulting, LLC** (Austin, Texas), acquired **CivilE** (Austin, Texas). LandDev is a civil engineering and communications consulting firm. The combined firm will operate as LandDev Consulting.

ACEC member **Davis & Floyd, Inc.** (Greenwood, S.C.), acquired **CCAD Engineering** (Greenville, S.C.), a provider of civil and site work engineering. Davis & Floyd has been in operation for more than 60 years.

ACEC member **NV5** (Hollywood, Fla.) acquired Southeast transportation and infrastructure firm **CALYX Engineers and Consultants** (Cary, N.C.). The \$36 million acquisition, completed with a combination of cash and stock, will be immediately accretive to NV5's earnings and will add 200 employees to NV5's staff.

ACEC member **Milone & MacBroom** (Cheshire, Conn.) acquired **HTE Northeast, Inc.** (Bedford, N.H.), an environmental and geotechnical engineering firm. The addition of HTE Northeast brings Milone & MacBroom to 175 staff offering engineering, planning, landscape architecture and environmental services.

ACEC member **Schrickel, Rollins and Associates, Inc.** (Arlington, Texas), a civil engineering, landscape architecture and land planning firm, merged with ACEC member **Parkhill, Smith & Cooper (PSC)** (Lubbock, Texas). The transaction brings PSC to more than 300 staff serving government, commercial and institutional market sectors.

ACEC member **HDR** (Omaha, Neb.) expanded its water resource services by acquiring the assets of **David Ford Consulting Engineering** (Sacramento, Calif.). David Ford specializes in hydrology, water hydraulics and flood risk analysis, and will operate as HDR | David Ford Consulting Engineers.

Civil engineering and surveying firm **CDA Engineers** (Cody, Wyo.) merged with ACEC member **T-O Engineers** (Meridian, Idaho), a full-service planning and engineering firm. The combined company will have more than 130 staff across four Western states.

ACEC member **Stantec** (Edmonton) signed a letter of intent to acquire **Peter Brett Associates, LLP** (Reading, U.K.), an independent firm of more than 700 engineers, planners, scientists and economists deliver projects across a variety of market sectors.

ACEC member **raSmith** (Brookfield, Wis.) acquired **Matsen Ford Design Associates** (Waukesha, Wis.), a structural engineering company. Matsen Ford has worked on projects nationwide in conventional structural system design, cold-formed steel framing design and finish systems design. The asset purchase will bring the combined firm's total staff to 28.

ACEC member **IMEG Corp.** (Rock Island, Ill.) acquired **MKK Consulting Engineers, Inc.** (Denver), a firm that specializes in high-performance design for the commercial, health care, education, hospitality, government, science and technology and transportation markets. In addition to Denver, the acquisition of MKK adds to IMEG locations already in Wyoming, Montana and Utah.

Westwood Professional Services (Eden Prairie, Minn.) acquired **Slater Hanifan Group (SHG)** (Las Vegas), an ACEC member. SHG offers civil engineering services to both the private and public sector throughout Nevada and Arizona. SHG leadership will continue to lead operations from Las Vegas and Phoenix.

JULY 2018

ACEC member **McKim & Creed** (Raleigh, N.C.) acquired **Loftus Engineers** (Pittsburgh), a provider of mechanical, electrical, plumbing, structural and energy services. Loftus' 37 employees

To view the most up-to-date and "live" versions of the M&A heat maps, and to see who are the buyers and sellers in each state, go to www.morrisseygoodale.com.



serve clients in the commercial, health care, higher education, sports and recreation, institutional and industrial sectors.

Mazzetti (San Francisco) merged with ACEC member **William Tao & Associates** (St. Louis), an engineering and energy-effective building systems firm. The combined firm will have a staff of 206 across 11 office locations.

ACEC member **WSP** (Montreal) entered into an agreement to acquire fellow ACEC member **Louis Berger** (Morristown, N.J.). The \$400 million acquisition will add 5,000 people to WSP's workforce. WSP management expects to incur \$50 million in one-time integration and restructuring costs and anticipates approximately \$15 million in recurring cost synergies within a year of the transaction closing date.

