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STATE OF THE INDUSTRY

INSIDE

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FROM THE EDITOR | Kathy Wells

Happy New Year! January is here, offering otherwise busy people an opportunity to reflect and renew. Now is a great time to take stock and decide what you want to change about yourself, your life or your business. And remember, it doesn't have to happen in zero to 60—even slow progress is progress.

Speaking of progress, tariff negotiations are underway, as well as conversations surrounding the efficacy and timeliness of the infrastructure bill. These, along with the labor shortage, are just a few of the trends we'll be watching as we roll into 2019. Our cover series this month focuses on the state of the industry and begins on page 26. In "The Year of Great Transition," Managing Editor Elizabeth Manning covers factors that will affect the industry in 2019, with insights from Dodge Data & Analytics' Steve Jones (featured on our cover), Portland Cement Association's Chief Economist and SVP of Market Intelligence Ed Sullivan, and Skanska's EVP and General Manager of Building Operations Dale Kopnitsky. Next, on page 30, "Tax Reform & the Road Ahead" breaks down the Tax Cuts and Jobs Act of 2017 and the effects it will have on your business this year. Read this for need-to-know information on how you structure your entities, taxes and business dealings. Closing the series, "Constructing a Successful New Year," shares details about three specific technologies driving the industry forward in 2019. Turn to page 32 to find out how cloud-based processing, the internet of things and BIM are creating positive change for construction technology troglodytes.



Meet Rachel Fulford, the new associate editor of Construction Business Owner magazine. Fulford holds a bachelor's degree in English from Auburn University and a master's in education from Middle Tennessee State University. Fulford worked previously with CBO in a part-time capacity, and now joins CBO full-time. You may have read some of her work in our September and November print issues last year! Fulford's curiosity for construction is only rivaled by her intense love for all things dessert. Help us welcome her to the team at rfulford@cahabamedia.com.

You're not the only one with New Year's resolutions, reader. We've made some changes around here, too. As mentioned above, we've added a new member to the team, a step that holds great promise for the quality of our content and our capacity for growth. Additionally, in print this year, we've added several new categories: Communication, Materials Management and Sustainability. We're bringing you more from The Business Council and an expanded, redesigned Ask the Experts section. Don't forget to visit us online at constructionbusinessowner.com, where we bring you even more exclusive interviews and content featuring industry leaders and business owners.

Later this month, our team will descend on the annual World of Concrete (WOC) trade show in Las Vegas, Nevada. Last year's show was the largest in 9 years, and it doesn't show signs of slowing down. We'll be there talking to the industry's top OEMs, associations and industry leaders to find the solutions you need to make business better. CBO's very own George Hedley will be there presenting two educational sessions: "How to Develop & Multiply Effective Leaders" and "Numbers Contractors Must Know & Track to Make a Profit." Look for us at the show in Booth N1751 and follow @CBOMagazine on Twitter to keep up with us while we're there. Stay tuned for post-show coverage in our March issue!



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CONSTRUCTION BUSINESS OWNER

EDITORIAL
Editor
Kathy Wells
kwells@cahabamedia.com • 205-314-8268
Managing Editor
Elizabeth Manning
emanning@cahabamedia.com • 205-278-2827
Associate Editor
Rachel Fulford
rfulford@cahabamedia.com • 205-314-8269

CREATIVE SERVICES
Art Director
Melanie Magee
Digital Project Manager
Greg Ragsdale
Web Developer
Greg Caudle
Digital Community Manager
Amy Cash

PRODUCTION
Digital Advertising Traffic
Sonya Crocker
scrocker@cahabamedia.com • 205-314-8276

CIRCULATION
Audience Development Manager
Lori Masaoay
lmasaoay@cahabamedia.com • 205-278-2840

ADVERTISING
Senior Account Executives
Judy Rice
judy.rice@cahabamedia.com • 205-314-8262
Van Imbragulio
vimbragulio@cahabamedia.com • 205-314-8263
Sales Development Representative
Souvana Saya
ssaya@cahabamedia.com • 205-278-2875

CLIENT SERVICES COORDINATOR
Sonya Crocker
scrocker@cahabamedia.com • 205-314-8276

EDITORIAL ADVISORY BOARD
Richard D. Alaniz
Partner - Cruickshank & Alaniz
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Principal - FMI Corporation

CAHABA MEDIA GROUP

Publisher
Walter B. Evans Jr.
VP of Sales
Greg Meineke
Creative Director
Terri Gray
Controller
Brandon Whittemore

1900 28th Avenue South, Suite 200 • Birmingham, AL 35209
Phone: 205-212-9402 • Fax: 205-314-8272

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JANUARY



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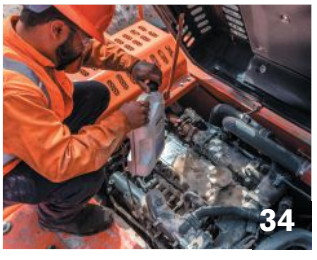
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IECA Region One Announces New Executive Director


Samantha Roe

The International Erosion Control Association (IECA) Region One board of directors and staff has named Samantha Roe, IOM, executive director of the association. "IECA is looking to expand our value to our membership, develop an initiative to attract a younger audience and continue to expand our importance in both the local and international markets," said IECA President Tom Schneider, CPESC. Roe brings a variety of chapter management, membership development and international experience to IECA. From restructuring, redesigning and implementing strategic programs for the United States Chamber of Commerce in Washington, D.C., to overseeing chapter relations and their service to local members of the Financial Planning Association's 93 chapters, Roe has a depth of experience. Roe's education focused on international communication, business administration and U.S. Foreign Policy at Western Michigan University and American University. Visit ieca.org.

SmartMarket Report Indicates 60% of Projects Will Be Green in Next 3 Years

Forty-seven percent of those participating in the World Green Building Trends 2018 SmartMarket Report expect to do more than 60 percent of their projects green by 2021. Published by Dodge Data & Analytics, the industry report indicates that the international market for green construction projects has grown significantly in the last 10 years, and demand for green building activity is poised to grow, even double in some regions. Nineteen countries, spanning six continents, are featured in the report. "Enthusiasm for green building is clear in all major markets measured, and that is driven by the business benefits they receive, which have stayed consistent since 2012," said Donna Laquidara-Carr, Ph.D., LEED AP, industry insights research director with Dodge Data & Analytics. "These benefits include 8-percent operating cost savings in the first year and increased building asset values of seven percent for new green buildings, which are clearly influencing all those who do green building to deepen their engagement with green." Similar benefits were reported for green building retrofits and renovations. The report also found that the biggest challenge to increased green building—the perception that it costs more than traditional construction—declined dramatically from over 75 percent in 2012 to less than 50 today. Another highlight is that many respondents plan to build green in the next 3 years without seeking certification. Visit construction.com

Manitou North America Names Western Region VP

David Chickowski has been appointed Western region vice president for Manitou North America. Chickowski will oversee all sales activities for Manitou, Gehl, Mustang by Manitou and EDGE brands in the Western region of the U.S. and Canada. In his new role, he will focus on will focus on driving overall growth and profitability in the region by developing strategic market initiatives and strategies for the dealer network, rental customers and other market channels. Most recently, Chickowski served as the director of business development and led strategic initiatives at Stanley Black & Decker, where he contributed to the launch of new products and increased sales and growth management. He holds a bachelor's degree in business administration and marketing from the University of Central Florida. Visit manitou-group.com.

Vermeer Corporation Acquires Vac-Tron Equipment LLC

Vermeer Corporation has announced its purchase of Vac-Tron Equipment LLC and its plans to bring the Florida-based company together with McLaughlin Group Inc., which was purchased by Vermeer in 2017. Founded in 1997, Vac-Tron is known for innovative vacuum excavation products sold and serviced across underground utility markets. Headquartered in Okahumpka, Florida, Vac-Tron offices and production facilities employ more than 100 people. For the last 13 years, Vac-Tron products have been sold almost exclusively through the Vermeer dealer network. McLaughlin, a drill tooling and vacuum excavation company with more than 100 team members, was founded in 1921 in Greenville, South Carolina. McLaughlin brought nearly a century of industry knowledge into the Vermeer fold last year. Operating under the combined group, Vermeer MV Solutions, the organization will continue to provide Vermeer-branded vacuum excavation equipment and technology through dedicated Vac-Tron and McLaughlin series product lines, as well as McLaughlin-branded utility accessories and auger boring systems. The Florida and South Carolina locations will continue production as they work together to meet the growing demand within the soft-dig markets. Visit vermeer.com.

