

SPRING 2021

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How Member Firms  
Helped to Battle COVID

ACEC/Missouri  
Profile

Barge Design Solutions'  
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## IT to the Rescue

Effective IT management has been a digital lifesaver  
as firms now primarily work remotely and hold virtual  
meetings—while boosting cybersecurity

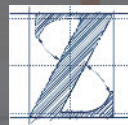
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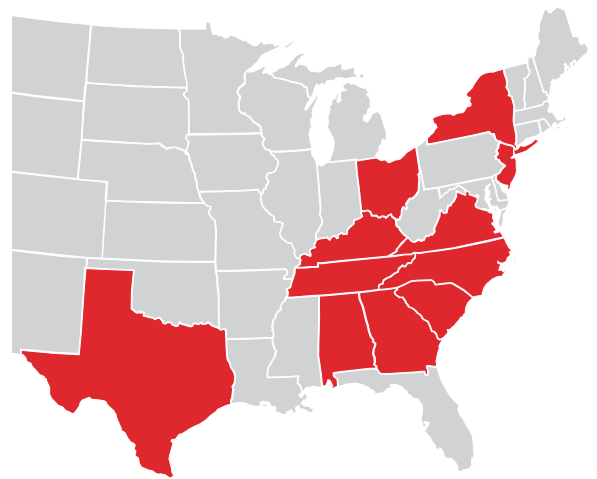
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Richard Holst  
Chief Information Officer  
Bohler



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ACEC's award-winning quarterly magazine *Engineering Inc.* provides expert analysis on all issues affecting the overall business of engineering. Other highlights include in-depth interviews with major policy makers whose decisions impact bottom lines; updates on critical advocacy issues and industry news, best practice management trends and marketplace projections, along with member firm innovations and announcements.

The articles and editorials appearing in this magazine do not represent an official ACEC position or policy unless specifically identified as doing so.



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DIRECTOR, MEMBER COMMUNICATIONS	Alan D. Crockett
STAFF EDITOR	Andrea Keeney akeeney@acec.org 202-682-4347
SENIOR COMMUNICATIONS WRITER	Gerry Donohue
ADVERTISING SALES	Erin Wander 440-281-0464 ewander@acec.org

## IMAGINATION

MANAGING EDITOR	Matthew Wright
ART DIRECTOR	Nancy Roy
PROJECT DIRECTOR	Kristie Amella

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# Momentum Builds on Infrastructure

It's a time for optimism for the engineering industry. A long-term infrastructure bill is in sight with congressional Republicans trading proposals with the administration.

The White House's American Jobs Plan is an eight-year, \$2.25 trillion package. Around 40 percent, over \$900 billion, is related to infrastructure and the built environment and includes traditional infrastructure like transportation, water, and airports, but also schools, public housing, federal facilities, and energy. The remaining approximately \$1.35 trillion is related to things outside of the built environment like elder care, subsidies for rural broadband, and manufacturing.

Senate Republicans initially proposed a five-year, \$568 billion bill that would focus on traditional infrastructure and expanded rural broadband. They later upped the offer to \$928 billion over eight years. Unlike the Biden plan, which is supplemental spending, the Republican proposal would incorporate its funding into existing programs, including the reauthorization of the FAST Act, for a net increase around \$250 billion.

The Biden plan is bold, but the pay-fors are problematic. It calls for corporate and personal tax increases, while the Senate bill would be funded through user fees and the repurposing of unspent funds from previous COVID relief bills. ACEC has always supported user fees to pay for infrastructure investment, and that will continue to be our stance as we move through the process.

ACEC will be actively engaged to get the best possible outcomes for our members as work on an infrastructure package continues.

For more on infrastructure, read our wrap-up of the 2021 ACEC Annual Convention, which featured appearances by *Fox News* anchor Chris Wallace, Transportation Secretary Pete Buttigieg, and House and Senate leaders (*see the Convention wrap-up, page 24*).

This issue's cover feature examines how many of our Member Firms have relied on IT capabilities to stay productive in this new business normal (*see page 14*). Additionally, many of our members remain actively engaged in enhancing COVID-19 testing and prevention (*see page 35*).

*Robin S. Greenleaf*

Robin S. Greenleaf  
ACEC Chair



*Linda Bauer Darr*

Linda Bauer Darr  
ACEC President & CEO





# ACEC RESEARCH INSTITUTE

The ACEC Research Institute provides the industry with cutting edge trend data, research and analysis to help firm owners make decisions and arm the Council with information to advance engineering's essential value to a broad audience.

**The ACEC Research Institute wishes to extend  
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# Health Care Industry Steering Through Pandemic Cloud

BY GERRY DONOHUE

**G**iven the COVID-19 pandemic, it would be reasonable to assume that engineering and design in the health care sector have undergone dramatic changes. Certainly, in those first weeks and months, health care providers and the engineering firms serving them went into crisis mode like never before in rapidly expanding capacity while safeguarding workers and patients.

Looking post-pandemic and over the long haul, however, it seems that COVID-19 won't have a huge impact on the health care sector's engineering and design needs. If the sector is an aircraft carrier, the pandemic is like a reef—steering around it will be tough, but then the industry will resume its course.

"A lot of providers are looking in the rearview mirror and saying they're not going to make many changes," says Dave Huey, president and director of health care architecture at Dewberry. "They're going to be more conscientious about what they were doing in areas impacted by COVID, but they still have the same needs they previously had."

As with most sectors in the economy, the pandemic will cause a short-term slowdown in activity. According to FMI, construction put in place in health care will contract 3 percent this year and 2 percent next year.

This decline stems from two factors. First, health care industry clients delayed or even canceled planned projects while they dealt with the COVID-19 onslaught. Getting those projects—many of which are huge—up and running again will take time.

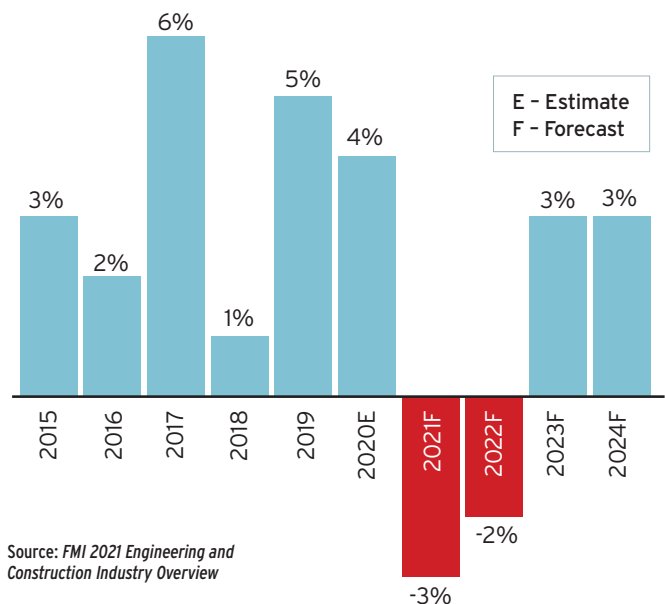
Second, the pandemic put substantial financial strains on the industry. Providers incurred huge and unique costs in caring for the hundreds of thousands of hospitalized pandemic patients, and cost reimbursement models are still trying to catch up.

At the same time, says Mike Zorich, principal and director of health care at IMEG, "a lot of health care systems are still

## Health Care Construction Put in Place

Change from prior year—current dollar basis

4th quarter 2020 forecast (based on 3rd quarter 2020 actuals)



Source: FMI 2021 Engineering and Construction Industry Overview

coming out of the huge revenue hit they took with not having outpatient services." According to a late 2020 report by Deloitte, outpatient services accounted for 48 percent of hospital revenue prior to the pandemic.

Once providers work through these issues, the market will start growing again, with FMI forecasting 3 percent annual increases in both 2023 and 2024.

## HEALTH CARE TRENDS

Two related trends have dominated the health care engineering and design industry in recent years and will continue to do so for the foreseeable future: consolidating health care providers and declining hospital bed counts. Tying these trends together is the health care reimbursement model, which determines how much health care systems get paid for the services they provide. For a long time now, there has been substantial downward pressure on reimbursements, which has ratcheted up the financial pressure on hospitals.

To ease that pressure through economies of scale, health care providers have been merging. According to Deloitte, the top 10 health systems now control a 24 percent market share. Big providers' revenue is also growing at twice the rate of the rest of the market, so they have the financial heft to make even more acquisitions. Deloitte forecasts that every one of the 390 metropolitan statistical areas across the United States will experience hospital consolidation over the next 10 years.

Rural hospitals have been and will continue to be the focus of much of the M&A activity.

"Independent rural providers could struggle to stay that way in the current reimbursement model," says Nolan Rome, director of health care at WSP USA. "They provide amazing service for the amount of revenue they can generate, but that may not be sustainable."

The reimbursement model is also driving providers to reduce the number of hospital beds. The gap between what inpatient services cost providers and what they can get from insurers and public programs is widening. As a result, since 1975, the number of hospital beds in the U.S. has declined by more than a third to fewer than 1 million. By 2030, Deloitte forecasts that demand for hospital beds will be 44 percent lower, and inpatient hospital revenue will be 35 percent lower than today.

In response, health care providers will continue to boost their outpatient services, either in hospitals or clinics, and will turn increasingly to telemedicine.

## ONE LASTING EFFECT: TELEMEDICINE

Telemedicine is one area in health care where there may be lasting impact from the pandemic. It had been growing strongly for several years but accelerated markedly during the pandemic, because the virtual treatment model adapted very well to social distancing and lockdowns.

Telemedicine will certainly continue to expand, but its rate of growth may be constrained by current regulations.

"The states have a tremendous amount of influence over telemedicine, especially regarding reimbursements," says Rome. When the pandemic hit, providers needed the rapid response of telemedicine. Now discussions are happening over whether the states will continue to reimburse telemedicine in the same way going forward.

"I think it will continue to grow in most of the states," he adds, "but there are some where it will take longer." ■

**Gerry Donohue** is ACEC's senior communications writer. He can be reached at [gdonohue@acec.org](mailto:gdonohue@acec.org).

## Pandemic-Induced Changes to Facility Design

Health care providers are preparing for the next pandemic, even as they reduce the number of hospital beds and increase their reliance on outpatient services and telemedicine.

The key, says IMEG's Mike Zorich, is baking flexibility and adaptability into the renovations and expansions of existing facilities and future designs.

Negative air pressure, for example, is a critical component in fighting pandemics. Typically, hospitals have only a limited number of patient rooms with negative air pressure, but now the facilities are looking for ways to adapt so rooms can be switched over to negative air pressure if necessary.

Taking it a step further, Dewberry's Dave Huey says "they're looking for ways that they cannot just change the pressurization of a room but change an entire floor."

Such an adaptation would require regulatory adjustments, says WSP USA's Nolan Rome. "We're taking these procedures to the code committees and the guideline committees and saying, here is a best practice that owners are comfortable with and doing in the field."

Zorich says an increasing number of clients are looking into acuity-adaptable patient rooms as another way to limit viral transmission. "Instead of taking the patient through the hospital to the different departments," he says, "we bring all the care directly to their room."

Providers are also asking firms to design private rooms with a second set of life-safety infrastructure in the ceiling and behind the walls, so the rooms can be flexed to two beds should the need arise.

Operational areas that firms are working on include improving workflow arrangements, such as eliminating centralized nursing stations to minimize crowding, and fine-tuning supply chains to avoid shortages of critical materials.







AM/STUDIO/GETTY IMAGES

# Engineering Our Way to a Better Future

BY JOHN CARRATO

**T**he United States is facing a historic moment: We are battling a global pandemic; our infrastructure is in dire need of repair; our economy is struggling; and we are facing issues of climate change never seen in our lifetime.

It sounds as if those problems are insurmountable. They are not. In fact, our sector is the perfect one to help address them.

The industry is playing a critical role in helping to control the pandemic. Engineers are producing and distributing the vaccine, building makeshift medical clinics, and changing air ventilation systems for a post-COVID-19 world.

## CREATING A BRIGHTER FUTURE

Most experts agree that all aspects of our infrastructure need work—roads, bridges, transit, freight rail, ports, electrical grids, and internet provision. And these needs tie into the environment and the economy.

We can help build healthy, green buildings for the future. Engineers are already working on new ventilation systems for current buildings to address COVID-19 and addressing how



**John Carrato**

to make decades-old buildings healthier and greener, reducing our carbon emissions footprint.

Engineers are making a difference in the environment every day—take the Copperhill Watershed Restoration project in Tennessee, ACEC's 2020 Engineering Excellence Awards Grand Conceptor Award winner. This 20-year project transformed a 50-square-mile site—severely damaged from more than a century of logging, mining, and acid production—into a lush, clean, natural wonderland where residents now enjoy hiking, fishing, and swimming.

Given the extensive role that the engineering sector plays in so many different aspects of the country's life, it is not surprising that the sector has a considerable impact on the national economy. According to the ACEC Research Institute's Industry Impact Series of reports, 1.5 million Americans are directly employed by the engineering and design services sector, and an additional



3 million jobs are supported by the joint industries. Our economic impact study found that for each new job created in the engineering industry, two more are generated. That is a stunning fact. The study also found that the total economic contribution of engineering and design services is nearly \$600 billion. Again, this shows the massive impact of our industry. In fact, every \$1 in engineering and design revenue contributes \$1.55 to U.S. gross domestic product—quite the multiplier effect!

#### AN IMPACT ON, WELL, EVERYTHING

When we embarked on creating this Industry Impact Series, we hoped to tell the story—past, present, and future—of how the engineering sector affects, well, everything. And our initial report showed that engineering makes a substantial contribution to the U.S. economy in terms of sales, jobs, direct economic impact, and taxes paid. It looked back 20 years to firmly show our significant influence.

The second study—*2020 Engineering Industry Economic Contribution*—revealed the engineering sector's reach,

Every **\$1 in engineering and design revenue** contributes **\$1.55 to U.S. GDP**—quite the multiplier effect!

those projections, and ACEC will be working closely with policymakers on ways to boost our industry.

Like engineering itself, the engineering sector is resilient. Collectively, our industry has a chance to make a positive impact on the environment and help restore the country's infrastructure, all while strengthening our economy. And we have the chance to come together to deliver what is best for our industry, our economy, and our world.

For more information and to download a copy of the ACEC Research Institute reports, go to <https://programs.acec.org/impact-report>. ■

**John Carrato** is chair of the ACEC Research Institute.

demonstrating not only what a major contributor we are to the economy but across almost every other industry. By producing this report and giving these numbers perspective, we have created a valuable tool for illustrating our reach as an industry.

The final report, *2021–2025 Engineering Industry Forecast*, uncovered what is to come. Like many parts of the economy, the engineering sector has been hurt by COVID-19. Yet, a forecast is not definite. Many things can and will affect



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# Administration Proposes Sweeping \$2.3 Trillion Jobs Plan

**T**he Biden Administration has rolled out a comprehensive economic recovery package centered on long-term investment in the nation's infrastructure and domestic manufacturing. Called the American Jobs Plan, the eight-year, \$2.3 trillion package would supplement current spending levels and cover nearly every sector of the built environment.

The proposal allocates \$621 billion for transportation programs, including roads and bridges, transit systems, rail, airports, ports, and inland waterways. Special emphasis is placed on infrastructure resilience, electrification of the net-

work, and targeted investments for underserved communities.

The plan also includes an array of other infrastructure sectors, including drinking water and wastewater, broadband deployment, the electric grid, schools, affordable housing, and federal buildings, among other initiatives and programs in manufacturing and research and development.

The administration is proposing revenue increases that could be problematic for ACEC and its members, such as raising the corporate tax rate from 21 percent to 28 percent. The White House has also released the American Families Plan that focuses on child care, education, paid leave, and tax cuts for low- and middle-

income workers and families. An increase in the top individual tax rate from 37 percent to 39.6 percent, raising the capital gains rate on wealthy individuals and large estates, and expanded tax enforcement have been proposed to pay for the plan.

House Speaker Nancy Pelosi stated that she wants to move an infrastructure package by July 4, acknowledging that deadline might slip.

"The scope of the package is very bold and touches many of the markets our members operate in," explained ACEC President and CEO Linda Bauer Darr, "but obviously the way in which the administration proposes to pay for it is raising concerns among our members



and the rest of the business community."

Senate Republican Committee leaders have offered counterproposals focused on traditional infrastructure programs, including transportation, water, and broadband, and paid for with user fees and repurposing unspent relief funds. The most recent offer totaled \$928 billion over eight years, which would be \$250 billion above current spending levels.

## ACEC Testifies on Impact of FAR Credits at Congressional Hearing on PPP Loans

**A**CEC Chair Robin Greenleaf, CEO of Architectural Engineers, Inc., in Boston, testified in March at a congressional hearing on the intersection of Paycheck Protection Program (PPP) loan forgiveness and federal acquisition rules.