Half Associates (Richardson, Texas) acquired **Marlar Engineering Co., Inc.** (North Little Rock, Ark.), a civil engineering firm. Marlar has served Arkansas communities with a full range of planning and engineering projects, including land development, roadways, parks and water utilities. Both firms are ACEC members.

Buchart Horn Architects, a division of ACEC member **Buchart Horn, Inc.** (York, Pa.), acquired **Celli-Flynn Brennan Architects and Planners** (Pittsburgh). Celli-Flynn Brennan's employees will join the Buchart Horn office in Pittsburgh.

ACEC member **Dunaway Associates** (Fort Worth, Texas) acquired **Urban Design Group (UDG)** (Austin, Texas), a planning, surveying and civil engineering firm. UDG brings 37 years of civil engineering and planning experience in the Central Texas market to Dunaway.

ACEC member **Bowman Consulting** (Chantilly, Va.) acquired **Atherton Engineering, Inc.** (Phoenix), a provider of civil engineering services to developers of data centers and other mission critical facilities throughout the Southwest. As part of the deal, Bowman Consulting acquired substantially all the assets of Atherton and entered into a long-term agreement to retain the services of Atherton's founder and other employees. ■

Jackson Walsh is a senior consultant with Morrissey Goodale LLC, a management consulting firm that specializes in the A/E industry and provides strategic business planning, merger and acquisition, valuation, executive coaching, leadership development and executive search services. He can be reached at jwalsh@morrisseygoodale.com.



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On the Move

Nathan J. Beil, president of Sparks, Maryland-based **KCI Technologies, Inc.**, assumed the role of CEO, replacing **Terry Neimeyer**, who served in the post for nearly two decades. Neimeyer, who became CEO in 1999, will remain chairman. Beil is a graduate of ACEC's Senior Executives Institute Class 10 in 2006.

Matthew Ryan has been named president of Raleigh, North Carolina-based **S&ME, Inc.**, and will succeed **Randy Neuhaus** as CEO, effective Jan. 1, 2019. Neuhaus, the current CEO and chairman, will continue to serve as chairman. Ryan formerly served as executive vice president and director of professional services at HDR Inc.

Gregory Sauter joined West Palm Beach, Florida-based **WGI** as president, sharing the leadership with company CEO **David Wantman**. Sauter spent 15 years with AECOM, serving as executive vice president and chief corporate officer. He is also co-founder of Smart City

Works, past president and board chairman of Engineers Without Borders and an adjunct professor at Columbia University teaching global entrepreneurship and innovation in civil engineering.

Fairfax, Virginia-based **Dewberry** promoted **Darren Conner** to president of **Dewberry Engineers, Inc.**, a subsidiary of the Dewberry Cos. He succeeds **Dan M. Pleasant**, who remains Dewberry COO. Conner previously served as president of the company's southeast division. He is based in the Danville, Virginia, office. **Elese (Lisa) Adele Roger** was promoted to chief information officer at Dewberry. She previously served as executive director, IT and technology, and is based in the headquarters office.

Theresa Jang joined Edmonton, Alberta-based **Stantec** as executive vice president, and will also assume the CFO role on Jan. 1, 2019, succeeding **Dan Lefavre**, who is retiring. She will split

her time between the Edmonton and Calgary offices.

Russ Gentile joined San Diego-based **Lopez Engineering, Inc.**, as executive vice president, nuclear director and principal engineer. Based at the headquarters office, he will lead mission-critical projects at military installations, transportation hubs and commercial nuclear plants. Gentile formerly served as a project engineer at Sargent & Lundy.

Kim Urbanchuk has joined Pasadena, California-based **Parsons** as chief ethics and compliance counsel. Urbanchuk formerly served as counsel and director, ethics and compliance at Airbus. She is based in the Washington, D.C., office.