Continental Names Sales Technical Training Specialist

Continental, a global supplier of systems, components and tires to automobile and truck manufacturers, and a provider of original equipment engineered aftermarket parts, has named Allen Selzler as sales technical training specialist for Continental Automotive's interior division, commercial vehicles and aftermarket business unit. Selzler will be responsible for the organization, coordination and execution of regional presentations and demonstrations with prospective and existing customers. In addition to planning and hosting training events, Selzler will be tasked with supporting sales team personnel, establishing sales leads generated from training sessions, developing installation instructions, and building and maintaining customer relationships. Selzler holds a bachelor's degree from the University of Sioux Falls. Visit continental-corporation.com.

The AED Foundation Names VP of Operations

Associated Equipment Distributors (AED) has hired Cory Hayes as vice president of operations for The AED Foundation. The AED board of directors has recommended an effort to aggressively increase focus on the workforce skills gap challenge facing the industry. The continued development of The AED Foundation's accredited diesel technician footprint remains a top priority to provide a quality workforce to AED members in North America. As part of these expanded efforts, Hayes was brought in to spearhead operations. Hayes has nearly 20 years of experience in the heavy equipment industry, working with dealers, original equipment manufacturers and service providers. He brings a decade of experience from the private sector, working at a leading equipment dealer consulting firm helping dealers improve operational, financial and management practices. He lends nearly another decade of experience serving in mid-level and executive level roles as the vice president of training and education at the largest regional trade association in the agriculture sector. Hayes's key areas of focus will be

furthering the organization's mission to accredit over 10 new college and high school diesel technician programs in 2019 for North America, oversee capital campaign efforts for The AED Foundation, and contribute to the workforce and development programs offered to the construction equipment industry. Visit aednet.org.

▶ RT Specialty/New Day Names Assistant VP of National Environmental & Construction Professional Liability



Joe Reynolds

Joe Reynolds has been named an assistant vice president in the National Environmental and Construction Professional Liability Practice (formerly New Day Underwriting Managers) at RT Specialty/New Day. He is responsible for securing environmental and construction-related professional liability coverage forms for companies representing the architectural, engineering and real estate marketplace. For the past 15 years, Reynolds has specialized in underwriting a wide variety of management and professional liability products. He has extensive experience developing architects, engineers and contractors professional liability, including protective indemnity and rectification, project-specific professional liability, and real estate developers errors and omissions programs for project owners, contractors and developers. Prior to joining RT Specialty/New Day practice, Reynolds served as vice president, architects and engineers product head at Hiscox Insurance and vice president, executive underwriter in XL Catlin's design professional division. For more than a decade, he also underwrote and developed product strategy for management and professional liability products at Travelers Insurance and The Chubb Corporation. Reynolds holds a bachelor's degree in political science from Trinity College and a Juris Doctor from the Quinnipiac University School of Law. Visit rtspecialty.com.

▶ Kinedyne Announces the Passing of VP of Sales & Marketing

Kinedyne LLC, designer, manufacturer and distributor of cargo control technologies, including cargo securement, capacity and access solutions for the transportation industry, has announced the death of Paul W. Wolford, its vice president of sales and marketing. "It is with the greatest sadness we share that Paul Wolford, our esteemed colleague and trusted friend, passed away Nov. 15, 2018," Dan Schlotterbeck, president of Kinedyne LLC, said. "Paul's courage, strength and dignity through his long battle with cancer are a testament to his dedication and devotion to all who knew him. He led by example, and his many contributions, as a person and as a leader, touched each of us." Wolford's career in the commercial vehicle industry spanned nearly 40 years. He joined Kinedyne in 1981 and was named the company's vice president of sales and marketing in 1997. Wolford was an active member of the American Lung Association and was recognized for his fundraising and advocacy for cancer research in his own fight against the disease. Memorial donations can be made to American Lung Association in Kansas and Greater Kansas City. Visit kinedyne.com.

▶ North American Rental Revenue Forecast to Surpass $71B in 2022

The American Rental Association (ARA) 5-year forecast predicts equipment and event rental revenues in North America to exceed $71.7 billion in 2022, including $65.4 billion in the U.S. and $6.3 billion in Canada. John McClelland, Ph.D., ARA vice president for government affairs and chief economist, said, "Our forecast for 2019 does indicate slower growth than we experienced in 2018 because the U.S. economy is projected to grow at a slower rate than in 2018. However, in both cases, rental revenues are expected to grow at higher rates than the economy." Revenue is forecast to grow another 5.5 percent in 2019; 5.9 percent in 2020; 5.1 percent in 2021; and 4.7 percent in 2022. While the construction/industrial segment remains the largest, its growth rates of 5.6 percent in 2019; 5.3 percent in 2020; 4.4 percent in 2021; and 4 percent in 2022 are $44.85 billion pace below the percentage of revenue increases for general tool (to reach $16.34 billion in 2022) and for party and event, which is expected to show revenue increases to total $4.27 billion in 2022. U.S. investment in rental equipment is also expected to be steady over the forecast period, increasing 2.6 percent in 2019 to $14.3 billion; adding another 4.5 percent in 2020; and then slowing to growth rates of 1.7 percent in 2021 and 1.3 percent in 2022, reaching $15.4 billion. "Our biggest concerns going forward are the continuing negative effects of tariffs on the rental industry, both from the increasing costs of equipment for all rental segments and construction equipment, as well as the overall fiscal drag that is caused by tariffs," McClelland said. In Canada, rental revenue is forecast to grow 4.8 percent in 2019; 4.7 percent in 2020; 3.8 percent in 2021; and 2.6 percent in 2022 to total $6.3 billion. Visit ararental.org.

▶ The Walsh Group Names New VP & Business Group Leader

The Walsh Group has named Steve Skinner vice president and business group leader. Skinner will be responsible for pursuing new business, project execution and expanding the company's commercial building construction across the Washington, D.C., regional market. Skinner brings more than 37 years of professional experience in construction to Walsh. In his previous role as an executive vice president and general manager at Skanska, Skinner provided leadership through short- and long-range strategic planning initiatives and promoted a positive work environment that motivated personnel. His extensive portfolio of project experience expands across the private and public sectors and includes commercial, retail, residential, hospitality, health care and mixed-use construction. As an executive, Skinner still maintains active roles in preconstruction, logistics and constructability reviews, continuing each throughout the duration of a project. Visit walshgroup.com.

100 years

Manafort Brothers, the oldest demolition company in the Northeast, celebrates 100 years of business. The fourth-generation, family-led business was founded by James Manafort in 1919 as the New Britain House Wrecking Company. In 1946, the company was renamed Manafort Brothers Incorporated and taken over by the Manafort sons. Today, Manafort Brothers is still led by the Manafort family. Visit manafort.com.

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What about your business keeps you awake at night?
Our industry experts share their solutions to some of the biggest problems facing construction business owners & their teams.

What industry issues will have the most effect on your 2019 planning?



FRANK W. WHITE III
President
Kaufman Lynn Construction

The construction industry will continue to be challenged by the limited availability of skilled workers and tradespeople in 2019. This is a lingering effect of the Great Recession, which caused a mass exodus from the skilled labor force. It's essential to concentrate our efforts on **developing and training an agile workforce with adaptable skills** that will allow them to fill current needs, remain productive during downturns, and be properly prepared for upturns.

Tariffs on steel are also an area of concern in planning for next year, and their impact is already being felt. Whether price increases are real or opportunistic, **these new costs must be included in negotiating upcoming projects.**

Perhaps an even bigger challenge is the unknown. What tariffs are still to come? What impact will they have? As the tariff landscape continues to evolve, when planning for 2019, we should expect all material costs to be affected to some degree.



MICHAEL BORDES
President
AA Jedson Company LLC

In a time when it's difficult to find qualified staff who want to grow with a company into the future, the current issue is **the questionable future of our labor force**. In the past, when the immigrant labor force came to this country and started working as manual laborers, we knew we had a stable foundation, with employees who were grounded and settled in for a long future with one company. The past generations started as laborers, moved up the ranks to top mechanics, then to supervisors and project managers, and eventually to executive office positions, making long careers with the same companies.

Today, we do not see enough qualified manual laborers or field personnel with ample experience to learn enough in the beginning to successfully help grow a company. We need to **implement education programs and introduce more interns into the field**. And we need these programs to be more hands-on so that interns get a better experience and are able to learn more from their supervisors.



ALEX GETELMAN
Executive Managing Director
MBI Group

With a **decaying infrastructure and continued population growth**, the need for construction and renovation has never been stronger. One of the biggest factors affecting the industry is the **explosive demand for materials**, often sourced from all around the world. Difficulty securing materials due to the busy climate has become increasingly challenging. Construction materials need to be procured on day one. Building the right team and getting your materials approved by the architect and engineers in the initial days of the project will help you secure all the right materials as early as possible and get the job done on time.