"I cannot overstate how important this is to small business engineering firms across the country right now," Greenleaf told the members of the House Small Business Committee's Subcommittee on Contracting and Infrastructure. "We relied on the PPP loan to keep our entire staff on the payroll, even in the face of significant business disruptions and revenue loss. Now those of us who contract for government clients are facing the imposition of a credit under the Federal Acquisition Regulation (FAR). We think this is completely misguided."

Greenleaf shared her experience as the owner of a small, woman-owned disadvantaged business enterprise (DBE) firm



Robin Greenleaf,  
ACEC Chair



Kweisi Mfume, D-Md.

during the pandemic and relayed stories from ACEC Member Firm colleagues across the country.

"If unchanged, the application of this credit will create a disincentive for women-owned firms, DBEs, and other small businesses to compete for work for public agencies," she explained. "It will deprive the government of qualified engineering services, and it will hamper efforts to expand small business and DBE contracting opportunities."

There was consensus among lawmakers

at the hearing that the imposition of a credit for forgiven PPP loans is a serious impediment that needs to be addressed. "It's clear that this is a complex issue with significant ramifications for small government contractors," said Subcommittee Chairman Kweisi Mfume, D-Md. "This hearing is an essential first step in coming to a resolution that doesn't inflict further harm on the small businesses already suffering from the pandemic."

Carlos Penin, president of C.A.P. Engineering in Coral Gables, Fla., and former president of ACEC Florida, also testified at the hearing and shared his perspective as a small-business owner. His firm faces a significant reduction in its overhead rate and, because of multiyear contracts, might lose more money in the long term than the original loan value.

ACEC continues to work with officials at the Federal Highway Administration and with House and Senate lawmakers to pursue a remedy to the PPP credits issue.

# House, Senate Begin Work on Major Water, Energy Legislation

**C**oncurrent with the release of the administration's infrastructure plan, the House and Senate are developing specific water and energy initiatives that could move as part of a larger package or individually, depending on how the agenda unfolds.

Bipartisan House (Water Quality Protection and Job Creation Act of 2021) and Senate (The Drinking Water and Wastewater Infrastructure Act) water bills show a step change likely in federal funding for drinking water, wastewater, and stormwater investments in the range of \$40 billion or more over five years. These initiatives are consistent with elements in the administration's plan, which proposes to spend \$111 billion over eight years for lead service line replacement (\$45 billion); drinking water, wastewater, and stormwater grants and loans (\$56 billion); and per- and polyfluoroalkyl substances, or PFAS, monitoring and remediation (\$10 billion). The administration proposes an additional \$17 billion for inland waterways and coastal ports.

H.R. 1512, the Climate Leadership and Environmental Action for our Nation's (CLEAN) Future Act, proposes to drive technological shifts to net-zero carbon emissions by 2035 in the electric utility sector, and at the same time transition the transportation sector to electric vehicles. One notable study estimated that a \$2.5 trillion investment is required by 2030 over and above existing needs to reach the electric utility net-zero goal. In addition, H.R. 1848, Leading Infrastructure for Tomorrow's (LIFT) America Act, proposes \$312 billion in infrastructure investments across energy, water, brownfields, broadband,

ISSUES ON THE MOVE	WHAT'S NEXT
Biden Infrastructure Plan	Floor vote before July 4
Water, Energy Legislation	Committee action in June
Corps ID/IQ Process	Agency implementation and stakeholder outreach this spring and summer

and health care infrastructure. Neither the CLEAN Future Act nor the LIFT America Act have achieved bipartisan support but are expected to be included as part of the larger infrastructure package proposed by the president.

The administration is backing a \$100 billion investment for electricity transmission and clean power generation, and \$174 billion to support a national network of 500,000 electric vehicle charging stations by 2030.

Resilience and equity are common themes across most proposals, particularly with recent blackouts in Texas and California, and the flood and hurricane disasters since 2017. The administration proposes \$50 billion to broadly improve resilience across all infrastructure to benefit vulnerable communities.

Finally, the administration is proposing distressed and disadvantaged community development through a \$5 billion investment in remediation and redevelopment of brownfield and Superfund sites.

While ACEC will be engaged with these and other proposals, the Council will continue to support key priorities, including workable Buy America policies, permitting modernization, and innovation through implementation of the Energy Act of 2020 to commercialize clean energy technologies, including tax incentives.

## Corps of Engineers Finalizes New ID/IQ Process

**T**he U.S. Army Corps of Engineers (USACE) has finalized its procedures for the selection of task orders on architect-engineer indefinite delivery/indefinite quantity (ID/IQ) contracts.

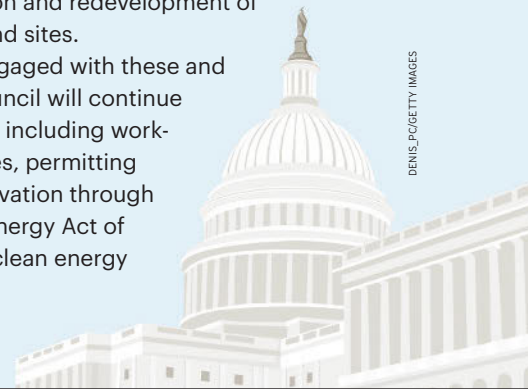
In 2020, USACE instituted a new process to select A/E firms for the execution of task orders under indefinite delivery contracts/multiple award task order contracts. The new process requested that updated or supplemental information be prepared and submitted prior to the Corps in advance of awarding task order contracts.

After strong objections by the industry, including ACEC, over the additional cost and time of the new process,

USACE decided to reevaluate these requirements and collaborate with its industry partners to develop an alternative process that meets the needs of all parties involved.

The Corps created a "Tiger Team" of industry and contracting leaders within the Corps to improve the process. The Tiger Team, led by John (Jake) Jacobson, the executive director of USACE Contracting, included government representatives from USACE Contracting, USACE Military Programs, USACE Office of Counsel, and the deputy assistant secretary of the Army (Procurement). ACEC was represented by Miro Kurka, chair of ACEC's Federal Agencies and Procurement Advocacy Committee.

One of the key improvements in the revised policy is that the Corps will inform A/E contractors when the Corps has sufficient information (such as SF330s) to determine which is the most qualified firm to accomplish the work and permit contractors to submit additional relevant information if they choose. Firms will be given five days to submit any new information in response to the TORN (Task Order Requirement Notice). The Corps' deputy for programs and project management policy has been amended to incorporate the changes and has been distributed to our membership. USACE is engaged in training districts on these procedures and continuing outreach to industry stakeholders.



DENIS\_P/GETTY IMAGES



# 7 Ways Health Care Facilities Will Change Post-Pandemic

By Erin McLaughlin



will continue growing considerably faster than traditional hospitals. Health care systems and providers increasingly want to be closer to patients and are occupying space at the neighborhood level, including in retail-type locations. According to a 2020 analysis by Deloitte, aggregate outpatient shares of total hospital revenue grew to 48 percent in 2018 from 28 percent in 1994. Outpatient facility growth will be particularly strong in areas that are growing in population—particularly aging baby boomers.

Source: EIR Healthcare

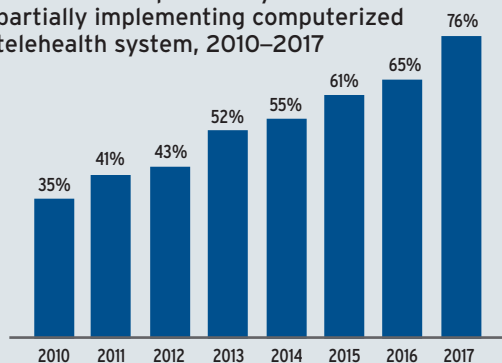
Often considered a recession-proof sector, health care is poised to be a steady market over the next few years, and will include additional opportunities coming out of the COVID-19 pandemic as clients plan for operational, behavioral, and physical changes to facilities. The \$46 billion annual design and construction health care market (according to FMI) collectively wants to “future-proof” itself against future pandemics and unknown contagions. The following are the most impactful seven trends expected in the health care market.

**1. The outpatient and “retail-ization” trend continues.** Outpatient-focused facilities, including urgent care centers and micro-hospitals,

**2. Telehealth leaps forward.** The need to social distance during the pandemic created a huge and sudden market for telehealth patients during 2020. Long embraced by health care systems and doctors—who saw telehealth as a way to reach underserved and rural patients—it is also a cost-effective practice. Suddenly patients were quick to embrace telehealth out of necessity. According to a recent Centers for Disease Control and Prevention report, during the period of June 26, 2020, to Nov. 6, 2020, 30.2 percent of weekly health care visits occurred via telehealth. Data from the Centers for Medicare & Medicaid Services found that pre-COVID-19, only 14,000 beneficiaries received telehealth service in a week, but between mid-March and early July 2020, more than 10.1 million beneficiaries had telehealth appointments. This growth of telehealth was steady from 2010–2017, according to the American Hospital Association (see chart), but is now expected to leap forward as patients and providers in 2020 grew comfortable with platforms.

**3. Space design becomes more flexible.** Flexibility in design has become increasingly critical as health care clients look to future-proof facilities to be adaptive to both present and future crises, including those requiring isolation of contagions. This includes rethinking waiting rooms and other public spaces with potential design solutions including patient screening in advance, having people wait in individual patient rooms—which may have external doors that lead directly to parking lots—

**Use of telehealth in hospitals has grown rapidly.**  
Percent of hospitals fully or partially implementing computerized telehealth system, 2010–2017



Source: AHA IT Supplemental Survey

and developing check-in processes enabled by a smartphone. Flexible design solutions would also give facilities the ability to isolate certain spaces and even create features like open staircases—which encourage walking and keep people out of elevators and other tight spaces.

4. **HVAC design strategies are critical.** Post-COVID-19, health care clients are focusing on ventilation, as well as power and plumbing, in how to address future infection control and pandemic responses. Facilities will be looking to HVAC design strategies for contagion control, improved air quality, and building controls allowing the partitioning of air flow into specific spaces, all with an eye on overall facility resilience.
5. **Tech goes hands-free and smart.** Health care facilities will look beyond sliding doors and touchless thermometers for hands-free technology to aid in stopping infection spread. This may include touchless check-in kiosks, wayfinding displays, and real-time locating systems, which use sensors to provide immediate tracking and management of medical equipment, staff, and patients. In addition, design solutions may include disinfectant lighting and the use of materials proven to be antimicrobial, including paint.
6. **Increased focus on energy use.** Hospitals typically use three times the energy of other commercial buildings and, according to Energy Star, health care organizations spend over \$6.5 billion on energy each year—and that number is rising. By adopting energy-efficient strategies, health care facilities can save money, meet carbon emission goals, and improve the air quality of communities—furthering their commitment to public health.
7. **Alternative delivery and modular construction are considered.** With health care projects becoming increasingly complex, clients are looking to put all options on the table, including alternative delivery methods, that enable early full-team collaboration, such as construction manager at risk, integrated project delivery, progressive design-build, and modular design and construction. Often cited as a game-changer in this regard is EIR Healthcare's MedModular, described as the first application of prefabrication and modular technology for hospital rooms that can be delivered 90 percent complete. The "hospital room in a box" (pictured on the previous page) was one of *Fast Company's* 22 Innovation by Design award winners in 2019—which span all kinds of products and industries.



Commercial &  
Residential Real Estate



Health Care &  
Science+Technology



Intermodal &  
Logistics



Economic  
Outlook



Energy &  
Utilities



Public-Private  
Partnerships (P3s)

### The Private Side is a regular department of *Engineering Inc.*,

focusing on the private-sector markets listed above, and information and insights on public-private partnerships and economic data relevant to the industry. For more on these topics, subscribe to ACEC's bimonthly *Private Industry Briefs*: <https://programs.acec.org/industrybrief/>.

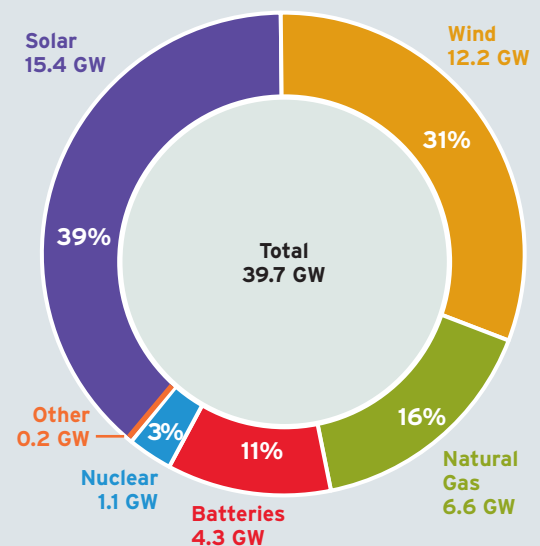
**Erin McLaughlin** is ACEC's vice president of private market resources. She can be reached at [emcloughlin@acec.org](mailto:emcloughlin@acec.org).



## Solar and Wind Are Powering Electricity

Renewable energy—specifically from solar and wind—is expected to outperform other energy sectors, according to recent reports by the U.S. Energy Information Administration (EIA). Solar and wind combined will make up 70 percent of new commercial electric-generating installations this year, with utility-scale solar photovoltaic accounting for 39 percent, followed by wind at 31 percent. This also tracks with EIA's long-term analysis, released in its *Annual Energy Outlook 2021* at the Bipartisan Policy Center in February. Renewable energy incentives and falling technology costs support robust competition. Overall, EIA notes that the COVID-19 recession had a significant impact on the United States' energy usage, and a return to 2019 levels of energy consumption will take years. ■

Renewables Make Up Most New Commercial Electric-Generating Installations in 2021



Source: EIA



# IT to the

BY BOB VIOLINO

# Rescue





## EFFECTIVE IT MANAGEMENT HAS BEEN A DIGITAL LIFESAVER AS FIRMS NOW PRIMARILY WORK REMOTELY AND HOLD VIRTUAL MEETINGS— WHILE BOOSTING CYBERSECURITY

**T**he COVID-19 pandemic continues to affect virtually every aspect of business. Technology leaders and teams at engineering firms have had to adapt to new ways of doing things—in many cases with little or no advance notice or practice.

The jolt that the worldwide health crisis has provided to IT has been stressful, as any major, unforeseen change can be. But it has also opened new opportunities to enhance processes and gain efficiencies.

Firms with effective IT management will be in a good position to reap the benefits of these changes, as strong IT management during a time of crisis or widespread change can have a direct impact on an engineering firm's competitiveness and profitability.

"Successfully responding to the pandemic meant that companies had to move and scale fast, which can only be fully achieved through a strong digital core," says Tony Leraris, managing director and Live Services lead within Accenture's IT organization. "Throughout the pandemic, IT teams have played a crucial role in maintaining business continuity by delivering the digital infrastructures necessary for remote collaboration and innovation."

As the digital economy continues to expand, "It becomes more and more important that companies look for ways to scale and increase efficiency within their business operations," says Ronda Cilsick, chief information officer at Deltek, which provides firms with cloud-based project software.

"Internal IT departments have a responsibility to support the business by providing technologies, tools, infrastructure, and thought leadership to drive efficiencies within their organizations through automation and data and analytics," Cilsick says.





RIDOFRAZ/GETTY IMAGES

## THE HYBRID WORK MODEL

One of the biggest impacts of the pandemic from an IT standpoint has been the need to support a workforce that shifted to home office environments seemingly overnight. That means providing the devices, network access, communications, collaboration, and security capabilities people need to do their jobs outside the office.

The IT department at Clark Nexsen had to shift from supporting its customers from 10 locations to more than 350 home offices over a period of one week. “Thankfully, we had already

started moving toward and preparing for a more dynamic and mobile workforce and started treating all offices as remote offices from a support and infrastructure perspective,” says Creighton Barnes, director of IT at the firm.

Clark Nexsen had rolled out Microsoft Teams several years ago and fully transitioned to the collaboration platform for internal chat, collaboration, and voice communications in 2019. It also started transitioning to virtual desktops on VMware Horizon two years ago.

“We finished installing redundant and disparate internet connections at each location around December 2019, in preparing to get our infrastructure ready for the inevitable shift to VDI—virtual desktop infrastructure—and mobile,” Barnes says. “In hindsight, we look like geniuses. But, in reality, we were just keeping up with current trends and technologies that keep our firm competitive.”

The biggest adaptation was helping people work at their homes remotely. “That became a game



“The ramification of a ransomware attack can last years, as access to older files might not be realized until much later. So that will remain a major focus of attention for us in the coming years.”