Maj. Gen. (ret.) Rick Stevens, former deputy commander of the U.S. Army Corps of Engineers, joined Washington, D.C.-based **Dawson & Associates** as senior vice president and director of business development. He will advise



Nathan J. Beil



Matthew Ryan



Gregory Sauter



Darren Conner



Lisa Adele Roger



Theresa Jang



Russ Gentile



Kim Urbanchuk



Rick Stevens



Pete McMahon



Charlie Hales



David Ford

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clients on federal environmental policies and Corps procedures and head the firm's new business operations.

Pete McMahon was named senior vice president of Rockville, Maryland-based **Sheladia Associates, Inc.** He will manage the company's North America core practices and oversee project operations for the firm's International Business practice. McMahon most recently served as vice president and operations manager for the Americas Region at Bechtel Infrastructure

Ted Williams Appointed Chairman of Delaware Council on Transportation

Delaware Gov. John C. Carney has appointed **Ted C. Williams**, who is president of Landmark Science & Engineering, the chairman of the Delaware Department of Transportation's Council on Transportation (COT).



Williams has served as a member of COT for three governors in the past eight years, having been first appointed by Gov. Ruth Ann Minner and reappointed twice by Gov. Jack Markell. COT is a nine-member advisory panel that serves in an oversight and advisory capacity to the secretary and directors of the Delaware Department of Transportation (DelDOT) and to the governor on issues relating to transportation and other matters that may aid DelDOT in providing the best possible transportation services.

Williams served as the 2012-2013 ACEC chairman and is an ACEC Fellow.

and Power Corp. He is based at the headquarters office.

Omaha, Nebraska-based **HDR** announced the following appointments: **Charlie Hales** rejoined the company as a senior vice president and the firm's cross-sector director for urban planning and design. Hales previously served as HDR's senior vice president for transit planning before serving as mayor of Portland, Oregon. **David Ford** joined the company as a vice president following HDR's acquisition of his firm, Sacramento, California-based David Ford Consulting Engineers, which specializes in hydrology, water hydraulics, flood risk analysis and other water-related services. Ford formerly served as president of his firm.

John DiValentino has been promoted to vice president and director of strategic operations at Philadelphia-based **Urban Engineers**. Previously, he served as deputy director for facility construction management. He is based in the headquarters office.

San Antonio-based **Pape-Dawson Engineers, Inc.**, announced the

following appointments: **Robert Wempe** joined the firm as vice president and will lead residential land development projects and provide consulting services to municipal utility districts. He is based in the Houston office. **Matt B. Garcia** joined the company as vice president and will lead business strategy and business development efforts for the company's water resources team in North Texas. He is based in the Dallas office.

Nashville, Tennessee-based **Power Consulting Associates** announced the following appointments: **Thad Mumm** was promoted to executive vice president of business development and is based in Nebraska. **David Jenkins** has been named vice president of business development for the southern U.S. region and is based in Houston. **Jay Bond** will serve the northern states as director of business development and is based in the Detroit area.

Ali Tali has joined Kansas City, Missouri-based **TranSystems Corp.** as vice president and Northeast Region bridge design practice leader. He is based in the Boston office.

Iselin, New Jersey-based **Mott MacDonald** announced the following appointments: **Daniel Farmer** joined the company as vice president of power generation in North America. He is based in the Boston office. **L. Matthew Gwinn** joined the firm as a vice president and Eastern U.S. regional leader for its aviation practice. Based in New York, he will manage the JFK Master Plan/Development Program and assist with expanding the company's aviation practice.

New York-based **WSP USA** announced the following appointments: **Robert Zmudzinski** was appointed vice president and national rail systems engineering manager in the New York office. **Patti Boekamp** has been named vice president and transportation area manager for the San Diego office. **Wesley Weir** was named vice president and manager of the central region bridge inspection technical excellence center in the company's Cleveland office.