To submit your question to the experts, email Associate Editor Rachel Fulford at at rfulford@cahabamedia.com.

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3 Ways to Step Up Your Strategy

C.A. Murren & Sons' mottos for continuous growth & profit



GEORGE HEDLEY, CSP, CPBC, is a professional construction BIZCOACH and industry speaker. He helps contractors build management teams and get their businesses to work for them. He is the best-selling author of "Get Your Construction Business To Always Make A Profit!," available on amazon.com. Email George at gh@hardhatpresentations.com to sign up for his free e-newsletter, start a BIZCOACH program, attend a 2-day BIZ-BUILDER Boot Camp or get a discount at hardhatbizschool.com online university for contractors. Visit hardhatpresentations.com for more information.

Ask George

To submit a question for George Hedley, email Editor Kathy Wells at kwells@cahabamedia.com.

Charles A. Murren III, a long-standing client of my consultation business, has always impressed me with his ability to continually seek better opportunities for growth and profit. His company is a model of professionalism, truly achieving best-in-class results.

After graduating in 1981 with a bachelor's degree in civil engineering from Auburn University, Murren went to work for the Kiewit Corporation as a project engineer. There, he learned the construction business basics while working on large civil sitework, highway, marine, piling and utility projects. In 1987, he caught the business owner bug and started C. A. Murren & Sons Company Inc. in Atlanta, Georgia, with a vision to become a successful heavy civil, highway and industrial contractor.

The first project he landed was installing underground phone conduit as a specialty contractor. Like most construction company founders, he served as the hands-on project manager, field supervisor, backhoe operator, materials securer and crewman.

After completing his first project, he continued to build his company, landing Department of Transportation (DOT) civil construction projects. And this was only the beginning.

1. SEEK NEW AVENUES OF WORK

From the start, Murren was never satisfied with the status quo and continually sought better opportunities to grow, make more money and expand his operation. With the 1996 Summer Olympics being held in Atlanta (and the wave of construction work that came with them), Murren decided to seek new work or projects outside of his civil construction expertise. He was diligent in scoring a project with the Olympics organization, and as a result, he landed a large grandstand contract for the equestrian venue, which included a $10,000-per-day liquidated damage clause for delay.

Murren agreed to start work if they also offered a $10,000-per-day early finish bonus. The organization agreed, and C. A. Murren & Sons finished 10 days ahead of schedule, earning an additional $100,000 for their efforts. This money provided additional working capital for the business, which allowed Murren to then qualify for larger projects.

After the Olympics, Atlanta was teeming with construction work, and Murren saw an opportunity to get out of public low-bid projects and into commercial sitework and subdivision construction. From 1998 to 2005, he became successful building roads and utility structures in the residential construction sector. Then, the Great Recession hit, causing most construction work to slow down as homes stopped selling, and commercial projects failed.

2. NEVER STOP WANTING MORE

While most contractors waited for the economy to turn around, Murren did things differently. He was tired of working for low margins against too many competitors,

with work dependent on marketplace economic conditions. And he became even more determined to find new customers and opportunities where the qualification requirements were higher, margins were better, competition was fewer and work was steady.

He contacted his former associates at Kiewit and inquired about any projects for which he might be a good fit. Once he learned of the available possibilities, he began pursuing a United States Department of Energy project that involved driving the sheet piles required to contain low-level radioactive nuclear waste for a major international contractor.

He was awarded the project until they inquired about his safety program, which, unfortunately, was nonexistent at the time. The project was simply too dangerous for such an unguarded firm.

With this disappointment, Murren made it his priority to do everything it took to become properly qualified to perform work for major contractors and companies. He took a risk in investing and hiring a professional safety director, developed a thorough and detailed safety manual, and adopted a safety-first mentality. He also invested in quality control, drug testing and certified training programs.

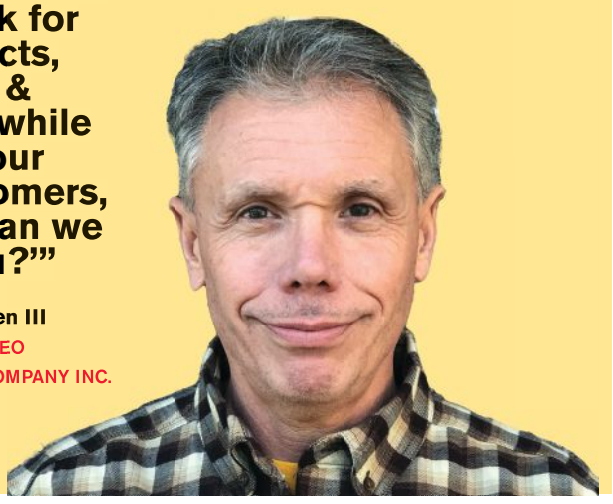
His decision paid off, as he later revisited the U.S. Department of Energy and was awarded the project for $14 million. To this day, Murren is still working for this client on many nuclear and other power industry projects around the Mid-Atlantic and Southeastern U.S.

3. INVEST IN THE FUTURE

Murren's willingness to take on opportunities that were out of his comfort zone, as well as his vision and forward-thinking, continue to better C.A. Murren & Sons' bottom line. For example, in 2010, oil and natural gas exploration and drilling became a big opportunity for contractors. His curiosity led him to discover that fracking and gas work was increasing at a rapid pace.

"Be willing to take risks & invest in new opportunities. Always look for new projects, services & customers, while asking your current customers, 'What else can we do for you?'"

Charles A. Murren III
PRESIDENT & CEO
C. A. MURREN & SONS COMPANY INC.



To take advantage of the opportunity, Murren hired a business development professional familiar with the gas industry to seek out projects for his company.

His vision and his investments led to many projects and millions of dollars of work over the next several years. At one point, he had over 100 field employees working on such projects. Next, this venture led to interstate oil and gas transmission pipeline projects and maintenance opportunities, which continue today.

MURREN'S KEYS TO SUCCESS

- *Be willing to abandon a dead-end path*—When there's no work, there's no money and no future. Be resilient. When you reach a road block, move on to new ventures quickly.
- *Never stopping seeking out bigger, better opportunities*—Be willing to take risks and invest in new opportunities. Always look for new projects, services and customers, while asking your current customers, "What else can we do for you?"
- *Seek customers and projects with high requirements*—Continually realign your business model to meet future market and customer opportunities. Do what is required to qualify for harder, more difficult, riskier work. The best customers require more qualifications, training, safety, certifications, engineering and systems.
- *Maintain an enviable culture*—Maintain high moral and ethical standards, by which to judge all actions and decisions, and meet commitments in a fair and equitable manner. Make safety, people, quality, standards and systems a top priority.
- *Always recruit great people*—Only employ people who demonstrate personal accountability, great teamwork, a strong work ethic and respect for others. Find a place for great people even if you don't have an opening today and even if they cost more than you'd like to pay.

Stop and think about what else you could accomplish if you were to step out of your comfort zone. When you don't actively seek and secure new opportunities, project types and customers, you may miss the chance for best-in-class margins and a steady project backlog. CBO

The Mythical Unicorn Leader

Examining the intersection of leadership style & business vision



GREGG M. SCHOPPMAN is a consultant with FMI Corporation, management consultants and investment bankers for the construction industry. Schoppman specializes in the areas of productivity and project management. He also leads FMI's project management consulting practice. Prior to joining FMI, Schoppman served as a senior project manager for a general contracting firm in central Florida. He has completed complex construction projects in the medical, pharmaceutical, office, heavy civil, industrial, manufacturing and multifamily markets. He holds a bachelor's degree and master's degree in civil engineering, as well as a Master's of Business Administration. Schoppman has expertise in numerous contract delivery methods, as well as knowledge of many geographical markets. Visit fminet.com or contact Schoppman by email at gschoppman@fminet.com.

Unicorns are perfect, magical creatures, and, as myths go, they aren't real. In the construction world, a similarly defined individual is being hunted: the "unicorn" leader. This elusive type develops great businesses in a single, entrepreneurial spark and marvelously crafts the foundation of a great enterprise.

Real leaders, who embody every trait of this unicorn leader, may not be as rare as the horned creature itself, but they certainly are uncommon. Many of today's leaders study the personality traits of the great business minds that came before him/her, hoping to reach the same level of success. Vision-focused, goal-oriented and strategy-forward traits define the makeup of these great minds. And as aspiring leaders continue to seek perfection, many of them find there is no promise that it can be found.

GROWTH BY LEADERSHIP

The central personality traits possessed by great leaders often become the governor for a company's vision. What prevents smaller businesses from achieving sustainable growth? Why do large businesses fail to capitalize on their size? An interesting phenomenon occurs when a leader says, "I want the business to grow." What follows is an attempt to garner more volume. However, businesses can grow, altering their form for the betterment of the institution, without gaining in size. As humans, we grow older, but we do not continue growing taller. Our growth is measured differently.