**ANDY KNAUF**  
CHIEF INFORMATION OFFICER  
MEAD & HUNT



“In our efforts to keep our clients’ projects moving forward, we have provided guidance to these cities and towns, sharing best practices or even assisting with the adoption of new technology.”

**RICHARD HOLST**  
**CHIEF INFORMATION OFFICER**  
**BOHLER**

of patience and just sticking with our people as we used Teams, Quick Assist, or whatever tools we could at the time to view their situation and walk them through things,” Barnes says. “Once that dust settled, we turned our attention back to virtual desktop deployment and new cybersecurity initiatives.”

One problem IT has had to address is a slight uptick in replacing broken devices. “I think there’s more room for risk in spilled drinks, devices getting dropped, etc., when you have a larger percentage of devices exposed to people working from home,” Barnes says. “People might be using a part of a kitchen counter, dining room table, or wherever they can work.”

At Bohler, a land development consulting and technical design firm, general IT functions have remained largely unchanged since the pandemic began, says Richard Holst, chief information officer. But the firm has focused more on productivity, which is increasingly dependent upon the quality of employees’ home internet service and collaboration tools such as Microsoft Teams.

“Fortunately, several of Bohler’s existing policies allowed for a smooth transition to remote work and communications,” Holst says. “Our workplace flexibility framework was already in place before the pandemic, allowing for a seamless conversion of all employees.”

In general, having a strong IT management function in place prior to the health crisis has enabled the firm to weather the challenges.

“Bohler’s IT team has always stressed the importance of staying one step ahead, something that benefits our firm, employees, and clients,” Holst says. For the past five years or so, the firm has created initiatives to provide employees with the technology tools and resources necessary to succeed, specifically in a decentralized work environment.

“Companies that were not already on this path have likely struggled through the pandemic and various associated shutdowns,” Holst says.

Like other businesses, Bohler has had to deal with technology supply chain issues during the pandemic. “We creatively tackled supply shortages such as webcams and monitors by casting a wider net when shopping beyond our usual vendors and allowing employees to borrow office equipment if needed,” Holst says.

Even as some workers slowly move back to corporate offices and other company facilities, many will still have expanded options of working from home either full time or part time. This will likely continue even as the COVID-19 vaccines continue to be administered worldwide to bring the crisis under control.

“Probably the hardest thing we have to do is support everybody’s network at their house and all the different variables that are involved with the setup,” says Andy Knauf, chief information officer at Mead & Hunt.

“We had 38 offices, and it wasn’t that difficult to support them,” Knauf says. “But when we sent everybody home, we were supporting over 900 offices, so that was a big challenge for us. The biggest issue we faced were the different routers that had the same IP range we had on the work equipment. That ended up being a bigger mess than we anticipated.”

The IT team resolved this by walking employees through the necessary configuration changes in routers, Knauf says.

## VIRTUAL MEETINGS AND EVENTS

Not only is most daily work now virtual; so are many industry and firm events, given the travel restrictions still in place. IT is being tasked with supporting these events—critical virtual meetings, conferences, and even business parties and other celebrations—through



## Cybersecurity Checklist

Here are some basic steps firms should take to ensure strong security that can last well beyond the pandemic:

- Create or update policies regarding acceptable use of devices, internet access, email, remote access, and passwords.
- Train employees about what to look for with attacks such as phishing.
- Use encryption, particularly for highly sensitive data.
- Deploy firewalls, intrusion detection and prevention, access controls, email filters, antivirus software, virtual private networks, and other security tools.



“Given the role that technology can play to drive productivity, collaboration, and socialization within companies, IT has

a greater responsibility for the organization as thought leaders, technology influencers, and change agents.”

**RONDA CILSICK**  
CHIEF INFORMATION OFFICER  
DELTEK

technology tools such as online conferencing and collaboration platforms.

Mead & Hunt uses three products to handle big virtual events: Teams, Zoom, and GoToMeeting, which was used for the company’s biggest conferences. Those conferences averaged about 600 attendees and sometimes featured presentations happening simultaneously.

Demand has increased, Knauf says. “We probably have more people attending because they are all virtual.”

Firms need to think about how they want to approach big virtual events, Holst says. “Is it going to be interactive as a webinar style or more of a moderated presentation style?” With the latter, you can have employees send in questions to a moderator who then asks them of the presenter, he suggests.

Having a bit of fun in a stressful time can help firm culture. “Some offices have had a mixologist do a social meeting; some have used trivia apps and other social interactive games, where people can participate virtually,” Holst says. “Some of the best meetings we have had are the social ones, where I send employees their favorite snacks as a surprise for the meeting.”

IT leaders are partnering with the business leaders to define what “great virtual” looks like for their organization, Cilsick says. “Given the role that technology can play to drive productivity, collaboration, and socialization within companies, IT has a greater responsibility for the organization as thought leaders, technology influencers, and change agents,” she says.

“The new corporate reliance on Microsoft Teams is something that we have had to better understand,” says Eric Quinn, chief technology officer at C&S Companies. “Before the pandemic, there were only an interested few employees who actually learned the Teams environment. Supporting and training our company on Teams was something that we were ready to do, but the sheer volume uptick in usage has meant more time spent helping teammates understand the power of that tool.”

Hosting virtual meetings “has been a challenge for many of the agencies and jurisdictions with which we work,” Holst says. “In our efforts to keep our clients’ projects moving forward, we have provided guidance to these cities and towns, sharing best



practices or even assisting with the adoption of new technology.”

By acting as a consultant in this way, Bohler has been able to push many projects through their approval processes and minimize delays, he adds.

### **A FOCUS ON CLOUD AND SECURITY**

The increased virtual activity has meant a greater reliance on cloud computing and cybersecurity.

Bohler has maintained a cloud-first policy for several years, Holst says, which helped streamline the shift to remote work. “In the years leading up to the pandemic, companies that adopted a more flexible cloud-based approach were likely better positioned to maintain a competitive fiscal edge and attract and retain a healthy workforce,” he says.

C&S Companies discovered in the early days of remote work that many cloud services became overwhelmed by the volume of new users and changes that were being made to accommodate schools and businesses suddenly communicating and working remotely.

“We found that it was necessary not to rely only on one platform but to have backup platforms that were built and functioned in a different environment,” Quinn says. “Essentially, we had to have Plan B ready to go at all times because Plan A might not be available as often.”





SDI PRODUCTIONS/GETTY IMAGES

Cybersecurity has long been a high priority for IT leaders at engineering firms. But the work-from-home model, increased use of the cloud, and newly emerging threats have all exacerbated the urgency of systems and data protection. In particular, organizations have had to deal with a host of phishing attacks related to the pandemic.

“We have observed an increase in targeted phishing attacks, but the security measures we have in place and our ongoing training have kept these attempted security breaches at bay,” Holst says. Bohler uses Microsoft threat-detection software along with several custom Office 365 alerts to prevent attacks and warn administrators of suspicious activity.

Every six months, employees must complete mandatory security training, which walks them through the latest corporate phishing and security breaching methods. “The training is interactive and will only allow the employee to complete it if they answer all the questions correctly,” Holst says. “We also do random testing, and if an employee struggles to understand the issues, we will coach them.”

Security is a major focus for Mead & Hunt as well. “The biggest problem in our industry right now is ransomware attacks,” Knauf says. Ransomware is a type of malware that threatens to publish a victim’s data or perpetually block access to systems unless a ransom is paid, generally in cryptocurrency. A good number of engineering firms have faced downtimes of up to 30 days and millions of dollars in losses from such attacks.

“It’s a concern not only on IT staff, but everyone in the company,” Knauf says. “The ramification of a ransomware attack can last years, as access to older files might not be realized until much later. So that will remain a major focus of attention for us in the coming years.”

In addition to security, firms face systems reliability issues. The pandemic has underscored the fact that firms have such spread-out operations, says Jeff Baker, vice president and co-owner of IT systems integrator and consulting firm General Networks. “That could be laptops, mobile devices, or home networks,” he explains. “Most of those things are owned by the employees, and they present challenges to support, security, and performance. It adds a layer of complexity and means that a company’s operation might be dependent on systems for which there’s very little reliability.”

As remote work continues for many in 2021, “we’ll likely see more innovations that will allow us to work more effectively,” Cilsick adds. “This will help us recover some of what’s been lost in the move from the office.”

“I think an important evolution is a cultural shift in appreciation for technology and what it can do for us,” Barnes says. “Suddenly, virtual meetings with clients are acceptable and preferred instead of driving in a car to visit them on-site one or more hours both ways. People are a little more understanding, accepting, and dare I say appreciative of change to technologies, as we have all realized we’re a lot more adaptable than we gave ourselves credit for.” ■

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



“We found that it was necessary not to rely only on one platform but to have backup platforms that were built and functioned in a different environment.”

**ERIC QUINN**  
CHIEF TECHNOLOGY OFFICER  
C&S COMPANIES

**ACEC/  
PAC  
2020:**

# Despite Pandemic, Mission Accomplished

BY BOB VIOLINI

**THE ORGANIZATION MET ITS GOAL OF EXCEEDING \$1 MILLION IN DONATIONS TO HELP ITS ADVOCACY EFFORTS**

**D**espite all the challenges of a year dominated by a worldwide health crisis and associated lockdowns and limitations, the ACEC Political Action Committee (ACEC/PAC) enjoyed resounding success in 2020.

Through the efforts of many volunteers, ACEC/PAC, which helps represent the legislative interests of engineering firms, achieved more than \$1 million in donations for the fifth consecutive year.

Even with the obstacles imposed by the COVID-19 pandemic, total donations for the year were down only about \$16,600 from 2019's record campaign. Had the pandemic not struck and organizations been able to host in-person events, ACEC/PAC leaders estimate that an additional \$50,000 could have been raised.

ACEC/PAC is the engineering industry's primary tool for political engagement at the national level. It is regulated by the Federal Election Commission and by a committee of PAC Champions made up of engineering firm volunteers from ACEC state Member Organizations. The PAC has experienced incredible growth—more than 500 percent in the last decade.

The organization plays a vital role in the success of ACEC's advocacy program, supporting federal candidates on a bipartisan basis who support the engineering industry's business agenda in Congress.

"Our No. 1 mission was to sustain and exceed our \$1 million ACEC/PAC goal," says Jason Matson, vice chairman of ACEC/PAC and California regional leader at Kimley-Horn. "Mission accomplished."



PAC receipts in 2020 totaled \$1.086 million, Matson says. The focus of the ACEC/PAC Champions Committee continues to be on broadening member participation, he says.

"Our PAC had nearly 3,000 unique contributors, of which over 700 gave for the first time," Matson added.

As active leaders of firms retire, it becomes even more important to involve new members. Another 2020 goal of the committee was to expand the next generation of ACEC/PAC



“We need to start talking to the younger professionals earlier and have them shadow us at the local level, be it school board, city council, or county commissioners court. It will mean making a commitment to taking our younger professionals to these political venues.”

**DR. GARY W. RABA**  
CHAIRMAN  
ACEC/PAC CHAMPIONS COMMITTEE  
CHIEF GROWTH OFFICER  
RABA KISTNER

advocacy by encouraging emerging leader involvement. It did this by developing the option of reduced contribution levels for young professionals under 35.

“We need to start talking to the younger professionals earlier and have them shadow us at the local level, be it school board, city council or county commissioners court,” states Dr. Gary W. Raba, chairman of the ACEC/PAC Champions Committee and chief growth officer at Raba Kistner. “It will mean making a commitment to taking our younger professionals to these political venues.”

“We also encourage our state Member Organizations to consider developing special PAC events for those states that have emerging leader programs,” Matson says.

## By the Numbers

**\$1,085,915**

Total receipts for 2020

**\$1,102,528**

Total receipts for 2019

### 2020 ACEC/PAC Totals

**26** Capitol Club Members (\$5,000)

**57** Chairman's Club Members (\$2,500+)

**254** Millennium Club Members (\$1,000-\$2,499)

**2,992** Unique contributors

**\$300,000+** given by ACEC members to ACEC-supported candidates through the Direct Giving Program

**\$722,850** raised from the four PAC sweepstakes programs, with **6,918** entries

**19** Member Firm federal PAC contributions totaling **\$33,800**

Giving the max contribution of **\$5,000** were: Michael Baker, CDM Smith, STV, Terracon, and TranSystems

### Top Member Firms in Employee Contributions

Kimley-Horn and Associates-**\$47,565**

HNTB-**\$17,565**

HDR-**\$15,695**

KCI Technologies-**\$14,830**

WSP USA-**\$11,860**

Benesch-**\$11,790**

TranSystems-**\$11,408**

Michael Baker International-**\$10,255**

Rick Engineering-**\$10,000**

### State Member Organization Achievements

**44** states achieved their PAC goal

**Illinois** raised the most (**\$68,005**) and had the most contributors (**245**)

**Indiana** was the first state to achieve its PAC goal

**Minnesota** achieved its goal for the first time



Clearly the pandemic had a major impact on ACEC/PAC efforts. “It goes without saying that 2020 was a challenging year,” says Kevin McOmber, vice chairman of ACEC/PAC, member of the Georgia PAC, and senior vice president at Clark Patterson Lee. “This PAC demonstrated incredible resilience.”

Firms found ways to deal with disruption. “As engineers, our livelihoods are based upon being creative and adapting to changing environments—2020 was no different,” Matson says. “The best-intended plans for in-person events were quickly replaced by virtual fundraising gatherings, which actually were embraced by our members to the extent that we almost exceeded our 2019 PAC performance.”

ACEC/PAC outreach to congressional delegations across the country also evolved to virtual meet-and-greet settings, Matson says.

### CHAMPIONSHIP EFFORTS

ACEC Illinois had the highest total raised among the states and had the most contributors.

“Illinois is honored to be the top fundraising state, and we are going to work very hard to win the title again in 2021,” says Kevin Artl, president and CEO of ACEC Illinois. “But we are most proud of increasing engagement and bringing in over 100 first-time donors to the PAC. The more engaged our members are, the more we can accomplish.”

The group “made a concerted effort this year to expand our donor base—not only to increase funds raised but to increase engagement with the PAC and our goals,” Artl says. “To accomplish that, we worked with ACEC National to simplify the

donation process by using online links for all our efforts.”

ACEC Illinois hosted a sweepstakes throughout the year, featuring a variety of rewards every two months. “This system kept the prizes fresh and the donors engaged,” Artl says. “As a result, we more than doubled our number of individual donors.”

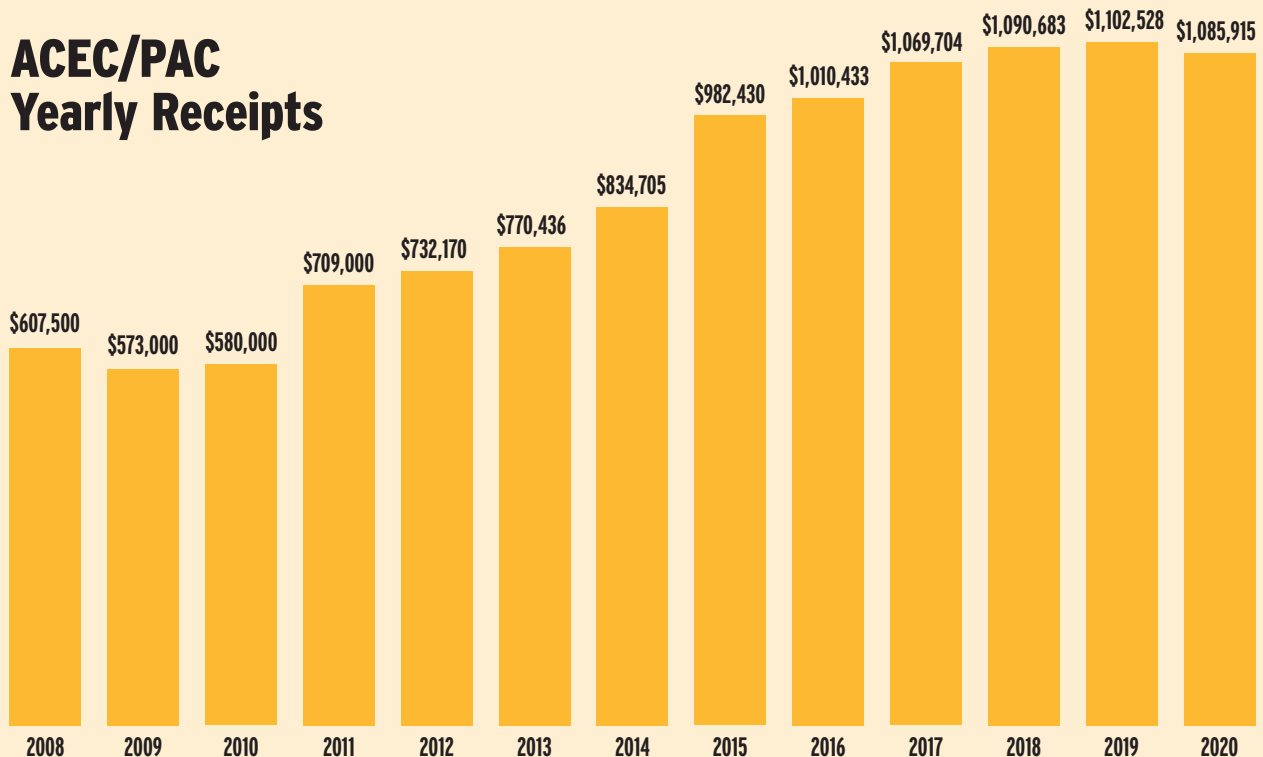


“ACEC/PAC advocacy hopefully is able to leverage our existing congressional relationships, as well as work with newly elected

members of Congress in the spirit of coming together and implementing strong investments in transportation, water, and energy infrastructure.”