Andy Wagstrom has been promoted to vice president of the Rail Division at St. Paul, Minnesota-based **TKDA**. He is based in the headquarters office.



John DiValentino



Robert Wempe



Matt B. Garcia



David Jenkins



Jay Bond



Ali Tali



Daniel Farmer



L. Matthew Gwinn



Robert Zmudzinski



Patti Boekamp



Wesley Weir



Andy Wagstrom

Spotlight on National Affiliate Members

Accounting/Tax/ Financial Services

alliantgroup, LP
Chartwell Financial Advisory, Inc.
Concord
Corporate Tax Advisors, Inc.
Crowe, LLP
Dannible/McKee and Associates, Ltd.
DiCicco, Gulman & Co., LLP
FAC Services, LLC
First American Equipment Finance
ForUsAll, Inc.
Gen2 Group, LLC
Matheson Financial Advisors, Inc.
Pilot Hill Advisors, LLC
Prairie Capital Advisors, Inc.
Somerset CPAs and Advisors
Stambaugh Ness, Inc.
T. Wayne Owens & Associates, PC
TJS Deemer Dana, LLP

Construction Supplies/Services

Accumark, Inc.
C&K Industrial Services, Inc.
HRV Conformance Verification Associates, Inc.

Consulting Services

AE Guidance, LLC
AEC Business Solutions, LLC
AEC360
Allen Business Advisors
Ann Warner, LLC
Braden Heidner Lowe & Associates
Client Savvy
Commonstreet Consulting, LLC
Commonwealth Strategic Partners, LLC
Creedon Management Associates
Don Sherman Group, LLC
FMI Corporation
FosterGrowth
M & H Design Associates, LLC
Mason, Bruce & Girard, Inc.
McMahon|Siegel Group

ME&A

Milestone Worldwide, LLC
Planifi
Quest Corporation of America, Inc.
RedVector, Inc.
RePicture Engineering, PBC
Rusk O'Brien Gido + Partners, LLC
SmartRisk
SWCA Environmental Consultants
The Seller-Doer Academy
for Civil Engineers
Thinc Strategy, LLC
Todd Jones Consulting
TriNet HR

Information Technology

ARC Document Solutions
Bentley Systems, Inc.
BQE Software
BST Global
Delttek
Frame
Morro Data
Newforma, Inc.

Insurance/Risk Management

a/e ProNet
Allied World Insurance Co.
Ames & Gough
Aon Corp.
Beazley
Berkley Design Professionals
Brit Design Professional Insurance
Hays Companies
IRONSHORE
Locktron Companies, Inc.
McGriff, Seibels & Williams, Inc.
O'Neill Associates, Inc.
Professional Underwriters Agency
Terra Insurance Co.
Victor O. Schinnerer & Co., Inc.
Willis - A&E
XL Catlin

Law Firm/Legal Services

Betts Patterson Mines P.S.
Byrne & O'Neill, LLP
Clark Hill, PLC
Collins Collins Muir & Stewart, LLP
DRBDC Attorneys at Law
Donovan Hatem, LLP
Fox Rothschild, LLP
Hurley Burish, S.C.
Lane Powell, P.C.
Long & Levit LLP
MacDonald Devin, P.C.
Milber Makris Plousadis & Seiden
Pearson Bitman, LLP
Skellenger Bender, PS
Stewart, Sokol & Larkin, LLC
The Ansar Law Firm
Weil & Drage, APC
Zetlin & De Chiara, LLP

Other Products/Services

Environmental Science Associates
Integrated Marketing Systems

Compliance and Licensing

Harbor Compliance

Medical Transport Services

Medjet

Underground Utilities Services

Master Locators, Inc.

Water/Wastewater Management Services

EnviroLink, Inc.

For further information on one of the national affiliate members, go to: <http://bit.do/ACEC-natl-affiliate-memb> or contact Rachael Ng at 202-682-4337 or rng@acec.org.