	Granular Leader	Stratospheric Leader
Strategy	**Control**	**Growth**
Long-term View	*Lifestyle business*—A business (with a less frenetic leader), at the conclusion of which, assuming there are no suitors, the exit strategy may be liquidation and simply closing the doors.	*Legacy business*—A business in which continuity is important as the enterprise grows, with the succession of leaders and managers taking precedence.
Immediate Need	Control risk	Subordinate control
Strategy Blocks	Thinking growth will solve the problem	Thinking management of the firm will take care of itself
True Goal	To become more stratospheric by relinquishing some control and delegating more tasks	To become more granular by further controlling growth & becoming more active in day-to-day tasks
Inside View	Quarterback (chief signal-caller on the field)	Cheerleader (chief support officer)
Outside View	Strong, confident executor	Visionary, director and chief salesperson

Figure 1

Similarly, business growth is not measured by size alone. It is in search of this measurement that a business should assess the personalities of its leaders and determine whether they are granular or stratospheric leaders.

THE GRANULAR LEADER

Often, the old adage, "If you aren't growing, you're dying," becomes the barometer against which a firm measures its strategic vision. However, growth without discipline or a clear understanding of the ramifications of growth can be dangerous. The granular leader focuses on the "what" of any given business scenario—those tiny details that seem important to success. But if a leader's personality requires a high level of control, out of desire to be involved in every detail, will growth be possible? Is there enough time in the day to address every single issue affecting a growing business on a granular level? Most experts would argue that delegation is essential for growth. Spreading the visionary thin by having him/her involved in every tiny detail of the business can greatly lessen his/her efficacy, even though he/she imagines it will do just the opposite. For such leaders, there is often a frustrating and exhausting learning process that precedes an understanding of this dynamic.

THE STRATOSPHERIC LEADER

In contrast, stratospheric leaders seem as if they have this balancing act mastered. However, organizations with a stratospheric leader may grow the enterprise, but that doesn't always keep a business staying true to its values. The stratospheric leader focuses on the "how" of things. For instance, while the enterprise is growing volumetrically, who is managing the day-to-day tasks? If the granular leader(s) is focused elsewhere, managers and superintendents will often seek operational guidance, support and accountability. This is where the stratospheric leader steps in to help.

PERSONALITY RAMIFICATIONS

This is not to say that a granular leader does not also have subordinates. However, if the leader desires to be part of every meeting, sign every check, conduct every performance evaluation, etc., the matter of capacity will come into question. Something has to give. Granular leaders must either accept their place in a small, yet successful, business, or make the choice to move away from micromanaging employees and tasks.

Stratospheric leaders view the details as kryptonite—an unexciting part of their jobs—and frankly, they generally aren't detail-oriented. Subordinating management is common, but it still requires the leader to be seen and participative. For instance, his/her role as cheerleader is leveraged to demonstrate support for what is happening day to day. Asking the appropriate questions to mangers, as well as vocalizing support for internal initiatives and projects, validates what is happening inside the four walls of the business. Look to Figure 1 for more detail on granular and stratospheric leadership strategies.

GREAT, NOT PERFECT

While you may not be able to find your perfect "unicorn," the odds are that you will be able to find a truly great leader. Great leaders create opportunities for growth and know how to see it through. They lead teams that are capable of providing alternative views, as well as supplemental strengths the leader may lack. And both granular and stratospheric leaders possess one necessary attribute of a great leader: the ability to hire the right team to make it all possible. CBO



You Don't Have Time for This

4 tips for avoiding common time-management traps



DUANE CRAIG is a former construction superintendent who now writes about construction, technology and business. Many of his articles have been featured in ExakTime publications. ExakTime is a provider of digital time tracking and workforce management solutions for construction and beyond. ExakTime was built almost 20 years ago by a contractor who felt his crews were taking advantage of his inability to be on-site all the time. Inaccurate, missing and even false timecards were killing business, which was the inspiration for ExakTime's now cloud-based software solution. Visit exaktime.com.

Great business owners and executives have a full arsenal of time management tactics to pass on to their employees. But being the boss makes it easier to fall into time-sapping traps of your own. What follows are some of the major time management challenges contractors face and helpful tips for avoiding them all together.

1. DELEGATE WISELY

Years ago, as a new business owner, I came face to face with every entrepreneur's biggest fear: delegating. It was incredibly hard for me to imagine turning over control to others, who would do things on their own, without my close oversight. I had too much to do because I was trying to micromanage every task at every level.

But, it all came to a head one morning when nearly everything started failing at once, and I realized for the first time that "my way" was keeping my company from becoming the best it could be—a place people could learn and grow right along with the business.

According to Art Markman's "How to Stop Delegating and Start Teaching" in the Harvard Business Review, delegating should be as much about training as about moving things off your to-do list. Delegating in a frantic moment because you don't have the time to tackle a task, or because you have a business flight to catch, sets up your employees for failure if you haven't trained them to succeed in your absence.

Eventually, when they've had enough of those little failures, they lose motivation, and start playing it safe instead.

Worse, when you delegate to people who aren't qualified, tasks aren't always done correctly. In fact, delegating to people who aren't up to the task often turns out worse than if the job was never completed in the first place.

Sure, your lead carpenter knows how to manage a framing crew, but is he/she really ready to manage the entire jobsite when you're away?

2. EVALUATE PRIORITIES

If urgency is dictating your priorities, then you might want to take a step back and rethink them. Just because something is urgent, doesn't mean it's important.

The difference might sound like a word trap, but it's simplified in the Eisenhower Principle, under which important activities are defined as those with an outcome that leads to achieving goals, both personal and professional; and urgent activities are defined as those demanding immediate attention and are usually associated with achieving someone else's goals.

Knowing the difference is key to prioritizing. To decide which definition your tasks align with, create a to-do list and place each item in one of the following categories:

- Important *and* Urgent
- Important *but* Not Urgent
- Not Important *but* Urgent
- Not Important *and* Not Urgent

If urgency is dictating your priorities, then you might want to take a step back & rethink them. Just because something is urgent, doesn't mean it's important.



The first category will include tasks you haven't foreseen or tasks you've avoided. Catch up on these immediately, and then start carving out a regular point in your weekly or daily schedule to address these unforeseeable events.

Dedicate ample time to complete tasks in the second category so that you do them well, or delegate them with extra caution so that they don't come back around as rework or crisis situations.

Tasks in the third category are probably tasks you can delegate or reschedule, and those in the fourth category are distractions, so avoid them.

3. STOP PROCRASTINATING

The cynical (but apt) statement, "If it weren't for the last minute, nothing would get done," may help you justify procrastination with yourself, and possibly even your employees, but it won't reduce its damage.

First, don't beat yourself up about procrastination. It's a normal, if self-deceptive, activity. According to Psychology Today, "Everyone puts things off sometimes, but procrastinators chronically avoid tasks and deliberately look for distractions." Take stock of your motivations and truly look at your relationship with procrastination. This is important, because if you are a chronic procrastinator, it's affecting all aspects of your life—especially your business.

If you procrastinate selectively, you can overcome the tendency by teaching yourself to gradually take risks. Learn to give yourself credit for getting things done so that you steadily defeat fear of failure, or fear of success.

Some people procrastinate to avoid the responsibility for the outcome of whatever it is they're putting off. For them, overcoming procrastination is an exercise in learning to be held accountable—even, from time to time, for failure. Overcoming procrastination is a personal journey, but it's essential for effective time management.

4. REDUCE DISTRACTIONS

Once you get control of delegating and prioritize, you'll eliminate many distractions, but there will still be plenty of others looking to snatch your time and attention

Email, texts, social media and an abundance of easily consumed information on the internet are among the latest host of distractions. Some tried-and-true distractions still exist as well, like unnecessary meetings, poorly developed workflows and busywork that could be automated.

As far as technology goes, beating procrastination is mostly a matter of just saying no. Say no to checking your email every time you hear the alert. (Most emails can wait an hour, if not several hours to a day.) And resist the temptation to check out the latest new truck ratings on your favorite automotive website.

You have to dig a little deeper, though, to reduce or eliminate the wastes of time in the tried-and-true group. Workflows often become outdated or redundant. Study those tasks you complete on autopilot every day, and you'll likely find some to change or eliminate completely.

Pay attention to the meetings you attend and ask yourself some probing questions. Is this scheduled as a recurring meeting? Recurring meetings can sometimes be skipped. Does this meeting have clear agendas with stated goals? How many meetings get rescheduled? If redundant and unnecessary meetings are distracting you from more important work, just imagine what they're doing to company productivity.