**JASON MATSON**  
VICE CHAIRMAN  
ACEC/PAC  
CALIFORNIA REGIONAL LEADER  
KIMLEY-HORN

## ACEC/PAC Yearly Receipts



The engineering industry is focused on delivery, Artl says, “so as an association representing this industry, it’s equally important to meet our goals. Plus, it just allows for a wider discussion of industry concerns.”

Another state organization, ACEC/MN, reached its funding goal for the first time in 2020.

“I am very proud of the ACEC/MN membership and our PAC leaders for stepping up last year to hit our PAC goal,” says Jon Curry, executive director. “ACEC/PAC has a first-rate advocacy team in Washington, D.C. They open doors for our organization and allow our members to tackle critical policy issues at the federal level. To get the same level of support would cost upwards of a million dollars per year in lobbying fees. ACEC/PAC allows our Member Firms to receive the same level of support at a fraction of that cost.”

Reaching its PAC goal in 2020 helped reinforce Minnesota’s commitment to ACEC’s mission of strengthening the business environment through government advocacy and political action, Curry says. “The COVID-19 pandemic has highlighted the vast amount of control state, local, and federal governments have over businesses and their employees,” he says. “I believe supporting ACEC/PAC is essential. The PAC uses the funds it is given to help preserve and protect our members’ business interests now and in the future.”

To help reach its goal, ACEC/MN hosted traditional fundraisers. “That said, the best fundraising strategy is word of mouth promotion,” Curry says. “This can be firm to firm or peer to peer, and it’s how we raised more than \$25,000. I regularly speak to our firm leaders about the importance of having a seat at the table in D.C.”

In Minnesota, members recognize the long-term return on investment they will receive from contributing to the PAC and the importance of the advocacy process in advancing the engineering profession, Curry says. He credits the leadership of ACEC/MN Board Member Chris Leverett of Kimley-Horn. “We would not have achieved our goal without his dedication to the PAC,” he says.



“ACEC/PAC has a first-rate advocacy team in Washington, D.C. They open doors for our organization and allow our members to tackle critical policy issues at the federal level. To get the same level of support would cost upwards of a million dollars per year in lobbying fees. ACEC/PAC allows our Member Firms to receive the same level of support at a fraction of that cost.”

**JON CURRY**  
EXECUTIVE DIRECTOR  
ACEC/MN



“The leaders of ACEC’s political advocacy are very interested in creating greater synergy and have effectively done that by finding common ground on key issues. These have included important topics such as tax reform and Qualifications-Based Selection of engineering firms.”

**KEVIN McOMBER**  
VICE CHAIRMAN  
ACEC/PAC  
SENIOR VICE PRESIDENT  
CLARK PATTERSON LEE

#### SUSTAINING MOMENTUM

How will synergy of greater member involvement in ACEC/PAC be maintained at a national level in 2021?

“With the election year behind us, ACEC/PAC advocacy hopefully is able to leverage our existing congressional relationships, as well as work with newly elected members of Congress in the spirit of coming together and implementing strong investments in transportation, water, and energy infrastructure,” Matson says.

“Our consulting industry has proven resilient in a year that was truly a test,” he continues. “Moving forward in 2021 and beyond, ACEC/PAC will grow in its importance in support of our key advocacy elements to benefit our Member Firms across the country.”

Over the past few years, the number of contributors supporting federal candidates on a bipartisan basis has grown, McOmber says. “The leaders of ACEC’s political advocacy are very interested in creating greater synergy and have effectively done that by finding common ground on key issues. These have included important topics such as tax reform and Qualifications-Based Selection of engineering firms,” he says.

Raba says a major benefit of ACEC/PAC is that it helps generate contact directly with lawmakers, allowing a member to “communicate what legislative actions mean to their business, be it corporate taxes, business terms within contracts, rules and policies that stifle innovation and growth, or any other legislative action that hampers you, your employees and your business.” ■

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

# 2021 ANNUAL CONVENTION RAMPS UP BUSINESS INSIGHTS, INFRASTRUCTURE ENTHUSIASM



*Fox News Sunday* Host Chris Wallace touched on a variety of political issues during his Convention address and “fireside chat” with ACEC President and CEO Linda Bauer Darr and Advocacy Senior Vice President Steve Hall.



New ACEC Chair Robin Greenleaf (left) listens to ACEC President and CEO Linda Bauer Darr during the Convention's ExCom meeting. To the right is Chair Emeritus Charlie Gozdziwski.



**T**he Council's first-ever Virtual Annual Convention and Legislative Summit, finally held at its normal time following last year's forced cancellation, attracted a strong viewership of 946 registrants. Attendees enjoyed an impressive lineup of nationally renowned speakers, advanced business education sessions and seven Vendor Partner presentations.

The three-day Convention saw the installation of Robin Greenleaf, CEO of Architectural Engineers, as new ACEC chair, along with the 2021–2022 Executive Committee, featuring newcomers: **Gary Hartong**, president of Wooten; **Melvin Williams**, vice president and senior business developer at S&ME; **John Rathke**, principal and vice president at Mead & Hunt; **W. Arthur Barrett**, senior vice president at Gannett Fleming; and ACEC Indiana Executive Director **Beth Bauer** as National Association of Engineering Council Executives president.

The Board of Directors approved an amendment to the Strategic Plan goal of "Essential Value to Society" by adding a fourth objective: "Promote the industry's role in enhancing economic and social equities in the built environment."

Other Annual Convention highlights included:

#### **TRANSPORTATION SECRETARY PETE BUTTIGIEG CALLS INFRASTRUCTURE BILL "ONCE-IN-A-LIFETIME OPPORTUNITY"**

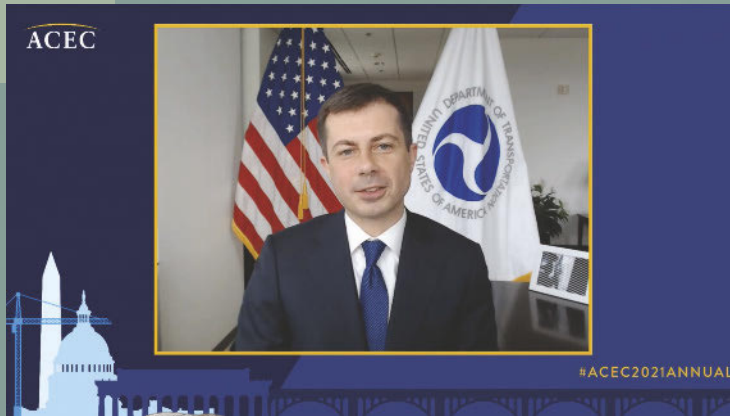
Labeling himself an "infrastructure enthusiast," U.S. Transportation Secretary Pete Buttigieg told the Convention audience that passing a comprehensive infrastructure package this year is "a once-in-a-lifetime opportunity."

"We are in a perfect storm of demonstrated need, bipartisan support among the people, leadership in Washington, and a climate that is calling on us to act," Buttigieg said.

He noted that the bill—the \$2.25 trillion American Jobs Plan—isn't "just proposing to build back to where we were in 2019. This is about looking ahead to the next 50 years. Climate change and equity is built into every part of this plan."

Buttigieg stressed that there is enormous bipartisan support among the American people for robust infrastructure investment and said he was enthused by the Senate Republicans' \$568 billion infrastructure proposal. (The Senate later upped the offer to \$928 billion over eight years).

"If there is any area for bipartisan cooperation on Capitol Hill, this has to be it," he said. "We have a counterproposal on the table, and now we're off to the races with negotiations."



U.S. Secretary of Transportation Pete Buttigieg told Convention viewers that if there is an area for bipartisan cooperation, infrastructure "has to be it."



## CONVENTION KEYNOTE SPEAKER CHRIS WALLACE CONFIDENT OF “MASSIVE” INFRASTRUCTURE BILL PASSAGE

Chris Wallace, host of *Fox News Sunday*, told attendees he feels confident in a significant infrastructure bill being passed this year by Congress.

Wallace touched on a variety of political issues during his address, from infrastructure to the current political divide and even media bias. He focused, however, on the importance of a robust infrastructure bill.

“There of course will be a lot of ups and downs as they work through the process,” Wallace said. “But I feel confident that there will be a massive infrastructure bill at some point. The GOP likes infrastructure, too.”

Wallace also noted that before COVID-19, he was a frequent traveler throughout the world. “When you see the infrastructure of other nations, such as the airports in Singapore or in Dubai, quite frankly it shows our infrastructure is pretty mediocre and

sometimes embarrassing. We could do so much better.”

On current politics, Wallace believes the Republican Party is in a frozen state, where no one is certain what impact former President Donald Trump will have moving forward, including on the upcoming 2022 congressional midterm elections. “Normally after an incumbent president loses, there is a host of newcomers ready to make an impact. This year it is much less who are willing to step up, whether they are backed by Trump or not.”

When asked about current bias among the media, Wallace noted that he is often praised for being someone who “plays it down the middle.” However, he added, when he was a young reporter in the ’80s, that was not considered a compliment.

“That’s why I’m not optimistic we will ever get back to straight news,” he said.

## INVENTOR JESSICA O. MATTHEWS OFFERS INNOVATIVE VISION FOR INFRASTRUCTURE

What do a soccer ball, a jump rope, a speed bump, and even a sidewalk have in common?

They all are now conduits of energy production or data collection—the result of the vision of Jessica O. Matthews, founder and CEO of Uncharted Power, an award-winning power and data infrastructure technology company that develops infrastructure-operating systems for communities worldwide.

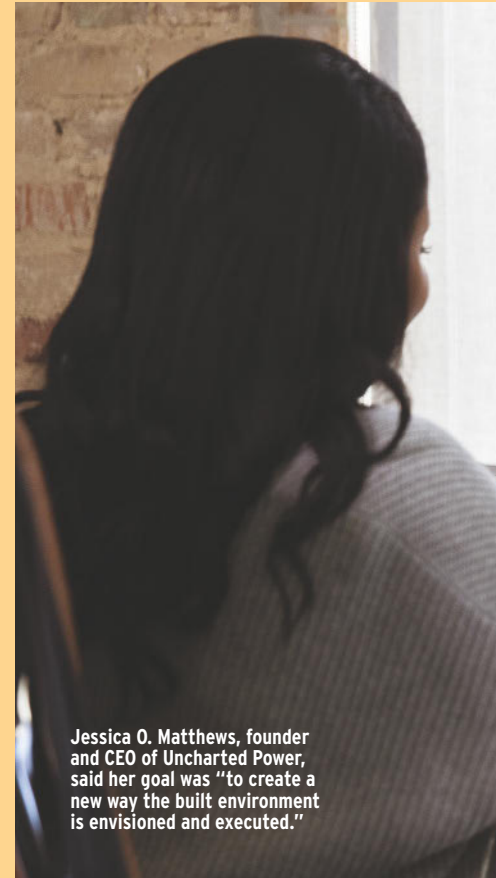
In her Convention address, Matthews explained how she discovered a revolutionary way to plan and manage infrastructure. “Our goal is to create a new way the built environment is envisioned and executed to maximize making things truly better,” she said.

At age 22, she founded Uncharted Power in response to what she discovered were global interoperability issues regarding the multifaceted aspects of infrastructure planning. “We found one of the most important aspects of infrastructure planning is a true understanding and articulation of the problem,” Matthews said.

Using a patented suite of solutions, Uncharted Power builds, owns, and operates infrastructure to provide power and data services throughout the world that are clean, safe, and low cost. The company focuses on smart city infrastructure planning and now has 12 patented or patent-pending systems.

By addressing those interoperability issues, her company creates systems that reduce infrastructure costs by 50 percent and time by 75 percent.

“I like to think that our company seeks to address the gap between the past and the future of infrastructure planning,” she said.



Jessica O. Matthews, founder and CEO of Uncharted Power, said her goal was “to create a new way the built environment is envisioned and executed.”



## CEO PANELISTS ADDRESS IMPACT OF COVID, CLIMATE, AND WORKPLACE

A Convention panel featuring Member Firm leaders shared their thoughts on dealing with the pandemic, going back to the office, the impact of social justice issues, and their financial results.

Panelists included: Michael Carragher, president and CEO of VHB; Steve Lefton, president and CEO of Kimley-Horn; and Robert Scaer, chairman and CEO of Gannett Fleming. Florence Sterlin, president of DB Sterlin Consultants, and ACEC President and CEO Linda Bauer Darr moderated the panel.

The big issue facing Member Firms now is remote work and when to return to the office. “Forty percent of our offices are open for business, but very few people are using the offices,” said Scaer. “We polled our staff, and 61 percent said they want to come into the office two days a week or less or only when needed. We want to offer flexibility to our employees, but we also need some predictability.” He said the firm has formed a committee to create a policy.

In contrast, Kimley-Horn expected people back in the office on March 1. “Almost everybody is back,” Lefton said. “The energy level is rising; the fellowship is coming back. It’s important to our culture.”

Lefton also spoke about firm leadership when addressing social justice issues. “I feel very strongly about these issues, but you need to figure out where the lines are because I represent the firm, the firm employees, and myself,” he said. Firm leadership decided that putting out “performative social media statements” when events happened does nothing. “Our activities are focused internally. We focus on real change and quietly lead by example.”

Carragher also spoke of the engineering industry’s ability to be thought leaders, highlighting his firm’s e-book *Building a Sustainable, Resilient, and Equitable Future*. “We really have the opportunity to be community builders,” he said. “We can create alternatives that allow a successful community to move forward, not just solve a technical problem.”

## ACEC RESEARCH INSTITUTE STUDIES SHOW ENGINEERING IS “CRITICAL PLAYER ON ECONOMIC MAINSTAGE”

The ACEC Research Institute highlighted recent studies that calculated the size and economic impact of the engineering industry, surveyed engineering firms on the effects of COVID-19, and forecast the market over the coming five years.

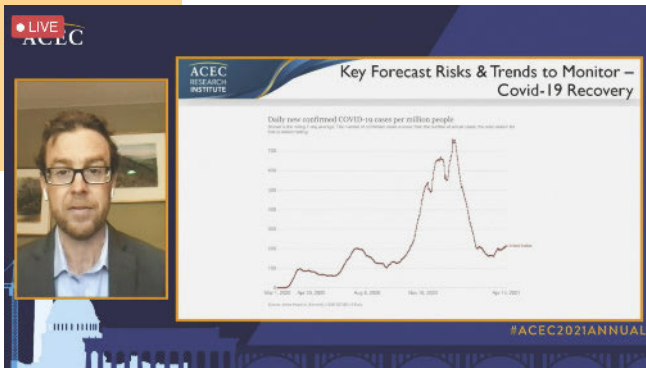
Kenneth McGill of Rockport Analytics offered eye-opening statistics about the engineering industry:

- The average wage in the industry is \$88,000.
- Five states comprise 40 percent of the engineering and architectural services industry output: California, Texas, Florida, New York, and Michigan.
- 120 engineering firms employ half the workers in the industry.
- A/E services account for 5.3 percent of total construction output.
- Each additional \$1 in A/E revenue contributes \$1.55 in U.S. GDP.

CEO leaders shared their thoughts on key issues facing firms, including remote work and returning to the office, as well as social justice issues. The panel discussion featured (from left to right): Michael Carragher, president and CEO of VHB; Robert Scaer, chairman and CEO of Gannett Fleming; panel moderators ACEC President and CEO Linda Bauer Darr and Florence Sterlin, president of DB Sterlin Consultants; and Steve Lefton, president and CEO of Kimley-Horn.



SDI PRODUCTIONS/GETTY IMAGES



Jonathan Gray, principal of Rockport Analytics, highlighted the results of the ACEC Research Institute's five-year industry forecast.