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There were 34,238 copies of *Engineering Inc.* published for September/October 2018 issue; the average for the preceding 12 months was 34,008. The paid/requested outside county mail subscriptions for the September/October 2018 issue were 33,016; the average for the preceding 12 months was 33,001. The other classes mailed through USPS for the September/October 2018 issue were 250; the average for the preceding 12 months was 208. Total distribution for the September/October 2018 issue was 33,883; the average for the preceding 12 months was 33,785. Copies of *Engineering Inc.* that were not distributed during the September/October 2018 issue (office use, leftovers) was 355 and the average number of copies not distributed during the preceding 12 months (office use, leftovers) was 223. The percent paid/requested circulation for the September/October 2018 issue was 97%. The average percent paid/requested circulation for the preceding 12 months was 98%.

Welcome New Member Firms

ACEC/Alabama

MBA Engineers, Inc.
Birmingham

ACEC/Arkansas

Gaunt Engineers, Inc.
El Dorado
Half Associates, Inc.
Little Rock

ACEC/California

Fargen Surveys, Inc.
Santa Maria
Ficcadenti Waggoner and Castle Structural Engineers, Inc.
Irvine
Fugro USA Land, Inc.
Walnut Creek
John A. Martin & Associates, Inc.
Los Angeles
Modern Building Inc.
Chico
PacRim Engineering
San Diego
Red Brick Consulting, Inc.
Dana Point
Waters Cardenas Land Surveying, LLC
Goleta
Buckeye Surveying & Engineering
Simi Valley

ACEC/Colorado

RT Civil Consultants, LLC
Greenwood Village
WaterVation, PLLC
Salida
WestWater Engineering
Grand Junction
Zion Engineering, LLC
Greenwood Village

ACEC/Idaho

Materials Testing & Inspection
Boise

ACEC/Illinois

Bravo Company Engineering, Inc.
Montgomery
MECO Engineering Co., Inc.
Springfield

ACEC/Kansas

GCI Product Engineering, LLC
Overland Park

ACEC/Maine

Lincoln/Haney Engineering Associates, Inc.
Brunswick

ACEC/Maryland

CES Consulting, LLC
Millersville

ACEC/Mississippi

Overstreet and Associates, PLLC
Biloxi

ACEC/New Jersey

Advantage Engineering Associates, P.C.
Cranbury
Maser Consulting, P.A.
Red Bank

ACEC/North Carolina

GEL Engineering of North Carolina, Inc.
Raleigh
The Kercher Group
Raleigh
Wiley|Wilson, Inc.
Raleigh

ACEC/North Dakota

Shannon Engineering, LLC
Fargo

ACEC/Ohio

Moody Engineering
Columbus

ACEC/Oklahoma

ESDC Engineering, Inc.
Tulsa

ACEC/Oregon

Pali Consulting, Inc.
Oregon City

ACEC/Texas

CityLynx, Inc.
Houston
Maslowski Controls, LLC
Keller

ACEC/Virginia

RTB Engineering
Ashland

NOVEMBER 2018

- 27** The Executive's Guide to Creating a More Sales Driven Culture (online class)
- 28** Winning Strategies and Best Practices for Government Prospecting (online class)
- 29** Grow Up! Things You Need to Know as Your Firm Grows (online class)

DECEMBER

- 3** Preparing for the Future of Automated and Connected Vehicles (online class)
- 5** The Back-Pocket Business Plan: Outrageously Simple Business Planning for Extraordinary Business Results (online class)
- 6** Essential Elements of Effective Leadership (online class)
- 11** Function-Based Resiliency: Improving Performance Through Adaptive Management (online class)
- 12** Document Retention: What to Keep and How Long (online class)

JANUARY 2019

- 10** Unleashing the Power of LinkedIn Company Pages (online class)
- 16** Stretching the Value Methodology: Application of a Powerful Methodology in Unusual Circumstances (online class)
- 22** Signs of a Weak or Ineffective Project Management System (online class)
- 29** Proposals and Presentations that Close the Deal (online class)