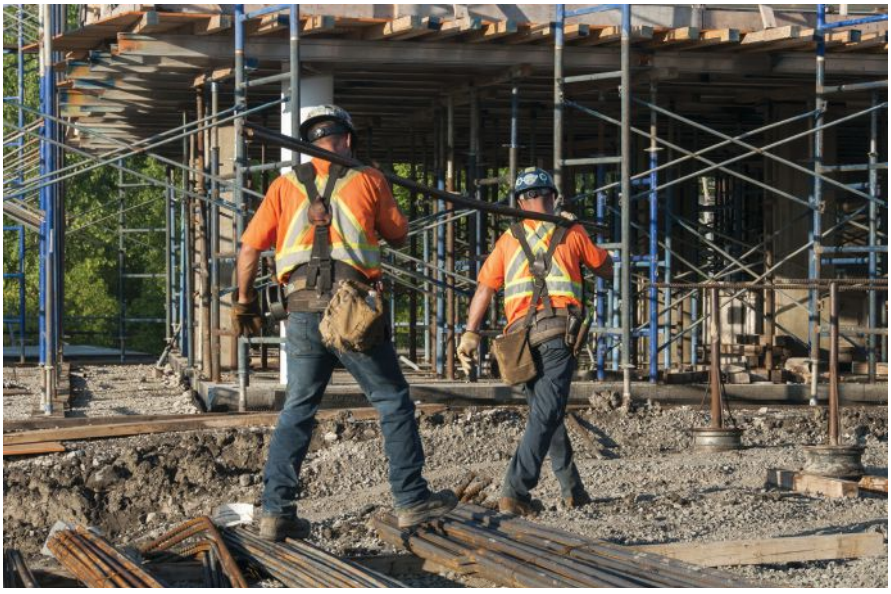
Automate tasks, because with today's technology, you can put the mundane on autopilot, freeing you and your employees for work that's more important and more fitting. Finally, check to see that you are setting and enforcing boundaries. It's tough to do your best work when people assume you are interruptible at any time. CBO

The Skilled Workforce Delusion

3 underlying issues that hiring more people won't fix

BY TODD DAWALT

What if you hire all the right people and your company still breaks? What if you think you've finally solved your skilled workforce shortage only to find out that you somehow made things worse? If you want to win the war for talent, you need a full understanding of three underlying root problems that are sabotaging your efforts to grow your business and retain good employees.



1. THE DAM

Imagine finding out your local water company plans to triple your monthly bill. You attend the public hearing, where you learn of their proposed plan to spend millions of dollars to raise the dam on the local reservoir, creating more capacity—a capacity needed because half the water is being lost through leaky pipes, inefficiencies and defects in the system.

Would you support the plan to raise the dam? Would you vote in favor of spending millions of dollars to create more capacity for a system with that many problems? Would you vote to fix the underlying root causes or to throw money at the symptoms?

I recommend you ask the same questions about your workforce, because a skilled labor shortage may not be the problem. For many, it's a symptom of an underlying employee retention problem. According to the United States Bureau of Labor Statistics, the construction industry suffered from a 60.1 percent separation rate in 2017. That means 6 out of 10 construction employees quit, were fired or were laid off last year. The industry's separation rate is 17 percent above average, and it's been rising since 2015.

As such, before you hire another employee, you need to make sure you have the best chance of keeping them around for a long time. Here are a few strategies to boost retention:

- *Grow your leadership skills*—They say people don't quit companies; people quit bosses. The quality of your leadership has a significant impact on employee engagement and retention.
- *Empower your people*—Stop micromanaging and delegate instead. When you trust your people and give them some autonomy, you'll be surprised by the positive effect it has on engagement, motivation and productivity.
- *Focus on culture*—Whether you are aware of it or not, your company has a culture. As the leader, you have the opportunity to create a team environment that will make the right people want to spend the majority of (or entirety of) their career with you.

2. THE EXTRA LOAD

According to a 2017 McKinsey report, the construction industry has an "intractable" productivity problem. That is to say, over the past two decades, the rest of the world economy's productivity has grown three times as fast as the construction industry's.

"We're handcuffing our people by forcing them to use processes that haven't changed in decades," said Gerard McCaughey, chief executive officer of Entekra LLC, a design, engineering and manufacturing company that provides offsite solutions for both residential and commercial construction. "We need to address our process and productivity, not just find more skilled labor."

Construction is not the only industry struggling with a skilled labor shortage. The health care industry has been grappling with a shortage of physicians for years. However, health care experts realized that the medical system was rife with inefficiency and complexity. So, in addition to their efforts to attract more youth to the discipline, they are improving the productivity of the physicians they currently have.

They're changing the process to allow physicians to focus more of their time and energy on managing the complex medical issues only they are trained to deal with. Nurse practitioners, physician assistants and nurses are being empowered to handle many of the tasks that required a physician's completion under the old processes. This change leverages physicians' time and skills and magnifies their impact on the health of their patients.

"Load shedding" is an electrical term that refers to the purposeful diverting of the load in part of a system to prevent failure when the demand strains the system's capacity. The demand on physicians is straining the capacity of the health care system. To prevent failure of the entire system, process changes are being made to allow workloads to be redistributed from doctors to less expensive, more readily available team members. The industry is, in effect, load shedding. Shed your extra load by:

- *Investigating*—Survey your key team members to find out the tasks they are consistently spending time on that don't require their skill level or is below their pay grade.
- *Eliminating*—If your people are spending time on something doesn't need to be done, then simply stop doing it.
- *Automating*—If your investigation reveals repetitive, time consuming tasks, there is likely technology available to automate or streamline it.
- *Delegating*—For the duties you can't eliminate or automate, bundle them, create a job description and hire a support person to be responsible for them. This person will likely be easier to find and less expensive than a superintendent, foreman or skilled tradesman.

3. THE DESIGN

Recently, a hacker infected my website, and after spending a lot of time and money to undo their evil antics, my problems continued. I finally realized they had installed hidden malware, which is software code designed to cause websites to fail.

Similarly, you may have organizational malware that is designed, though unintentionally, to make new hires fail. In other words: Are there unwritten rules in your company that make it difficult or impossible for new hires to succeed?

John Morris, president of the Ohio Valley chapter of the Associated Builders and Contractors, summarized one of the ways companies are designed to fail. "Most companies say they would hire 20 guys tomorrow. It would probably be a mistake; you [the contractor] would probably fail them; and it could break the company. We have this huge disconnect between management and a field labor force that's held to a standard of productivity that cannot be achieved with a new, less-skilled worker added to the mix," Morris said. "When I come in as an apprentice plumber, the journeyman plumber has to slow down to properly show me how to do the job. If he does that, the productivity on the site will take a short-term hit and be immediately recognized on the job profit and labor budget reports. And the folks in the operations wing will come down hard on the superintendent. That's when the superintendent will come back and say, 'Those new guys are no good. We need to fire them,' because it's a lot easier for a superintendent to blame a lack of workers than it is to say, 'I'm not a very good trainer, and I don't know how to adapt to this new help.'"

You should examine your company for any hidden organizational malware that is designed to make new hires fail. A good place to start is an audit of reporting metrics and compensation plans, looking for anything that somehow penalizes field leaders for training and integrating new hires.

We absolutely need more people in the construction industry, but don't be deluded into thinking that hiring more people is going to end your troubles. The root problems related to retention, productivity and organizational design are messy.

There are no silver bullets. However, when you solve the underlying problems behind your labor crisis, you'll attract and retain high performers who will deliver great results. And in the end, you will win the war for talent. CBO

TUNE IN FOR MORE

Visit constructionleadingedge.com/podcast-2 to tune in to episodes 88 and 95 of The Construction Leading Edge podcast and hear industry experts discuss more solutions for the labor shortage problem.

Todd Dawalt is the host of The Construction Leading Edge podcast, a coach to construction business owners and an industry speaker. Contact him at todd@constructionleadingedge.com. Visit constructionleadingedge.com.



5 Top Tech Needs in 2019

Ways to eliminate problems with communication, collaboration & compliance

BY JAMES CAMPBELL

Today, millions of general contractors and construction workers will log into a cloud-based management solution. Excavator operators around the world will reach into their trucks and grab their instant communication systems. Right now, project managers are using their phones to send updates to their bosses; leaders are looking in on safety meeting attendance via a device; and streamlined accounts payable (AP) processes are making paper bills relics of the past.

You too can secure a position of leadership in the industry by adopting these five technologies designed to alleviate—if not totally eliminate—issues with communication, collaboration and compliance.