Joe Bates of the Research Institute reported on the key findings from eight surveys of ACEC members on the impact of COVID-19 on their firms:

- 42 percent of firms say they are doing better than before the pandemic, but 31 percent say they are doing worse.
- Backlogs have increased for nearly half the firms, with the largest firms reporting the biggest increases.
- From September 2020 to March 2021, the smallest firms saw their backlogs increase from 3.5 months to 5 months.

Jonathan Gray of Rockport Analytics highlighted the results of the Institute's five-year industry forecast:

- Engineering services output will fall about 4 percent in 2021, but the decline will all be in the first half of the year; the market will start growing in the second half.
- The market will have 3 percent annual growth from 2022 to 2024.
- In 2025, the market will tail off as the effects of economic stimulus fade.

## CONVENTION'S LEGISLATIVE BRIEFING PREPS CITIZEN LOBBYISTS ON FAR CREDITS CLAUSE AND INFRASTRUCTURE PACKAGE

At the Convention's Legislative Briefing, ACEC Advocacy Senior Vice President Steve Hall and Transportation Vice President Matt Reiffer highlighted the key issues for the Council's virtual grassroots lobbying campaign over the coming months.

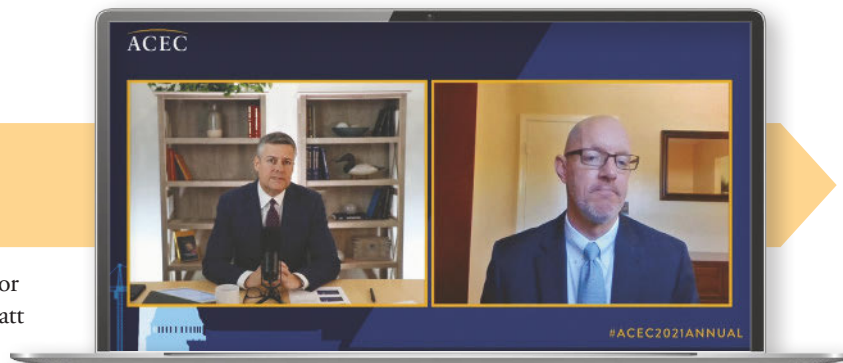
"Infrastructure is the opportunity for 2021, but protecting firms with PPP loans is a challenge and a priority that we're going to stay focused on," Hall said.

Hall called the recent Federal Highway Administration guidance that placed significant limits on the Federal Acquisition Regulation (FAR) credits clause in federal contracts "a step forward," but stressed, "We will continue to push for a waiver, although a legislative fix may be needed to limit separate state policies."

Reiffer compared the administration's \$2.25 trillion American Jobs Plan with the \$568 billion proposal recently released by Senate Republicans. (The Senate later upped the offer to \$928 billion over eight years.)



During a Convention Congressional Panel, three U.S. representatives expressed optimism that Congress will pass infrastructure legislation this year but differed on the scope of the package. Panelists included (clockwise from upper left): Co-moderators Gary Raba, chief growth officer at Raba Kistner, and ACEC Senior Vice President of Advocacy Steve Hall; Dwight Evans (D-Pa.), a member of the House Ways and Means Committee; Rep. Anthony Brown (D-Md.), a member of the House Transportation and Infrastructure (T&I) Committee; and Rep. Troy Balderson (R-Ohio), also a member of the House T&I Committee.



ACEC Advocacy Senior Vice President Steve Hall and Transportation Vice President Matt Reiffer briefed Convention attendees on ACEC's key issues for the Council's virtual grassroots lobbying campaign over the coming months.

About \$1 trillion in the American Jobs Plan would go to the built environment over eight years. The increased road and bridge investment would focus on repairs and renovations rather than expansion, and transit and rail would get big increases, as would resilience and equity initiatives. Other parts of the proposal would invest in rural broadband, water, and the energy grid.

"The rub for us and the business community is in the pay-for," Reiffer said, which so far is focusing on corporate tax increases rather than user fees.

## CONGRESSIONAL PANEL OPTIMISTIC ABOUT PASSAGE OF INFRASTRUCTURE BILL THIS YEAR

All three U.S. representative members of a Convention Congressional Panel said they expected Congress to pass infrastructure legislation this year but differed on the package's scope.

Rep. Troy Balderson (R-Ohio), who sits on the House Transportation and Infrastructure Committee, says the House could pass an infrastructure bill by Memorial Day. "Is it doable? Absolutely, it's doable," he said. "It just takes members of Congress to cowboy up, put away their pride, and start working with each other."

Balderson said the bill should be limited to traditional infrastructure—roads, bridges, water, and rural broadband—but Rep. Dwight Evans (D-Pa.) said he likes the broader reach of President Joe Biden's \$2.25 trillion American Jobs Plan, which invests heavily in "softer" infrastructure.

"This is about winning the future," said Evans, a member of the House Ways and Means Committee. He said the more expansive bill would be a strategic investment in the "competitiveness and needs of the country."

Rep. Anthony Brown (D-Md.) also supported the "wider aperture" of the administration's proposal, highlighting provisions for equity and resiliency. "An infrastructure package is a great vehicle to ramp up our efforts in addressing climate change," said Brown, a member of the House Transportation and Infrastructure Committee. ■



THE WASHINGTON POST/GETTY IMAGES

"We are in a perfect storm of demonstrated need, bipartisan

support among the people, leadership in Washington, and a climate that is calling on us to act."

**PETE BUTTIGIEG**  
U.S. SECRETARY OF TRANSPORTATION

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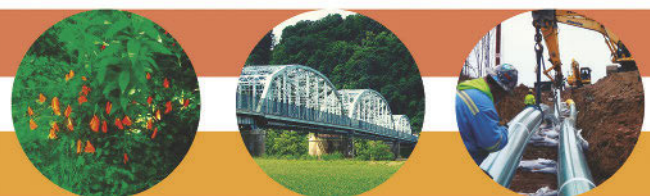
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Barge's Water Business Unit volunteers with the Cumberland River Compact to clean up a portion of the Harpeth River in Nashville, Tennessee (left to right: Clayton Foster, Matthew Johnson, Kyle Mangum, Caroline Davis, and Liliana Porras).



# Building Benevole





BY MATT ALDERTON

# nce

## BARGE DESIGN SOLUTIONS' COMMUNITY FUND CREATES A CULTURE OF SERVICE THAT FORTIFIES ITS EMPLOYEES, ITS BRAND, AND THE COMMUNITIES IT WORKS IN

**B**arge Design Solutions of Nashville, Tennessee, has been building communities since 1955. Literally. From roads, bridges, airports, and water treatment plants to factories, medical centers, schools, and parks, the Member Firm's projects are scaffolding on which hang not only glass, concrete, and steel, but also the local, state, and regional economies that millions of Americans rely on for food, water, work, and wellness.

If you ask President and CEO Bob Higgins, however, what Barge Design Solutions is most proud of, it isn't a highway, a hospital, or a data center. Rather, it's the culture of service that permeates both its work and its workforce.

That culture dates back more than 60 years to founders Bill Waggoner, Dan Barge Jr., and Billy Sumner, who from the very start wanted their firm to have a community mindset. "We do a lot of infrastructure projects at Barge," explains Higgins, whose team encompasses more than 450 employees across 17 offices. "When we do those projects, it's not about the physical work—the site redevelopment, the grading, and all of that. It's about creating jobs and opportunities in our community."

In other words, it's not about output. It's about outcomes.

But positive outcomes in communities don't just stem from good projects. More so, they stem from good people. For decades, Barge has encouraged community service and volunteerism among its staff.

"I started with Barge as an intern in 1996, and even back then it was understood that you were going to be involved in something outside of work to help your community," Higgins continues. "Whether it's supporting the well-being of children, helping the elderly, assisting those in dire economic straits, or encouraging young people who want to get involved with engineering, we've always sponsored our employees' involvement in projects and organizations that give back."

Clearly, service is baked into Barge's corporate ethos. In 2014, however, the company conceived a way to make giving even more foundational: It established the Community Fund, an employee-run grant program whose goal is cultivating, celebrating, and evangelizing generosity in ways that turn high-performing team members into high-impact citizens.



## GRASSROOTS GIVING

Like many employers, Barge Design Solutions regularly receives requests from its employees to help them support causes. In 2014, the Member Firm created the Community Fund as a formal mechanism through which to not only receive those requests, but also to encourage and amplify them.

“The needs of organizations and communities are different across our footprint. What’s important in Nashville, for example, might be slightly different than what’s important in Chattanooga or Birmingham,” Higgins says. “Instead of us as leaders choosing which organizations to support across the company, we set up the Community Fund as a way for us to encourage our employees to give while sponsoring the things they care about.”

Here’s how it works: All year long, employees can make charitable contributions to the Community Fund, either directly or through automatic payroll deductions. Twice a year—once in the spring and once in the fall—Barge matches their contributions and distributes the funds in the form of charitable grants. Employees who have causes and organizations they want to support can submit grant applications via the company intranet, after which a board-appointed committee reviews them and decides which applications to fund. Comprising team members at all levels and from across the organization, the employee-run committee chooses grant recipients based on a scoring system that takes into account:

- Employee enthusiasm (i.e., how many employees support an organization)
- Corporate relevance (i.e., an organization’s relationship to Barge)
- Grant-worthiness (i.e., what kind of impact the grant money can have)

To date, Barge has distributed more than 150 grants to more than 70 nonprofit organizations, which collectively have received over \$340,000 in charitable funding. Recipients include Youth Encouragement Services, which provides after-

**Barge has distributed more than 150 grants to more than 70 nonprofit organizations, which collectively have received over \$340,000 in charitable funding**



Barge staff with Florida Panhandle residents, assisting with cleanup efforts after Hurricane Michael. A volunteer team of Barge employees helped South Walton Utilities restore water and sanitary sewer infrastructure in the Bay County area shortly after the storm.

school programs for low-income youth in Nashville; Saint Thomas Health, which provides medical and dental care to uninsured and underinsured individuals at community health events across Middle Tennessee; and Foster Love, which provides support to foster children and families in Huntsville, Alabama.

When special circumstances demand it, the Community Fund makes additional grants outside of its usual grant cycles. After tornadoes devastated Nashville and Chattanooga in March 2020, for example, the Community Fund gave \$5,000 each to the Middle Tennessee Emergency Response Fund and the American Red Cross of Southeast Tennessee.

“We want to be known as good, responsible corporate citizens,” Higgins says. “This is one tool in our toolbox that’s helping us build that reputation.”



“Whether it’s supporting the well-being of children, helping the elderly, assisting those in dire economic straits, or encouraging young people who want to get involved with engineering, we’ve always sponsored our employees’ involvement in projects and organizations that give back.”

BOB HIGGINS  
PRESIDENT AND CEO  
BARGE DESIGN SOLUTIONS



## MORE THAN MONEY

But good corporate citizenship demands more than money. So, alongside charitable giving through the Community Fund, Barge enables and encourages volunteerism.

"If our employees want to get involved with Habitat for Humanity, we'll not only match their donations, but we'll also allow them non-billable time to participate in building a Habitat for Humanity house," Higgins says. "We don't just want you to give to Big Brothers Big Sisters of America. We want you to go participate and be a mentor. Because sometimes the gift of time is worth even more than money."

In fact, the firm thinks volunteerism is so valuable, a new community service organization, Barge Gives Back, will serve as a clearinghouse for volunteer opportunities within the company. Several groups of employees, for example, have taken trips to Latin America to help build clean water infrastructure in underserved Guatemalan villages; Barge Gives Back will identify volunteer opportunities like that, then help recruit and organize employees who want to lend their time and talents.

"Barge's mission is to improve quality of life by unleashing the potential of our people, our clients, and our communities. We have lots of people who want to give back, and we believe we can fulfill our mission by helping them plug into volunteer opportunities," explains Higgins, who says the firm is currently developing yet another internal organization. In the wake of the 2020 murder of George Floyd, the Diversity and Inclusion Council will examine all of Barge's activities and initiatives through the lens of social justice. "Ultimately, these three organizations—the Community Fund, Barge Gives Back, and our Diversity and Inclusion Council—will be working together to inform and shape how we can have a positive impact on our local communities."

## INVESTING IN IMPACT

Clearly, philanthropy and volunteerism benefit communities. But they also benefit companies, according to Higgins, who says Barge's efforts help the Member Firm attract top talent, as young workers increasingly want to work for purpose-driven companies. The efforts also build camaraderie and connections.

"When you put a project together and bring a new job to life, that's a lot of fun. But when you get together on a Saturday and do something meaningful together, it helps your team be a stronger team," Higgins explains.

"We believe the culture of an organization is its personality," he continues. "It's how you respond when you don't even realize you're responding. At Barge, we have focused really hard on building a culture that makes a difference. That benefits us, it benefits our people, and it benefits our communities." ■

**Matt Alderton** is an architecture, engineering, and construction writer based in Chicago.



## 4 TIPS FOR SUCCESSFUL CSR

Barge Design Solutions follows these best practices with its corporate social responsibility initiatives, according to President and CEO Bob Higgins, who says they can help mission-driven organizations maximize both the internal benefits and the external impacts:

### 1. Lead by example.

Senior leaders have to show the way by donating their own time and money. "It starts with me," Higgins says. "As the CEO, you have to model the behavior you want to see in your organization."

### 2. Empower employees.

What makes Barge's program so successful is that employees lead it. "Our board and our executive team sponsor it, but our employees decide where the money goes," Higgins says.

**3. Eliminate barriers to participation.** By offering things like automatic payroll deductions for charitable contributions, the Member Firm simplifies employee participation. "Don't make it hard for employees to give back," Higgins says. "Make it really easy."

### 4. Share your success.

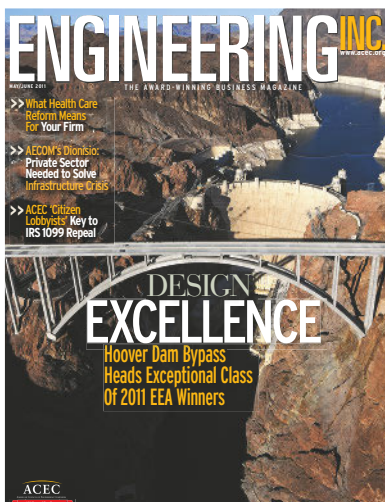
Communicating positive outcomes—on your website, on social media accounts, and in e-newsletters—builds enthusiasm. "Make sure you're taking pictures, talking about your efforts in meetings, and sharing your results on whatever platforms you have," Higgins advises. "The more you tell your story, the more people get excited about it and want to get involved."



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**MEMBER  
FIRMS REMAIN  
AT THE  
FOREFRONT  
IN MITIGATING  
THE COVID-19  
THREAT**

# Battling the Pandemic

BY SARAH FISTER GALE

**WESTON & SAMPSON**

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# Tracing COVID-19 in the Sewers

**PROJECT:** WASTEWATER SAMPLING FOR COVID-19 TRACING, BOSTON

**FIRM:** WESTON & SAMPSON  
READING, MASSACHUSETTS

If you want to predict an uptick in COVID-19 cases, check the sewers, says David Elmer, P.E., wastewater discipline leader for Weston & Sampson. The novel coronavirus can be detected in feces soon after infection and before individuals experience symptoms. “It’s an early warning system,” he explains.

Weston & Sampson had been working with the Boston Water and Sewer Commission for years prior to the pandemic. The company also had a relationship with Biobot Analytics, a wastewater epidemiology company that uses wastewater infrastructure to map population health.

Biobot originally focused on detecting opioids in wastewater but pivoted to tracking COVID-19 in 2020, through a pro bono program with researchers at the Massachusetts Institute of Technology, the Harvard Humanitarian Initiative, and Brigham and Women’s Hospital. The goal of the project was to map the spread of COVID-19 across the country. “It was a good opportunity to collaborate with the commission and Biobot to help the city of Boston,” Elmer says.

The commission identified 11 strategic zones in Boston and worked with Weston & Sampson to collect the samples. Elmer’s team then had to find the right manhole for each zone—it had to be located at the exit of each targeted catchment area, where all of the wastewater from that section of the city would flow into the central sewer system. In early May, the team evaluated several sites in each area to identify the best manholes based on access, location, flow rate, and ability to submerge a sampler tube.



Weston & Sampson checks for traces of COVID-19 in Boston’s sewers.

This selection process proved difficult: Boston’s sewer system is complex, with a network of pipes that range from small diameter to major interceptors large enough to walk through. Many of these sewers were laid more than 100 years ago.

Once the manholes were selected, the team hung the samplers and returned 24 hours later to collect them and install fresh ones.

“Each sampler gave us a snapshot of tens of thousands of residents,” Elmer says.

Biobot then analyzed the samples to determine the approximate number of people infected with COVID-19 in each



**DAVID ELMER**  
Wastewater Discipline Leader  
Weston & Sampson

area, helping the city assess the success of containment efforts and predict ongoing infection fluctuations to accelerate response efforts.