FEBRUARY

- 13** Are You Building the Right Website? (online class)

MARCH

- 5** Presentation Skills: Speak with Confidence (online class)

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

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

New *Private Industry Brief*; Business of Design Consulting Course

HEALTH CARE & SCIENCE+TECHNOLOGY FOCUS OF UPCOMING ACEC *PRIVATE INDUSTRY BRIEF*

The market for design services in the health care and life sciences continues to grow—even producing construction booms in several U.S. cities. Between 2001 and 2016 life sciences employment grew by 23.5 percent compared to total U.S. employment growing by less than half that rate, according to the U.S. Bureau of Labor Statistics (BLS). That growth is expected to continue, with BLS expecting employment growth for research and development in biotechnology to grow 19 percent between 2016 and 2026—nearly double the average for the overall employment growth predicted for the U.S. The worldwide prescription drug market is growing at 6.5 percent compounded annually and is expected to reach \$1.06 trillion by 2022, according to CNBC.



Designing and constructing the innovative space necessary for this sector is a growing service for many firms. Clients in the Health Care & Science+Technology (S+T) market space include not only hospitals and adjacent medical facilities, but also pharmaceutical, biotechnology and medical device sectors, as well as laboratory incubators and research universities. Facility types range from conventional office space to sophisticated research laboratories and cutting-edge production facilities. Trends in health care and S+T design are mimicking those in the general commercial real estate sector, with clients gravitating toward space with natural light, sustainable features, and open spaces and sight lines that facilitate communication and creative thinking among colleagues.

The uniqueness of this client type, and the further trends associated with serving the Health Care & S+T markets, will be the focus of ACEC's fourth issue of its new, bimonthly *Private Industry Brief* (December 2018 | January 2019). In just a few pages, ACEC's *Private Industry Brief* informs readers about the top clients in that market sector, the five most significant market trends, and how current legislation and policy are influencing the market.

To ensure you receive the upcoming Health Care & Science+Technology *Private Industry Brief*, as well as other issues in this series, please sign up for your free subscription at: <https://programs.acec.org/industrybrief/>.

BUSINESS OF DESIGN CONSULTING COURSE, APRIL 3–6, 2019

Managing your A/E business for success requires technical know-how and a broad awareness of today's best multidisciplinary business practices. Firm managers need to understand the rules of management and finance, and how they work in the real world. To meet the business challenges in the current economy, managers must:

Understand the intricacies of human relations and related

legal elements; create and manage client relationships and client expectations; manage risk, and draft and adapt contracts; know the fundamentals of business development; and understand ownership transition and employee satisfaction factors.

ACEC's Business of Design Consulting course is a playbook for building leadership and managing your firm at the most effective levels. Join ACEC in Phoenix, April 3–6, 2019, where ACEC's expert faculty of industry practitioners will cover contemporary best practices and critical operational management methods.

The program agenda highlights current strategies for critical business topics that will keep your business thriving amid an ever-evolving business environment. Attendees will explore specific skills and techniques to help them manage change and build success in performance management, strategic planning and growth, finance, leadership, ownership transition, contracts and risk management, marketing and more.

For more information and to register, visit: <https://www.acec.org/education/bdc/>.

REGISTERED CONTINUING EDUCATION PROGRAM

For engineers, surveyors and design professionals, the Registered Continuing Education Program (RCEP) provides a one-stop online shop for all educational activities, including easily accessible continuing education record-keeping, uniform and reliable transcripts for state licensing boards, up-to-date continuing education and licensure requirements by jurisdiction and a master calendar of more than 160 Registered Education Providers.



More than 110,000 design professionals use RCEP online to manage their continuing education. Originally developed in 2008 by NCEES in conjunction with ACEC, RCEP is now administered by ACEC with the support of the American Society of Civil Engineers.

Visit www.rcep.net or contact La'Creshea Makonnen at 202-682-4338 for information on becoming a provider or to learn more about tracking your PDHs. ■

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