1. CLOUD-BASED MANAGEMENT SOLUTIONS

Instead of sitting at a desk with a laptop, construction professionals want software they can access directly from a mobile device or tablet. But they also want to update work orders, track project schedules, perform time entry and generate reports—all from the field. To increase project efficiency and accountability, best-in-class companies are utilizing a cloud-based management solution to streamline project communication and documentation. Cloud-based management solutions document subcontractor work, budgets, payment information and more. Users can monitor the expiration dates of insurance certificates, manage subcontract change orders, eliminate double paying and double billing. The Sage Group plc is a leader in this space, offering multiple packages, including Sage 100 Contractor and Sage 300 Construction and Real Estate.

2. INSTANT COMMUNICATION TOOLS

Whether you are building a one-story house or a massive skyscraper, communication is critical. Instant communication tools allow an entire project team—from foreman to project manager—to quickly locate the latest project drawings and information, simplifying jobsite coordination and preventing miscommunication, all in real time. One such tool, Fieldwire, can help iOS, Android and Windows 10 users streamline project communication and documentation via instant messaging, punch-list tracking, construction scheduling and document management in one convenient app.

3. POSITIONING TECHNOLOGY

When you are building a large structure, an error of just one inch can cause serious problems. New positioning tools allow you

to plot foundations and map out plans on the ground with extreme precision. Integrated hardware and field software make it easy to place footings, retaining walls, formwork, grading and more. Trimble is at the forefront of these new technologies and offers general construction, interior and underground mapping tools. General contractors will appreciate Trimble ProjectSight, which provides all-in-one collaboration and planning tools for even the most complex jobsites. For location mapping and planning, the Trimble R8S Global Navigation Satellite System (GNSS) is the ticket to repairing complex mapping problems.

4. DIGITAL COMPLIANCE DOCUMENTATION

Workplace regulations and compliance requirements are continually increasing to ensure ongoing employee safety. A contractor's safety history is an important factor when awarding contracts, so the ability to effectively document and prove due diligence is critical to your success. With a digital compliance documentation tool, you can print predefined PDF reports as needed and reference past documentation on the go from your mobile device. You can even take pictures of meetings or incidents and save them to your system in case it is ever questioned in the future. The Safety Meeting App, from Meridian Computing Inc., allows you to quickly document meetings, incidents and safety checklists from a single iOS or Android device.

5. ACCOUNTS PAYABLE AUTOMATION

One constant in construction is a plethora of bills and payments. Handling this manually quickly becomes a full-time job, even for small companies. For large contractors, accounting may even require an entire department. Modern AP systems use advanced matching and digital payments to automate the AP process. These systems allow businesses to lower processing costs, decrease late payments, capture payment discounts, avoid duplicate payments, and better track the end-to-end process from expense to payment. AP automation solutions, offered by providers like AvidXchange, take the capture, routing and approval process for an invoice down from 28 days to 2 or 3. Automation eliminates error-prone processes, like data entry, and frees up staff time. **CBO**

James Campbell is the vice president of construction sales at AvidXchange, headquartered in Charlotte, North Carolina. Campbell has 40 years of experience in the construction software industry and joined AvidXchange in 2016.
Visit avidxchange.com/CBOTechTrends.





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Right at Home Office

6 obstacles of onboarding remote employees

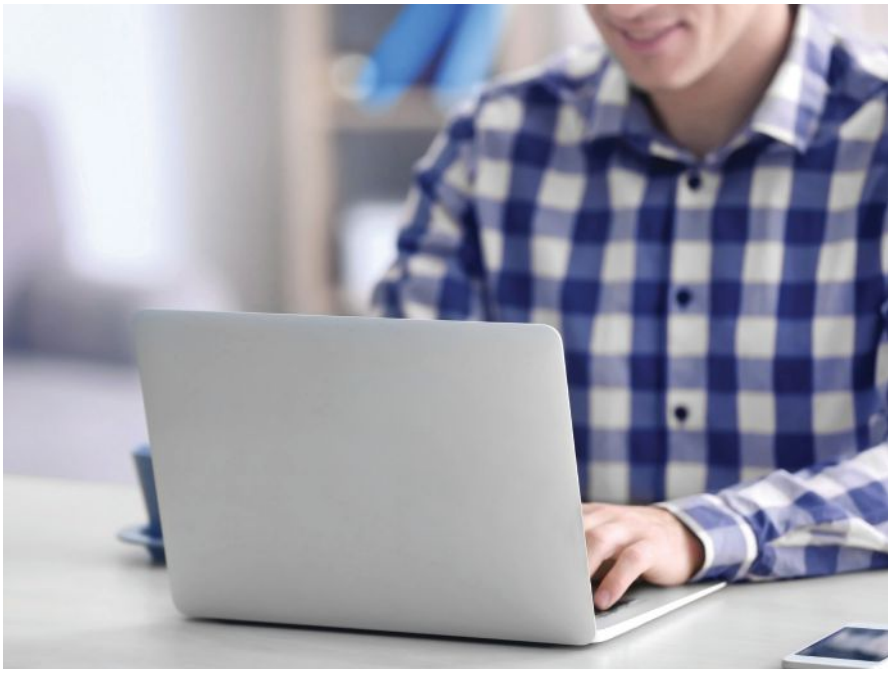
BY CHRIS LENNON

Companies in fields like construction and energy often spend a lot of time and manpower putting in place processes and systems that allow them to properly manage their remote employees—particularly field workers.

Yet, many companies forget the importance of establishing and implementing processes and systems for onboarding. This is a mistake that can have major repercussions.

According to the content technology experts at Interact, effective employee onboarding can increase employee performance by up to 11 percent, and employees are 58 percent more likely to be at a company 3 years after starting if they complete a comprehensive onboarding process.

But, onboarding remote employees has particular challenges that do not exist for those in the office. The following are a few of the obstacles your company may experience and how to overcome them so that your field employees feel equally as valuable as those in the main office.



1. GETTING THE HR WORK DONE

The first challenge is the most straightforward: How do you get the paperwork signed? New employees are required to fill out many forms, from providing payroll details to completing Forms W-4 or I-9. Digital solutions can facilitate this process with field workers, but not all paperwork can be completed digitally. Most notably, original documents must be physically verified to complete Form I-9.

Be sure to inform employees of the documentation they need to bring and physically verify before their start date so that the paperwork can filed and processed by the time they start (if they are able to physically come in to the office), or encourage the employee to use a notary service in his/her area to verify the documents. Don't forget to reimburse him/her for the notary fees.

2. INTEGRATING INTO COMPANY CULTURE

Integrating new employees into the company culture—everything from the company's values, ways of working and dress code—is one of the primary purposes of onboarding. It's arguably more important to emphasize culture in onboarding for remote and field workers, who are not able to pick up cues about culture from spending the time in the office or with other employees.

For field workers, the culture of the worksite can be different from the culture



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"Effective employee onboarding can increase empoyee performance by up to 11 percent, & employees are 58 percent more likely to be at a company 3 years after starting if they complete a comprehensive onboarding process."

of the main office, or the office where the onboarding materials are developed.

If this is the case, your onboarding process should include a briefing of new employees about the culture of their work location, as well as the culture of other offices. This will reduce misunderstandings and tension between field workers and office employees.

3. ESTABLISHING COMMUNICATION NORMS

Most of the time, field workers can't pop by a colleague's office to ask a quick question. If they urgently need a response from someone at another location, what is the best way to get one? What are the communication norms at the company?

If the company encourages employees to use a messaging app or phone call, rather than email (or vice versa), make sure field workers are aware of this and have easy access to the tools they need. It's also a good idea to inform field workers of any communication expectations.

For example: If someone emails them, are they expected to respond within the same day? The same hour? Setting expectations will make communication easier for all involved and alleviate miscommunication.

For more on onboarding remote employees, check out:

"Onboarding Checklist for Remote Employees" at interact-intranet.com/blog/onboarding-checklist-remote-employees

"Remove the Remote Employee Flight Risk" at blog.birddoghr.com/2018/3/remove-remote-employee-flight-risk

4. EMPHASIZING PROPER IT & SECURITY PROTOCOLS

Remote and field workers are more likely than other employees to use company electronics in public places and log onto public Wi-Fi networks. They're also less likely to have easy access to company tech support, which exposes them to much higher security risks.

As such, their onboarding must cover information on data security (e.g., password policies and security practices, such as the use of anti-virus software). In detail, emphasize how the nature of their work exposes them to greater risk and train them on how to mitigate those risks.

If your company requires that off-site employees use virtual private network (VPN) software when accessing the company computer network, make sure field workers know how to do so.