After the initial pilot, the commission opted not to continue, though Elmer says he still gets several calls a month from schools, communities, and municipalities interested in doing wastewater testing as part of their own

COVID-19 monitoring efforts. “It is labor-intensive and costly, but it adds real value,” he says. “It’s an anonymous, nonintrusive way to gather data that can directly inform public health decisions.”



Gannett Fleming installed BPI technology at its headquarters.



# Tech to Fight the Virus in the Air

**PROJECT:** BIPOLAR IONIZATION  
DELAWARE AND CAMP HILL,  
PENNSYLVANIA

**FIRM:** GANNETT FLEMING  
CAMP HILL, PENNSYLVANIA

It turns out that one of the most innovative technologies to fight the spread of COVID-19 has been around for more than five decades.

“Bipolar ionization (BPI), also known as dielectric barrier discharge, is a little-known virus-fighting, electronic air-cleaning technology,” explains Robert Weidner, mechanical practice leader for Gannett Fleming. BPI uses charged oxygen super ions to quickly and efficiently kill microbial pathogens, including the novel coronavirus, in the occupied space. The technology can be integrated directly into existing HVAC systems to create “pristine air,” like that found in nature, inside any building.

It’s not commonly used, but Gannett Fleming had implemented it in a green building to address a lingering musty smell. “We installed the technology, and the smell

went away,” Weidner says. When the pandemic started, he recalled the technology and realized it could help building owners minimize the spread of COVID-19.

BPI is easy to implement and requires little electricity—though, in the past, achieving this level of air quality wasn’t usually part of the HVAC budget, he says. “Most spaces were not designed to control the risk of viruses.” But in a pandemic, it’s a new imperative.

Weidner partnered with Amy Collins, marketing manager at Gannett Fleming, to create a thought leadership campaign about the technology and how it works. Then Collins and two interns started sharing information about the technology with clients and potential customers.

The response was huge, Weidner says. “We’ve done more than 80 presentations,

sometimes three or four a week.” The Member Firm hosted over 60 client-specific educational programs and more

than 15 for professional associations, including the Ontario Architects Association, the Society of College and University Planners, and the Cannabis Certification Council. Collins and Weidner also published two blogs on how to use the technology to combat the virus.

As a result of the programs, Gannett Fleming has since completed the installation of BPI at two commercial office spaces for a Delaware-based client in the financial sector, as well as at its own Pennsylvania headquarters.

Collins notes that this campaign wasn’t about selling, though. “It is about spreading knowledge and helping people get back to their normal lives,” she says.



**ROBERT WEIDNER**  
Mechanical Practice Leader  
Gannett Fleming



**AMY COLLINS**  
Marketing Manager  
Gannett Fleming



# HVAC Upgrades for Health Care

**PROJECT:** DARTMOUTH-HITCHCOCK COVID-19 PRECAUTION SUITES, MANCHESTER AND NASHUA, NEW HAMPSHIRE

**FIRM:** FITZEMEYER & TOCCI ASSOCIATES  
WOBBURN, MASSACHUSETTS

**A**lmost every pandemic movie has that pivotal scene where doctors look at the ceiling and realize the virus is being spread through the ventilation system. It's a great plot tool because it reflects a realistic scenario. "Recirculating air systems can spread a virus through a building," says Scott Guertin, health care market leader for Fitzmeyer & Tocci Associates, Inc. (F&T).

As soon as news of the coronavirus began to spread, Dartmouth-Hitchcock health care system in New Hampshire reached out to F&T for help in preventing the spread of COVID-19 through its facilities.

The solution: convert urgent care suites in its Manchester and Nashua outpatient locations into low-pressure

"precaution suites" that could prevent the virus from entering the ventilation system.

F&T's team collaborated with Johnson Controls International (JCI), balancing contractor H&S Associates, and Granite State Plumbing & Heating to reengineer the HVAC systems at both urgent care centers to create negative pressure in the suites, with an air exhaust system that ported potentially contaminated air directly outside.

Using existing drawings and as-builts, F&T prepared conceptual design plans and narratives before even stepping foot on-site, Guertin says. The transformation required modifying and reconfiguring ductwork, sealing architecture to create air locks, and resequencing airflow.

JCI reprogrammed existing rooftop units to 100 percent outdoor air, making



**SCOTT GUERTIN**  
Health Care Market Leader  
Fitzmeyer & Tocci Associates



**SCOTT LeCLAIR**  
President  
Fitzmeyer & Tocci Associates

the return system functionally an exhaust system. In exam rooms, where aerosol-generating procedures would be performed, the negative balancing differential was elevated to a range similar to an airborne infectious isolation room. Adjacent corridors and support areas were then rebalanced to prevent contaminants from entering or sitting stagnant in these spaces.

Once each room was rebalanced to ensure air was flowing in the right direction, precise differential pressures were recorded across each door. "Proper documentation is extremely important, as the suites may require reverting back to standard urgent care suites post-

pandemic," Guertin says.

The transformation wasn't overly complicated, but all of the teams had to work together to get it done quickly with as little disruption to patient care as possible, says Scott LeClair, president of F&T. "That meant working a lot of nights and weekends."

The crews, who started working at 7 p.m. and finished at 3 a.m., also encountered a few surprises, including a fire damper that was so firmly stuck they needed to use a car jack to pry it open. They also had a few night workers move smoke dampers, which set off fire alarms and resulted in fire trucks showing up in the middle of the night. These instances aside, the project went smoothly, and the suites were turned over in less than two weeks, LeClair reports.

"It took a lot of coordination, but having F&T run things was a huge benefit," says Timothy Bishop, director of engineering services for Dartmouth-Hitchcock. "When you have an engineering firm driving the show, you know things will go smoothly."



Fitzmeyer & Tocci Associates updates the HVAC system at Dartmouth-Hitchcock health care facilities.





Haley Ward samples wastewater for traces of the coronavirus at the University of Maine.



**MICHAEL SAUDA**  
Senior Project Manager  
Haley Ward

the source, but that would get very expensive,” he explains.

Haley Ward provided weekly reports containing sampling methodology, laboratory analytical reports, chains of custody, and test results. The university system’s Science Advisory Board worked with officials

from each campus to determine what actions, if any, were needed to prevent an outbreak, part of a multifaceted approach to identifying and containing COVID-19 on system campuses and in Maine communities.

Throughout the project, the team was able to identify a couple of potential spreading events and enacted measures to isolate those at risk. “The technology worked as we expected,” Sauda says. The university developed its own laboratory analytical capabilities and, with Haley Ward’s support and guidance, began collecting samples, even involving students in the process.

“Immersive learning experiences are so important in college,” Sauda says. He’s thrilled he was able to help implement a solution to help keep students and faculty safe. “The sampling process gives crowded environments, like college campuses, the data they need to predict the emergence or reemergence of COVID-19 in the community,” he concludes. “It’s a brilliant solution.” ■

**Sarah Fister Gale** is a Chicago-based writer who covers the construction, software, and engineering industries.

# Wastewater Testing for College Campuses

**PROJECT:** UNIVERSITY OF MAINE SYSTEM COVID-19 WASTEWATER TESTING, MAINE

**FIRM:** HALEY WARD, INC. (FORMERLY CES, INC.) BANGOR, MAINE

**A**s the University of Maine System prepared to bring students back to campus in the fall of 2020, university officials were exploring all avenues to monitor and mitigate the risks of large COVID-19 outbreaks.

Michael Sauda, senior project manager for Haley Ward, had a solution. Sauda got a master’s degree in public health, and when the pandemic began, he knew he could leverage Haley Ward’s experience in wastewater monitoring to develop a sampling strategy to track markers of the novel coronavirus in crowded communities. “Research had shown that increases in

the excretion of SARS-CoV-2 from symptomatic, asymptomatic, or pre-symptomatic individuals often precede community outbreaks by several days,” he says.

When the University of Maine reached out to Haley Ward for help in monitoring its COVID-19 risks, Sauda suggested the wastewater sampling process, and Haley Ward launched a pilot. Working in collaboration with an environmental genetic analytical laboratory, the team began collecting weekly wastewater samples from three campuses during the 2020 fall semester. The tests pulled a sample every 15 minutes for 24 hours, which was then sent to the lab for analysis.

The biggest challenge was finding the right location to get an accurate sample of the campus without including other communities, Sauda says. In one case, they had to move a sampler because it was on a shared sewer pipe with a nursing home, which would have skewed results. “We could have sampled every single building at



# ACEC/ Missouri

THE MEMBER ORGANIZATION TAKES ITS RESPONSIBILITIES SERIOUSLY, SERVING ENGINEERS

## ACEC/MISSOURI AT-A-GLANCE

**ACEC/Missouri's** membership includes over 130 firms representing about 11,000 employees. The Member Organization was founded in 1955.

**ACEC/Missouri** is led by President and CEO Morgan Mundell, Board Chair Vicki LaRose, and National Director Linda Moen.





# Missouri

BY NOVID PARSI

WHO IN TURN SERVE THE GREATER GOOD

**A**CEC/Missouri does what the best professional associations do: It looks inward and outward at the same time. Formed in 1955, ACEC/Missouri was a founding Member Organization of ACEC. Today it continues to support its members, which total more than 130 firms representing over 11,000 employees.

And it simultaneously seeks ways to bolster the wider engineering profession and the Missourians it serves.

For Bruce Wylie, ACEC/Missouri's president and CEO for nearly 36 years until his retirement in December, the organization serves a profession, and that profession serves a greater good. "For the problems we need to solve in our society, engineers are involved with almost all of them," he says. "Doctors save lives one person at a time. Engineers save lives a thousand at a time."

Michael DeBacker, a former chair of ACEC/Missouri and its current alternate national director, also sees the Member Organization as filling a dual purpose: professional and societal. "ACEC/Missouri does a great job of looking after the interests of engineering companies and recognizing the impacts they have on the state and its economy," says DeBacker, the Kansas City-based vice president and general manager of transportation at Burns & McDonnell.

## LEGISLATIVE VICTORIES

One primary way that ACEC/Missouri looks after its members' interests involves governmental affairs. The organization has helped score numerous legislative wins, including one of the country's first peer review laws, which allow engineering teams to glean lessons learned from a project without having those lessons used against them in lawsuits. ACEC/Missouri also has worked to protect licensure standards, so that only fully credentialed engineers can call themselves engineers.

Some of its most significant legislative victories involve Qualifications-Based Selection (QBS). ACEC/Missouri endeavors to ensure that public clients follow the Brooks Act, the 1972 law that requires federal agencies to select engineers and architects based on their experience and qualifications, not the lowest bid. The Member Organization championed a 1983 law that applies the same QBS principle to state agencies, as well as the 2007 update that does the same for city and county agencies.

"Our qualifications and experience make us experts at what we do, and the QBS laws mean clients choose us based on our qualifications," says Linda Moen, president and owner of EFK Moen, near St. Louis. She also serves as the national director of ACEC/Missouri and, in 2014–15, was the Member Organization's first woman chair.





“For the problems we need to solve in our society, engineers are involved with almost all of them.

Doctors save lives one person at a time. Engineers save lives a thousand at a time.”

**BRUCE WYLIE**  
PAST PRESIDENT AND CEO  
ACEC/MISSOURI

More recently, ACEC/Missouri has been advocating for the passage of a gas tax increase. The revenue would bring much-needed infrastructure improvements to a state that has one of the nation’s lowest motor fuel taxes, which has not been increased since 1996.

Again, the organization has both its members and its state in mind. “Missouri needs more infrastructure funding,” says Morgan Mundell, who became ACEC/Missouri’s president and CEO in January. “What impressed me about ACEC/Missouri was how engaged its members are with governmental affairs.”

Vicki LaRose, ACEC/Missouri’s 2020–21 board chair, likewise believes the tax revenue for infrastructure would benefit both engineers and Missouri. “Without great infrastructure, our state will fall apart, and people will go around it,” says LaRose, president and owner of Civil Design, Inc., in St. Louis. “This is not just for us to capitalize on infrastructure projects; it’s the right thing for the state.”

ACEC/Missouri’s infrastructure focus speaks to the central role that transportation plays in members’ success. “Missouri is blessed and cursed with major rivers,” Wylie says. High-profile transportation projects by ACEC members have included bridges over the Mississippi and Missouri rivers, as well as mega-project rebuilds of interstate highways. Over half of the Member Firms work in transportation, according to Wylie.



“The committees establish relationships and trust, and really, that’s how we get work.”

**VICKI LaROSE**  
BOARD CHAIR  
ACEC/MISSOURI  
PRESIDENT AND OWNER  
CIVIL DESIGN, INC.



Emerson Zooline Railroad  
at the St. Louis Zoo.

#### STRONG RELATIONSHIPS AND BUSINESS SAVVY

ACEC/Missouri knows that its members are only as strong as their relationships with their clients, especially in the public sector. The organization helps fortify those relationships through its liaison committees, in which Member Firms meet regularly with representatives from public agencies such as the U.S. Army Corps of Engineers, the Missouri Department of Natural Resources, and the Missouri Department of Transportation.

“The liaison committees allow our members to interact with their major public clients and get to know their issues and goals when they’re not competing for their work,” Wylie explains.

Other committees target areas such as transportation and the environment. A recent addition focuses on diversity. “We want to develop better diversity within the staff of our firms to emulate the communities where we work,” Wylie says. “We know our products will be better off with a diverse thought process.”

Serving on liaison committees made a big difference for LaRose. “ACEC/Missouri has shaped our whole firm,” she says. “Being on these committees, you get access to clients’ decision-makers and to your peers. The committees establish relationships and trust, and really, that’s how we get work.”

Through liaison committees and other interactions, both formal and informal, with her fellow members, LaRose has gained vital knowledge about how to run a firm—knowledge she says she would not have had



**“What impressed me about ACEC/Missouri was how engaged its members are with governmental affairs.”**

**MORGAN MUNDELL  
PRESIDENT AND CEO  
ACEC/MISSOURI**

otherwise. As LaRose points out, she—as with many in the profession—was trained to be an engineer, not a business owner.

That echoes the experience of Moen, who launched her firm and joined ACEC/Missouri in 1998. “When we started as a brand-new company, ACEC/Missouri gave us a good industry network. It was a welcoming community of engineering firms working together,” she says.

Similar to LaRose, Moen has served on several committees, developing leadership skills, and learning about policy along the way. “We had exposure to business issues that, as a single firm, we probably would not have had,” she says. “We’ve had face-to-face dialogue with public agencies, and we’ve built good client relationships.”

Client and peer relationships have been at the core of DeBacker’s history with ACEC/Missouri, whether on committees or while attending ACEC conferences, where firms have candid conversations about shared challenges. “At ACEC, you often connect with a lot of competitors vying for a lot of the same work,” DeBacker says. “ACEC/Missouri breaks down those barriers so we’re all working toward common goals that are good for the industry and for our clients.”

## CELEBRATING ACHIEVEMENTS

In addition to supporting its engineers, ACEC/Missouri celebrates them. Its annual Engineering Excellence Awards highlight Member Firms’ finest achievements. Last year, Grand Award winners included HNTB’s 65,000-seat Allegiant Stadium in Las Vegas—new home of the Las Vegas Raiders; Horner & Shifrin’s repairs of the Emerson Zooline Railroad Tunnel, the most popular paid attraction at the St. Louis Zoo; and Bartlett & West’s upgrade of the Missouri Capitol’s water system in Jefferson City.

The awards not only applaud the Member Firms, but also shine a light on the profession. “A project such as Allegiant Stadium promotes the engineering industry and draws people to it,” Mundell says. “It took engineers to do that, and those engineers are right here in Missouri.”

That marketing is especially critical now, when the need for professional engineers outstrips the



**“When we started as a brand-new company, ACEC/Missouri gave us a good industry network. It was a welcoming community of engineering firms working together.”**

**LINDA MOEN  
NATIONAL DIRECTOR  
ACEC/MISSOURI  
PRESIDENT AND OWNER  
EFK MOEN**

supply. “We cannot find enough professional engineers to fill all the jobs,” Wylie says. “There are not enough engineers coming out of schools.”

That is why ACEC/Missouri promotes the profession at job fairs and conferences, where it communicates the benefits of a well-paying, rewarding profession. “We need to do

everything we can to recruit people into the engineering industry,” Mundell says.

The Member Organization also does that through its Future Leaders Academy, which each year brings together about 20 early-career, up-and-coming engineers. They learn best practices



The Missouri State Capitol in Jefferson City.

for their businesses while also becoming invested in the work of ACEC/Missouri.