5. MAKING THEM FEEL LIKE PART OF THE TEAM

It can be lonely out there in the field. Help your remote and field workers feel like part of the team from day one by:

- *Sending a welcome pack*—A welcome pack can be simple (a mug, company t-shirt, notebook and pen), or it can be as creative and elaborate as you want. For a fun gift, a construction company could include a board game related to building, such as The Settlers of Catan or Carcassonne.
- *Giving a virtual tour*—An office tour is part of the day-one ritual at a new job, and hiring someone to work at another location is no reason to skip it. Use video conferencing software to lead a new employee through the office and introduce him/her to their colleagues from their mobile device.

6. UNITING AROUND A COMMON PURPOSE

It can be difficult for field workers to understand what other employees at other locations do or how the work of those employees contributes to their own assignments. Make sure your field workers understand the company's mission, vision and goals, and explain how each department helps meet those goals.

Schedule video sessions with managers and other employees to discuss their jobs with new field workers. If it's difficult to find time because of time-zone differences or other barriers, have office employees record videos for new field employees to watch on their own schedule.

Onboarding remote and field workers requires more effort than onboarding other employees, but thanks to technology, it's getting easier. Use the tools available to ensure your field workers get the onboarding experience that will make their work more enjoyable and productive. CBO

Chris Lennon is vice president of product management at BirdDogHR. Lennon is an active participant in the talent management community, bringing over 18 years of experience to BirdDogHR. He has presented at numerous industry events and been quoted as an industry expert in leading publications. Visit birddoghr.com.





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A New Year of Risk

5 economic & construction-specific challenges contractors will face in 2019

BY TRISH DREW & MARY GRANDY

As we shuffle past 2018's holiday season and look through the tunnel of a new year, now seems a good time to pause, reflect and consider some of the risk management and insurance challenges that construction contractors (and others in the industry) are likely to face in 2019. The following are five such challenges, in no particular order.



1. LABOR SHORTAGE

With the unemployment rate continuing at an all-time low, labor and staffing will remain an increasing challenge for all parties involved on a contract. In an effort to meet project staffing demands, contractors have had to bring in labor from other regions, reaching beyond their traditional staffing channels. When it takes longer than usual to replace employees who have left the workforce for various reasons, business owners face additional challenges and increased risk.

When it comes to workers' compensation, while the ultimate loss ratio may be trending up only slightly, the indirect "soft costs," resulting from on-the-job injuries, will continue to plague the industry. The opioid epidemic has been fueled by a workforce trying to manage chronic pain—particularly in industries with heavy physical demands, such as construction. The addictive properties of these heavily prescribed drugs have caused injured workers to continue their use beyond the acute pain period, prolonging disability and causing injuries and deaths.

And now, the issue of cannabis is front and center. Workers' compensation carriers will be facing the dilemmas of whether the use of medical marijuana is an alternative to opioids and if there is an acceptable method of legally prescribing it. It is commonly known that the construction industry employs a large number of illegal immigrants. Facing an already significant labor shortage, the current focus on immigration laws poses a unique unknown for contractors, even more so than for many other industries.

2. TARIFFS & TRADE WARS

Recently imposed tariffs are having a significant impact on the construction industry. The rising cost of steel and aluminum is driving increased material costs, thus raising questions about who will assume these cost increases. The tariffs on steel came on top of demand-driven increases in the

cost of steel. Stack this on top of increases in the cost of lumber, and material costs become one of the most significant issues contractors had to tackle both upstream and downstream in 2018.

Unfortunately, this challenge will continue well into 2019, and projects facing budget difficulties may have to be pushed from the drawing table to the back burner. You'll also need to be diligent in ensuring that your subcontractors aren't at risk for default as they struggle to manage their own rising costs of materials.

3. AUTO INSURANCE MARKET

Insurance carriers have been facing a rise in both frequency and severity of auto losses year over year, making commercial auto one of the worst performing property casualty lines. As a result, underwriters have continued increasing rates and premiums to offset tighter margins, reevaluating and often restricting their underwriting.

According to Moody's insurance market analysis, commercial auto rates increased approximately 9.5 percent by the date this was penned in December 2018, on top of an approximately 7-percent increase in 2017. With an anticipated increase of another 4 to 5 percent in auto losses across the balance of 2018 and 2019, carriers continue to tighten underwriting guidelines and requirements, taking a much closer look at individual construction risks.

Fewer carriers are willing to write auto policies on a monoline basis, and accounts with a distressed loss history are having to seek options in the surplus lines market. Enhancing and strengthening fleet safety programs is critical to managing auto insurance premiums going forward.

4. EXCESS LIABILITY CAPACITY & PRICING

In conjunction with the increase in severity of auto losses, excess liability carriers are experiencing greater claims frequency, rising claims costs and higher loss ratios. While this has driven rate and premium increases, it has not reached the same level as rising auto insurance premiums. To limit their exposure and offset their losses, excess liability carriers in some states are starting to implement a requirement that the primary auto liability policy carry a liability limit of $2 million—up from the traditional, standard primary limit of $1 million.

Another issue being faced is the lowered capacity of excess liability insurance carriers. Many of the same carriers that insure general contractors and subcontractors for excess liability are the same carriers that are insuring the wrap-up policies on large projects. It is not uncommon that a carrier providing a $50 million owner-controlled insurance program/contractor-controlled insurance program policy could also be carrying a $25 million excess policy for the contractor's off-site exposure.

As a result, carriers are beginning to reduce the coverage limits they are willing to offer. This means that where a contractor may have traditionally placed a $10 million limit with one carrier, they may now find themselves having to layer their program with multiple carriers to secure the same $10 million limit, which adds complexity and difficulty to program structure and management.

5. CYBERSECURITY

It's not uncommon for a contractor to believe they have little or no exposure when it comes to cyber threats or liability. While some of the larger and more publicized breaches have involved technology companies, banks or large retailers, the exposure for a cyber attack or breach is not limited to those industries. Any business with an internet connection is a potential victim, and contractors are no exception.

In fact, the construction industry has unique vulnerabilities that don't typically exist in other target industries. At any given time, your network can house owners' plans, specifications and details concerning both the physical and security designs of their projects. Construction company databases are also home to a significant amount of sensitive employee information.

The frequency of social engineering (cyber deceit) and cyberextortion continues to rise, and contractors should be having discussions about how to protect against and prevent such attacks that extend beyond simply purchasing a cyber liability policy.

When the risk management process is properly employed and insurance coverage is placed correctly, contractors can partner with the carrier to create safer incident response policies and communication protocols, as well as third-party vendor management practices.

Understanding the exposures to risk you face; identifying and analyzing options for mitigating, controlling and managing those risks; and partnering with professionals who can properly advise upon and deliver comprehensive, cost-effective products, services and solutions are a must today, next year and beyond. **CBO**

Trish Drew, CIC, ARM, CRM, is the account executive of the national construction resource group for EPIC Insurance Brokers and Consultants. Drew has more than 35 years of experience in risk management. She holds an associate's degree in risk management and designations from the American Institute for Chartered Property Casualty Underwriters and the National Alliance for Insurance Education & Research.



Mary Grandy, CRIS, CCLA, is senior vice president of construction practice for EPIC Insurance Brokers and Consultants. Grandy specializes in the design, implementation and management of insurance and risk management solutions for clients in the construction industry. Her expertise is in managing litigated construction claims. Grandy began her career over 20 years ago as a claims adjuster. Visit epicbrokers.com.



STATE OF THE INDUSTRY



STEVE JONES
Senior Director of Industry Insights Research at Dodge Data & Analytics

How Washington, Project Costs, The Labor Shortage & New Tech Will Define the Construction Industry in 2019

Politics, materials, skilled labor and technology. Groundbreaking content; we know. But how will these four factors drive the construction industry forward—or slow it down—in 2019? We caught up with three industry veterans to ask them how these key factors will affect the construction industry this year. Who are these heavy hitters, you ask?

Steve Jones is the senior director of industry insights research for Dodge Data & Analytics. Ed Sullivan is the chief economist and senior vice president of market intelligence for the Portland Cement Association (PCA). Dale Kopnitsky is the executive vice president and general manager for Skanska's building operations in the Washington, D.C., area. Jones, Sullivan and Kopnitsky all have years of construction experience under their belts—experience that comes in handy for strategizing and planning ahead. Read on for their takes on what your business can expect in 2019.

On Changes in Washington

As many newly elected officials take office this month, much of the industry is keeping a close watch on how the changes in leadership at both the federal and state levels and the passage of new bills will trickle down to the construction industry. First up: the infrastructure bill.

"An infrastructure bill is long overdue. But the block has been on how to finance it," Sullivan said. "It's very simple to me—the gas tax. We just haven't had the political will on a national level to do this."