These individuals represent the future of the profession and the organization, Wylie says. “They will be our fertile ground to develop the leaders of our future boards and committees.” ■

*Novid Parsi is a St. Louis-based writer who covers a range of fields, including business and technology.*



# 2021 NATIONAL ENGINEERS WEEK

## CELEBRATION CONTINUED UNDETERRED

**D**espite restrictions in social interaction, the nation's engineering industry didn't let the pandemic stop the annual celebration of the 2021 National Engineers Week.

Conducted Feb. 21–27, Member Organizations and Member Firms accordingly adapted their recognitions to virtual platforms, while continuing the passion and commitment in paying tribute to an industry that enhances the quality of life for all. The following are a few highlights:



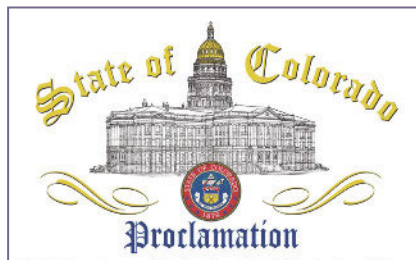
## ENGINEERS WEEK MEMBER ORGANIZATIONS

### ACEC Colorado Again Presents Full Slate of Eweek Activities

For the second consecutive year, ACEC Colorado commemorated National Engineers Week with a full series of events and an Eweek proclamation from Gov. Jared Polis, which are available on their website: <https://acec-co.org/colorado-engineers-week>.

Activities included:

- Digital fireside chat on “Measuring Engineering’s Impact on the Economy & Society”
- Government Affairs Virtual Orientation



- An Online Transportation Simulation (designed for 8th to 10th graders), presented by the ACEC Colorado Foundation in partnership

with the Institute of Electrical & Electronic Engineers Denver, and Transportation & Construction Girl

- A STEM Career Fair, in conjunction with the Colorado Association of Black Professional Engineers & Scientists (designed for 5th to 12th graders)
- ACEC Colorado also recorded “Faces of Consulting Engineering” videos from a diverse group of Colorado members, as part of a robust Eweek social media campaign.



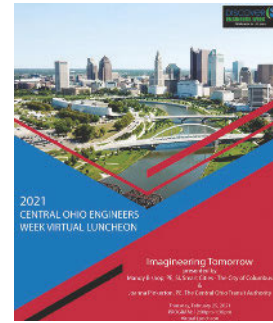
## ACEC Massachusetts Tops Engineers Week Fundraising Goal for Homeless Relief

In honor of Engineers Week, ACEC Massachusetts (ACEC/MA) supported the Massachusetts Coalition for the Homeless. ACEC/MA hoped to raise \$25,000

To donate to the Massachusetts Coalition for the Homeless, go to <https://www.abedforeverychild.org/acecmacares>.

during Eweek but had already raised 103 percent of that goal by the second day.

For nearly 40 years, the Massachusetts Coalition for the Homeless has been committed to tackling the problems that impact families and individuals who are currently experiencing homelessness or facing an imminent housing, health, or benefit crisis.



## ACEC Ohio Central and Northwest Chapters Present Virtual Eweek Luncheons

The ACEC Ohio Central Chapter hosted a virtual Eweek luncheon to discuss "Imagining Tomorrow."

The event was led by Mandy Bishop from Smart Cities, the city of Columbus; and Joanna Pinkerton, from the Central Ohio Transit Authority.

The ACEC Ohio NW Chapter collaborated with the National Society of Professional Engineers (NSPE-OH Toledo Chapter) to also host a virtual luncheon to honor the 2021 Toledo Area Engineer of the Year, Greg Simon, of Jones and Henry (J&H), along with the ACEC Ohio NW 2021 scholarship winners.

Simon, one of ACEC Ohio NW's most active members, has 20 years' experience with J&H, and more than 40 years' overall experience in the northwest Ohio and lower Michigan engineering industry.

## ACEC Indiana Targets Restocking Engineering Pipeline

Every year, ACEC Indiana coordinates a National Engineers Week student outreach effort in February, where members volunteer to make presentations at elementary, middle, and high schools, encouraging students to consider a job in engineering or related fields.

This year, ACEC Indiana reached out to nearly 1,000 students in 53 classrooms throughout the state. Volunteers organized all virtual classroom presentations.

As part of a collaborative effort to continue developing the talent pipeline



for future engineers, ACEC Indiana members also partnered with several public agencies, including Citizens Energy Group, the Indiana Department of Transportation, the Indianapolis Department of Public Works, and city and county engineers, to make these presentations.

## ACEC Wisconsin Offers Social Media Eweek Celebration Graphics

ACEC Wisconsin developed an impressive list of social media graphics highlighting the numerous ways engineering touches lives. The graphics were available for download from the orga-

nization's website, <https://www.acecwi.org/engineers-week>, to use on personal and company social media pages.

Kelly Veit, ACEC Wisconsin COO, encouraged members to

help light up social media with #EngineersMakeItHappen."

"We just want to raise awareness and add to the celebration of National Engineers Week," Veit says. "Social media is so important since it can help expose how engineers touch people's lives and improve them, to those outside of our industry."

ACEC Wisconsin also announced winners in their 2021 Engineering Excellence Awards competition, as part of the Eweek celebration.







## ENGINEERS WEEK MEMBER FIRMS

### George F. Young Eweek Celebration Highlights Staff, Women in Engineering

As one of Florida's oldest engineering firms, George F. Young, Inc. used National Engineers Week to highlight its own staff of engineering innovators, along with the impact of trailblazing women engineers.

The St. Petersburg-based firm used a variety of social media posts to observe Eweek's Girl Day, the worldwide campaign



designed to engage girls in engineering. The firm also celebrated trailblazing women in engineering who broke barriers, or ignored critics or the status quo to advance and pave the way for women today.

"George F. Young, Inc. participated in Engineer's Week 2021 because we believe in the value and exposure it provides to young professionals interested in an engineering

career," says Sara Humphries, marketing specialist. "It gave us the opportunity to highlight our innovative employees and join an important conversation."

Check out the following George F. Young Eweek celebration posts:

**Facebook:** <https://www.facebook.com/georgefyounginc>

**Instagram:** <https://www.instagram.com/georgefyoung>

**LinkedIn:** <https://www.linkedin.com/company/1035271>

SIBERIAN PHOTOGRAPHY/GETTY IMAGES

#### ACEC ENGINEERING INFLUENCE PODCAST: CELEBRATING ENGINEERS WEEK 2021

Thea Sahr with DiscoverE, the organizers of Engineers Week, came on the ACEC *Engineering Influence* podcast to discuss how the event went virtual in 2021.

To listen, go to <https://acecnational.podbean.com/e/acec-celebrate-engineers-week-2021>.

To learn more about DiscoverE's full range of activities and resources to engage students and promote engineering throughout the year, go to <http://www.discovere.org>.



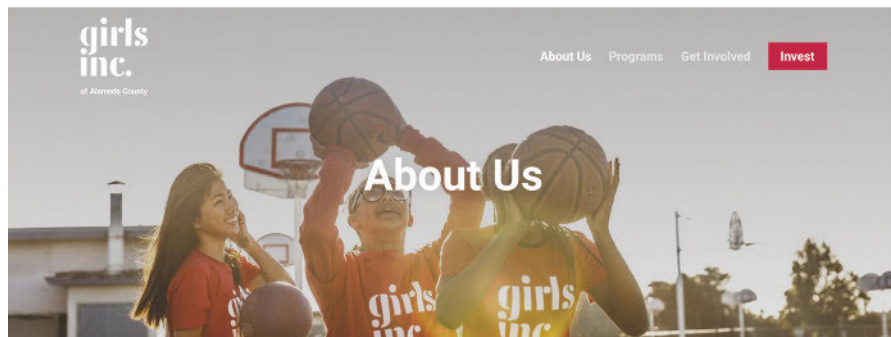
### California Eweek Celebration Targets Girl Leadership, Middle Schoolers

**Girls Inc. of Alameda County** in Northern California received special attention during Eweek. The program helps girls from underserved neighborhoods by providing access to resources and opportunities needed to navigate gender, economic, and racial barriers, and realize their potential. The organization aims to help girls feel valued, safe, and prepared to achieve their dreams of college, career, and leadership.

Tiffany Hwang, a COWI bridge engineer, is also chair of the Structural Engineering Engagement & Equity Committee of the Structural Engineers Association of Northern California (SEAONC). She helped coordinate the Eweek event. The overwhelming majority of those served by Girls Inc. are girls of color, with 39 percent Latina and 30 percent African American. Forty percent speak a language other than English at home.

The SEAONC Eweek celebration included a virtual field trip for middle schoolers with a hands-on STEM activity to build the tallest gumdrop tower, along with eight volunteers leading mini-mentoring breakout sessions.

For more information on Girls Inc. of Alameda County, go to <https://girlsinc-alameda.org/our-story>.





## Parsons Celebrates Engineers Week With Awards for 12 Trailblazers

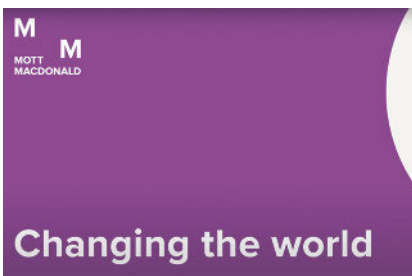
**Each year during** National Engineers Week, Parsons recognizes firm engineers and technical trailblazers who embody the spirit of innovation and are committed to providing an exceptional work product via the Engineering & Technical Excellence Awards.

This year, Parsons received a record 133 nominations and awarded 12 recipients for outstanding work that drives innovation, provides inventive solutions to complex challenges, and helps the firm deliver a better world.

To view the winners, go to <https://www.parsons.com/2020/02/recognizing-excellence-in-engineering>.

## Mott MacDonald Videos Emphasize Importance of Engineers

**Mott MacDonald helped raise** awareness of the importance of engineers during Eweek with the following videos: “Flight Works Alabama”: [bit.ly/3tBbAo0](https://bit.ly/3tBbAo0) “Mott MacDonald North American Intro”: [bit.ly/3x9HJVL](https://bit.ly/3x9HJVL) “Why We’re Here”: [bit.ly/3eliya6](https://bit.ly/3eliya6)



## Century Engineering Celebration Targets Next Generation of Engineers

**Hunt Valley, Maryland-based** Century Engineering held a virtual roundtable to welcome students to the industry and provide answers about engineering.

Following the theme #Engineer4Tomorrow, Century highlighted ways that engineers are creating innovative ideas and inspiring the next generation of engineers.

The student roundtable also provided perspectives on what engineering means to several members of Century’s staff.

Century posted their virtual roundtable on various social media channels.



## Summit Celebrates Eweek With Video; Highlight of ‘Introduce a Girl to Engineering Day’

**Summit Design and Engineering’s** Eweek celebration was highlighted by an impressive video tribute to engineers, along with special social media recognition of “Introduce a Girl to Engineering Day.”

The video was the first part of a weeklong social media campaign on how engineers contribute so much to our communities, while also spreading awareness of the vast number of career opportunities the industry provides.

Ginny Kirk Andrews, Summit vice president of communications and marketing, puts it this way: “We are dedicated to reaching the next generation of potential engineers to foster interest in this rewarding industry.”

To view Summit’s video, go to [bit.ly/3egkjpe](https://bit.ly/3egkjpe).





# Despite Pandemic, Deal-Making in 2020 Finishes in Line With 2019; Buyers Start 2021 Close to Home

BY NICK BELITZ

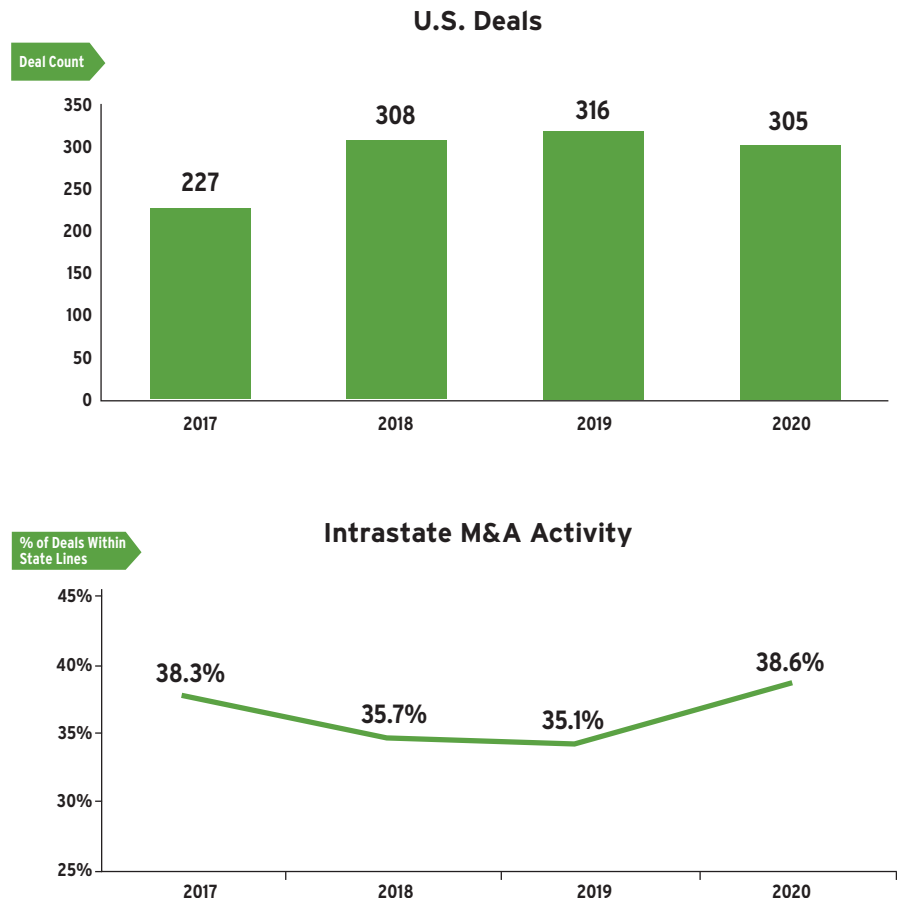
In the final accounting, 2020—the year of the pandemic that brought swift and dramatic change to the engineering industry and the rest of the world—turned out to look a lot like 2019 in terms of industry mergers and acquisitions. After a blistering start to 2020, during which transaction activity in January and February outpaced 2019 levels by 35 percent, deal-making came to a halt in March as the industry shifted to a remote work environment, put time off and vacations on indefinite hold, and focused on serving clients in the new reality of the pandemic. While the business of engineering continued, transaction numbers dropped 45 percent by July 2020. But deal-makers came roaring back in the second half of 2020, bringing the total annual deal count to more than 305 in the U.S., just below 2019's record-setting pace. This was largely driven by the sustained rise in private equity investment in the industry, which accounted for more than one-third (37 percent) of all U.S. deals in the fourth quarter of 2020.

Recent transactions show an increase in the number of intrastate deals, or those made between buyers and sellers headquartered in the same state. As noted in the list below, ACEC deal-makers from all parts of the U.S., including Maine, Virginia, Georgia, Florida, Ohio, Mississippi, Texas, and California, announced mergers or acquisitions of firms headquartered in their own states. This supports a trend we began to observe in the latter half of 2020, in which a greater percentage of deals happened between relative neighbors. We judge such close-to-home corporate marriages to be an indication of less risky or defensive deal-making, accelerated in the past year by the pandemic. Sellers, most of whom just over 10 years ago went through the worst financial crisis in 75 years, now have the collective gray hair and lined faces to show for it. With so many engineering firms coming through 2020 in financially good shape, buyers had cash to spend and very likely a receptive audience among owners of nearby firms who decided to de-risk their personal financial situations and plan for an orderly exit. As shown in the accompanying chart, intrastate deal-making is

on the rise and accounts for a greater percentage of transactions relative to the prior years.

Here is what we see for the rest of 2021 and beyond:

**1. The top firms are selling or recapitalizing.** In 2020, 11 *Engineering News-Record (ENR)* Top 500 firms either sold or recapitalized. In 2017, a record 18 *ENR* Top 500 firms sold or recapitalized. By comparison, that number was 12 and eight firms, respectively, in 2018 and 2019. Morrissey Goodale expects the number of *ENR* Top 500 firms that sell or recapitalize with a private equity partner to trend toward 2017 levels in 2021. Already in the first two months of the year, UniversalPegasus (*ENR* #59), Aegion (*ENR* #70), Enercon (*ENR* #87), RATIO (*ENR* #347), and Murraysmith (*ENR* #258) have been involved in deals. Notably, publicly traded Aegion was taken private as the firm entered into a definitive merger agreement with affiliates of New Mountain Capital, continuing the trend of large private investments in the industry.



## 2. The top firms are also buying and will continue to do so.

Last year, 35 percent of U.S. deals involved an *ENR* Top 500 firm buyer. Together with the *ENR* firms listed to the left, nearly half (43 percent) of last year's U.S. deals involved at least one *ENR* Top 500 firm. Serial acquirers included IMEG Corp. (*ENR* #84), which made seven acquisitions in 2020, and Salas O'Brien (*ENR* #147), which made four. Stantec (*ENR* #8), KCI Technologies (*ENR* #54), Kleinfelder (*ENR* #63), and LaBella Associates (*ENR* #173) each made three acquisitions. Fourteen other *ENR* Top 500 firms made two acquisitions last year.

Looking ahead, Morrissey Goodale expects deal-making in 2021 to increase 20 percent over 2020, driven by robust expectations for engineering services across a range of sectors and pent-up demand for deals still catching up with the pandemic-induced pause. With this rise, we also expect the number of private-equity-backed transactions to increase and more owners of small and mid-size firms to explore reducing their risk through an external sale.

### ACEC DEAL-MAKERS

#### FEBRUARY 2021

Two Silicon Valley firms, **Ruth & Going** (San Jose, Calif.) and **Charles W. Davidson Co.** (San Jose, Calif.), merged with **HMH Engineers** (San Jose, Calif.). HMH is an ACEC member.

ACEC member **Stantec** (Edmonton, Alberta) signed an agreement to acquire **GTA Consultants** (Melbourne, Australia), a transportation planning and engineering firm.

**Coffman Engineers** (Seattle) (*ENR* #164) reached a definitive purchase agreement with **Miyashiro and Associates** (Honolulu), a mechanical engineering firm with experience in the military, commercial, and hospitality markets. Both firms are ACEC members.

**CHA Consulting** (Albany, N.Y.) (*ENR* #56), a consulting and construction management firm, acquired **Reiss Engineering** (Winter Springs, Fla.), a consulting firm specializing in water and wastewater solutions. Both firms are ACEC members.

ACEC member **Tetra Tech** (Pasadena, Calif.) (*ENR* #4) expanded its advanced analytics business with the acquisition of **Coanda Research & Development Corp.** (Burnaby, British Columbia), an industrial research and consulting firm.

ACEC member **Universal Engineering Sciences** (Orlando, Fla.) (*ENR* #175) acquired **Construction Testing & Engineering** (Escondido, Calif.), a provider of geotechnical, environmental, civil engineering, survey, construction inspection, and materials testing services.

ACEC member **INTERA** (Austin, Texas) acquired **Cook Joyce** (Austin, Texas), an environmental firm focused on design, environmental planning, permitting, policy, and compliance.

#### JANUARY 2021

ACEC member **Thornton Tomasetti** (New York) (*ENR* #57) acquired **MFD Security Consulting** (Sydney). The deal strengthens the firm's expertise in protective design and security services.

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](http://www.morrisseygoodale.com).



**Nick Belitz** is a principal 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 [nbelitz@morrisseygoodale.com](mailto:nbelitz@morrisseygoodale.com).

ACEC member **Tighe & Bond** (Westfield, Mass.) (*ENR* #224), a Northeast leader in design and environmental consulting, acquired **RT Group** (North Kingstown, R.I.), a firm with expertise in waterfront engineering, dam safety, and geotechnical services.

Leading Southeast firm **Thomas & Hutton** (Savannah, Ga.) acquired **Development Planning & Engineering (DP&E)** and **DPE Surveying** (Buford, Ga.), adding to the firm's expertise in civil engineering, transportation, site development, and land surveying. Both Thomas & Hutton and DP&E are ACEC members.

Civil engineering, transportation consulting, and land surveying firm **Design Consultants, Inc.**, (Somerville, Mass.) merged its operations with civil engineering and inspection firm **GM2 Associates** (Glastonbury, Conn.), an ACEC member.

ACEC member **TRC Companies** (Windsor, Conn.) (*ENR* #20) acquired **EMI Consulting** (Seattle), a provider of clean energy solutions, including energy efficiency, demand management, decarbonization, and customer engagement.

ACEC member **VHB** (Watertown, Mass.) (*ENR* #55) acquired environmental sciences firm **Brinkerhoff Environmental Services** (Manasquan, N.J.). With this acquisition, VHB is expanding its capabilities to serve clients in the high-density New Jersey market.

ACEC member **Kleinschmidt Associates** (Pittsfield, Maine) joined forces with **R2 Resource Consultants** (Redmond, Wash.), a provider of services in fisheries and aquatic science, ecology, and water resource engineering.

Pioneering bridge specialist **Hardesty & Hanover** (New York) (*ENR* #152) acquired **Corven Engineering** (Tallahassee, Fla.), a nationally recognized firm in the design, construction, inspection, and rehabilitation of complex concrete bridge projects. Both firms are ACEC members.

Structural engineering firms **Bennett & Pless** (Atlanta) and **LHC Structural Engineers** (Raleigh, N.C.) merged. Combined, the firms encompass eight offices throughout the Southeast. Both firms are ACEC members.

ACEC member **Sebago Technics** (South Portland, Maine), a civil engineering, survey, transportation, landscape architecture, and environmental services consulting firm, acquired **Sawyer Engineering and Surveying** (Bridgton, Maine). ■



# On the Move

**Carey Smith** has been elected CEO of Centreville, Va.-based **Parsons Corp.**, succeeding "**Chuck**" **Harrington**, who announced his retirement after nearly 40 years with the company. Harrington will continue to serve on the Parsons Board of Directors as executive chairman upon his retirement. Smith joined Parsons in 2016 as president of the Federal Solutions business. She was promoted to COO in 2018 and later became president and COO.

Atlanta-based **Pond** has named **Lorraine Green** COO in addition to her current title of president. She joined the firm in 2008; her past promotions included senior vice president and executive vice president. She was named president of the firm in 2018. **Mike Jeffreys** was promoted to senior vice president of Pond's Energy Division. He previously managed the firm's Fuel Construction, and Repair and Maintenance Program.

Omaha, Neb.-based **HDR** has named **Tom McLaughlin** president of its global transportation program. He succeeds **Brent Felker**, who retired at the end of 2020. McLaughlin, an executive vice president, formerly served as HDR's U.S.

Northeast regional director of operations. Active in ACEC, McLaughlin served as chair of ACEC New York from 2017–2018 and on the ACEC National board of directors from 2018–2019. He is based in New York.

**William R. Roberts** has joined Sparks, Md.-based **KCI Technologies** as chief administrative officer. Roberts formerly served as president and CEO of the Mid-Atlantic region for Verizon.

**Jannet Walker-Ford** has been named senior vice president and national transit and rail leader for New York City-based **WSP USA**. Walker-Ford formerly served as a senior vice president for the transit market sector, Americas at AECOM. She is based in the Jacksonville, Fla., area.

Rockville, Md.-based **Sheladia Associates, Inc.**, announced the following promotions: **Jan T. Twarowski** has been named senior vice president. He most recently served as vice president of the firm's International Division. **Donn Booker Sr.** has been named vice president of the firm's Rockville, Md., and Winchester, Va., offices. He most

recently served as program executive for Department of Defense and Federal Programs at Sheladia.

Dallas-based **Jacobs** announced the promotion of **Susan Moisia** to global vice president and water market director of its People and Places Solutions business line, succeeding **Peter Nicol**, who retired after a 40-year career with Jacobs. Moisia most recently served as global solutions director for conveyance and storage at the firm.

West Palm Beach, Fla.-based **WGI, Inc.**, announced two appointments: **Marcía L. Alvarado** has joined the firm as its new Tampa structural market leader, and **Tom Bernard** has joined the firm as mechanical, electrical, and plumbing market leader. Both are based in the Tampa office.

Boston-based **Nitsch Engineering** announced the following promotions: **Deborah Danik** has been named deputy director of civil engineering; **Alexander Diotte** has been named deputy director of land surveying; and **John Michalak** has been named deputy director of transportation engineering.



Carey Smith



Lorraine Green



Mike Jeffreys



Tom McLaughlin



William R. Roberts



Jannet Walker-Ford



Jan T. Twarowski



Donn Booker Sr.



Susan Moisia



Marcía L. Alvarado



Tom Bernard



Deborah Danik

# Welcome New Member Firms

## ACEC Alabama

Duncan Coker  
Associates, P.C.

Tuscaloosa

## ACEC Alaska

EDC, Inc.

Anchorage

Kinney Engineering, LLC

Anchorage

Lounsbury &

Associates, Inc.

Anchorage

Nortech, Inc.

Fairbanks

## ACEC Colorado

Eugene Lynne

Lakewood

Kenosha EPC

Thornton

## ACEC/Delaware

CGC Geoservices, LLC

Newark

Summer Consultants, Inc.

Newark

## ACEC Georgia

BenchMark

Management, LLC

Atlanta

Browne and Company, LLC

Macon

CROFT & Associates

Kennesaw

Dewberry

Atlanta

Infrastructure Consulting

Group, LLC

Cumming

## ACEC of Idaho

Tamarack Grove

Engineering, PLLC

Boise

## ACEC Illinois

TKDA

Downers Grove

Smith LaSalle, Inc.

Western Springs

## ACEC/Iowa

River Cities

Engineering, Inc.

Davenport

## ACEC-KY

Clark Dietz, Inc.

Lexington

## ACEC of Louisiana

Fairway Consulting +

Engineering, LLC

Covington

GIS Engineering, LLC

Baton Rouge

## ACEC/MW

Dawson Solutions,

LLC (DAWSON)

McLean, Va.

FOXXSTEM

Washington, D.C.

Reliance Engineers

Washington, D.C.

ZEST, LLC

Greenbelt, Md.

## ACEC/Michigan

Geosyntec

Consultants, Inc.

Ann Arbor

## ACEC/MN

MEP Associates, LLC

Eagan

## ACEC/Missouri

Renaissance

Infrastructure Consulting

Riverside

## ACEC Nevada

R.O. Anderson

Engineering, Inc.

Minden

## ACEC of New Jersey

BL Companies

Cherry Hill

Structural Workshop

Mountain Lakes

## ACEC New York

Boswell Engineering

Albany

## ACEC/NC

Exult Engineering PC

Raleigh

United Consulting

Norcross, Ga.

## ACEC OKLAHOMA

Building & Earth

Sciences, Inc.

Tulsa

## ACEC Oregon

RS&H

Jacksonville, Fla.

## ACEC/PA

Dawood Engineering, Inc.

Harrisburg

## ACEC-RI

AI Engineers, Inc.

Cranston

HNTB Corp.

Boston

## ACEC Tennessee

Chad Stewart &

Associates, Inc.

Lakeland

## ACEC Texas

Burrer Engineering, Inc.

Tomball

Trilogy Engineering

Services, LLC

Houston

## JULY 2021

- 27** A CEO's Perspective on Corporate Turnarounds, Pandemic or No (online class)

## AUGUST

- 4** The Five Practices of Exemplary Leadership: An Introduction to the Leadership Challenge® (online class)
- 12** Storytelling: How Philanthropy Can Help Tell Your Firm's Story (online class)
- 19** Why PMs Are Late and Overbudget (online class)
- 25** What Is Business Development's (BD's) Secret Sauce? (online class)

## SEPTEMBER

- 2** Evolution of Project Delivery Information Systems (online class)
- 8** Building Effective Collaborative Aligned Teams (online class)
- 9** How to Structure a Message (online class)
- 14** Developing Organizational Talent Through Executive Coaching (online class)
- 16** Now That You're a Project Manager: Responsibilities and Challenges (online class)
- 23** Marketing Planning 2022: Flexibility Meets Results (online class)
- 28** Mastering the SF-330: A Key Step in Winning Government Business (online class)
- 29** Simple Incentive Compensation That Works! (online class)

## OCTOBER

- 5** Taking Your Board to the Next Level (online class)
- 12** The Future of Practice (online class)

**27-30 ACEC Fall Conference, Marco Island, Fla.**

To sign up for ACEC online seminars, go to [www.acec.org/education](http://www.acec.org/education).

Additional information on all ACEC activities is available at [www.acec.org](http://www.acec.org).

## Welcome New National Affiliate Members

### Accounting and Tax Services

Tri-Merit Specialty Tax Professionals

### Consultants - Business Management

Entegra ERP Solution Partners, Inc.

### Human Resources - Recruitment Services

Green Mountain Lion Corp.

### Insurance - Business Insurance

Risk Strategies Company

### Technology - Cloud Service Provider,

Hardware, Software, Website Services

Helix IT

For further information on national affiliate members, go to: <http://bit.do/ACEC-natl-affiliate-memb> or contact Erin Wander at 440-281-0464 or [ewander@acec.org](mailto:ewander@acec.org).



# Prepare Your Top Talent for Executive Leadership

## Pathways to Executive Leadership

Core skills that build critical business acumen and personal influence for successful firm leadership

"Pathways to Executive Leadership" is ACEC's leadership development program for early-career high-achievers and promising midcareer professionals with approximately 12 to 15 years of experience. With 45 hours of comprehensive leadership coursework spread out over six months, this real-world program centers on the core skills necessary to think strategically in your markets, build effective teams, and deliver great service for your most valued clients. These skills include: high-level business development; leading a team of teams; coaching, active listening, and managing others; effective community and political involvement; managing uncertainty; and strategic market analysis.

Class 5 begins October 2021. Register today for one of the last remaining spots at <https://programs.acec.org/pathways>.

### YOUNG PROFESSIONALS EDUCATION AND ONLINE FORUM

Firm leaders are consistently looking for ways to educate and engage their younger employees, especially in the remote work environment. In April 2020, ACEC launched the Young Professionals Forum, offering virtual sessions, roundtables, and resources for early career design professionals.

The quarterly webinar series provides education from experts on timely issues facing the younger generation of the A/E/C community, such as managing client work, avoiding burnout, and overseeing successful teams in the emerging hybrid workplace. All series have an open roundtable hosted by human resources professionals for participants to connect and share best practices. Visit ACEC's online education calendar for information on how to register for future series.

The Young Professionals Forum also hosts an online community with virtual discussions, articles, and recordings of past education series for those looking to connect with other early-career engineers in real time. Interested individuals can contact Katie Goodman, director of leadership programs, at [kgoodman@acec.org](mailto:kgoodman@acec.org) to join.

### KEY BUSINESS PRACTICES FOR THE A/E INDUSTRY: CASE COALITION BEST-SELLING PUBLICATIONS

ACEC Coalitions are dedicated communities of ACEC members organized by practice area or firm size. Coalitions provide a wide

range of practical, day-to-day resources, best practice guidance and knowledge-sharing opportunities that enhance business operations and make firms more profitable. CASE has tools to help firms deal with a wide variety of business scenarios.

If your firm needs to update its current risk management program or establish a program, the following CASE documents can help guide employees:

- 962-H: National Practice Guideline on Project and Business Risk Management
- Tool 1-1: Create a Culture for Managing Risks and Preventing Claims
- Tool 1-2: Developing a Culture of Quality
- Tool 2-1: A Risk Evaluation Checklist
- Tool 2-4: Project Risk Management Plan
- Tool 3-1: A Risk Management Program Planning Structure
- Tool 3-4: Project Work Plan Templates
- Tool 5-6: Lesson Learned



### CASE CONTRACTS CURRENTLY AVAILABLE:

- CASE #1: An Agreement for the Provision of Limited Professional Services
- CASE #2: An Agreement Between Client and Structural Engineer of Record for Professional Services
- CASE #3: An Agreement Between Owner and Structural Engineer as Prime Design Professional

### CASE 5-1: A GUIDE TO THE PRACTICE OF STRUCTURAL ENGINEERING

This tool is intended to teach the business of being a consulting structural engineer—things people may not have learned in college. While the target audience for this tool is the young engineer with 0–3 years of experience, it also serves as a useful reminder for engineers of any age or experience. The guide contains a test at the end to measure how much was learned and retained. Other sections deal with getting and starting projects, schematic design, design development, construction documents, third-party review, contractor selection/project pricing/delivery methods, construction administration, project accounting and billing, and professional ethics.

You can purchase these and the other CASE publications at <http://www.acec.org/bookstore>. ■

### FOR MORE BUSINESS INSIGHTS

- Better Business Planning
- Factoring Executive Compensation
- Cyberattacks and Data Security
- High-Impact Proposal Writing

Go to: <https://education.acec.org/diweb/catalog>

ACEC's Business Resources and Education Department provides comprehensive and online-accessible business management education.

Visit ACEC's online educational events calendar at <https://www.acec.org/education/online-classes/> or call 202-347-7474, ext. 349, for further information.

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This means that by itself, your 401(k) plan is too small to get the same investment advantages as the big guys, who benefit from institutional-level investments that often have \$500 million access minimums.

## What our \$2.5 billion in clout gets your 401(k) plan

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