Sullivan said he thinks a federal infrastructure bill will not be a reality until a year or so down the road. "The issue is not whether we want or need new roads and bridges; it's whether we have the will to finance it. Yes, it's going to cost taxpayers money. But we have to pay for it somehow."

Jones mentioned the increased use of and interest in public-private partnerships (P3) as another way to finance necessary infrastructure projects. While P3 projects aren't as popular a financing option in the United States as they are elsewhere in the world, Jones said he sees a lack of funding on the federal and state levels, making these types of projects a more viable option in the future.

What worries Sullivan just as much as the need for a federal infrastructure bill is the federal deficit. While revenues are continually increasing at the state level, on the federal level, the country faces a huge deficit. "Entitlement programs are the No. 1 expenditure for states," Sullivan said. "We are running deficits in a time of prosperity. Typically, you don't do that unless you're in a recession. When you have that, coupled with balanced budget amendments, you have to prioritize." According to Sullivan, in most states, governments are being forced to decrease commitment to public infrastructure spending to pay for other costs.

On Materials Costs

It seems like tariffs were the subject of more conversations than we can count in 2018—and for good reason. How much are they really altering materials sourcing and planning in 2019, though? Dodge's survey for the USCC/USG Commercial Construction Index for Q2 2018 revealed more than half of the general contractors and trade contractors surveyed expected a high degree of impact from the tariffs. In the Q3 2018 index, when tariffs were in place, about half of those surveyed still expected a high degree of business impact from the tariffs.

According to Jones, however, over that same period, the percentage of those surveyed who expressed concern about material cost fluctuations having a great impact on their business increased from 38 percent to 44 percent. While contractors are worried about the role tariffs will play on cost of materials, other materials that aren't subject to tariffs are also on their minds. Jones said the area where he expects to see the tariffs to affect change is in bidding. "[Contractors] are facing a lot of uncertainty, so they could factor in even more incremental margin than is called for by the current elevated prices."

Regardless of what happens to tariffs over the next couple months (ahem, China), the general feeling is that the potential effects felt by an increase in materials costs have already reached an apex. Kopnitsky said that while the Skanska team did experience notable increases in pricing in 2018, the company is hoping that the price hikes caused by

the tariffs have plateaued. "However, we have seen some indications that suppliers are already planning price increases in anticipation of those tariffs," Kopnitsky said. For Skanska, preparing for that means paying close attention to the market and keeping its clients informed.

Sullivan said changes regarding tariffs could have an effect on more than just materials in this industry. "We are right at the threshold in terms of the tariffs not having a significant, adverse impact on the economy," he said. "If you push it a bit further, it will tip things. I wouldn't be worried about the price of materials; I would be worried about the actual strength of economic conditions."

ON SKILLED LABOR

The skilled labor shortage has now been in flux for the better part of a decade. At the time of printing, the U.S. unemployment rate was 3.7 percent—the lowest the country has seen since the 1960s.

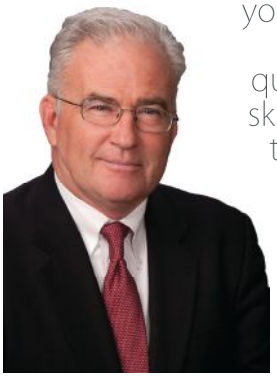
"Catching up takes time," Sullivan said. "The economy continues to grow at a robust pace. We considered the problem to be construction-focused, but it's not—it's the entire economy." According to Sullivan, it's important to note that the shortage is in certain areas—in urban areas, the shortage is significant, whereas in rural areas, it isn't much of a problem.

Construction companies are responding to the shortage with a number of different solutions. Many contractors are looking to attract and retain industry talent by offering competitive training and continuing education programs. Often, however, the employees who benefit from additional training opportunities are then poached by other companies that want their skillset.

The bottom line for many companies, though, lies in the changeover of generations. "Until the industry figures out a way to recruit and train more young people, and more people from underrepresented populations, it will continue to be a problem," Jones said. "There are a lot of solutions discussed out there, but most aren't enough to deal with that demographic shift."

Jones said Dodge has seen a growing interest in how technology, prefabrication and the shift to more collaborative and integrated project delivery processes can make the industry more appealing to new skilled workers. But in an industry that continues to lag behind in terms of tech adoption, don't expect to see tech solving the labor shortage dilemma in the next year alone.

SULLIVAN'S HOT TAKE
on how to solve the labor shortage



"There are already programs in place that are working to resolve the shortage. However, you can do this program, or that program, but it's not quite enough. To get more skilled workers, wages have to increase. Higher wages in your region means a higher attendance in the programs that train or increase interest in the trades, which will bring in more workers."

KOPNITSKY'S HOT TAKE
on how to solve the labor shortage

"We need to continue to use technological solutions to help us. While we're using new tech on our jobsites, there is always room for more. Each project is unique, which makes staffing considerations different for each one."



ON CONSTRUCTION TECH

The industry seems to be on board with the idea of a jobsite team that is as collaborative and up-to-date as possible. However, there is still a disparity between companies that have already integrated various technologies and those that are just beginning the process. One thing will not change from 2018 to 2019: Data is king. The trouble is figuring out how to organize and apply it to the task at hand.

"There is an exciting convergence of technologies like sensors, cameras, robotics, smart equipment, laser scanning, augmented reality and an array of wearable devices that bring vital contextual intelligence directly to the worker on the jobsite and enable managers to compare what should get done with what does get done in nearly real time—the key to improving construction productivity, which has been essentially flat since the 1960s," said Jones.

According to Kopnitsky, the industry can be hands-on, only more intelligently so with the use of data and the knowledge it provides. "Success," he said, "lies in rationalizing those streams of information and putting them to work." CBO

Elizabeth Manning is the managing editor of Construction Business Owner magazine.

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THE TCJA LEGISLATION DRIVING IRS CODE REFORM IN 2019

The Tax Cuts and Jobs Act of 2017 (TCJA) introduced sweeping legislation to reform the Internal Revenue Code. Effective Jan. 1, 2018, the act greatly affects how both individuals and businesses plan and structure their entities, taxes and business dealings. Construction businesses in particular need to be aware of potential opportunities and pitfalls that directly result from the act.

While there are some changes that positively affect the construction industry, such as increased bonus depreciation/expensing and historic rehabilitation tax credits, there is also some negative news. For instance, residential contractors may see a slowdown in contracts as a result of the reduced mortgage interest deduction. Companies that rely on loans or lines of credit to finance projects are likely to suffer as a result of a new limitations on the deductibility of business interest.

The following discussion highlights some of these specific changes in the tax law, which will affect construction businesses this year.

NEW DEDUCTION FOR PASS-THROUGH ENTITIES

Pass-through entities, including partnerships, limited liability companies and S corporations, are eligible for the new 199A deduction. This tax benefit allows owners of pass-through entities to deduct an amount equal to 20 percent of qualified business income (QBI) derived from the pass-through.

QBI is defined as the net amount of items of income, gain, deduction and loss, with respect to the trade or business. For construction business owners, most of whom operate their trade or business via pass-through entities, there is a significant likelihood of a reduced income tax bill resulting from this 20-percent deduction allowance.

However, one Dallas-based CPA, who represents numerous local contractors, is undecided. "It's really too soon to see how this is going to shake out for most of my contractor clients," he said in early October 2018. "Talk to me next year during busy season, and I'll tell you if the pass-through clients come out better taking the QBI deduction than the C corps with the lower tax rate [of 21 percent]." There are numerous caveats to the 199A deduction, including the requirement that the income must be based in the United States and may not be passive income—such as capital gains, dividends or interest income—and specified service trades or businesses are excluded from the QBI amount.

BONUS DEPRECIATION INCREASE

The act increased the Section 179 bonus depreciation from 50 percent to 100 percent, starting in the 2018 tax year. Generally, businesses must depreciate property acquired for business use over the "useful life" of the property. Section 179 allows taxpayers to immediately expense the cost of qualified property that is acquired and placed into service during the reporting tax year.

The old tax law limited the bonus depreciation to 50 percent of the cost of the qualified property; however, the act provides that property acquired and placed into service after Sept. 17, 2017, and before Jan. 1, 2023, may be depreciated 100 percent.

In other words, businesses that purchase new machinery and equipment are now permitted to immediately expense up to $1 million (increased from $500,000), subject to phase out once the costs exceed $2.5 million (increased from $2 million).

Additionally, the act removed the requirement that businesses be the original user of the property for bonus depreciation, as long as the previous user is not a related person or entity. For construction businesses that purchase qualified real property, such as leasehold improvement property, retail improvement property or restaurant property; new or used equipment; and other qualified property, there is expected to be a direct and immediate benefit from this provision.

One Houston-based contractor specializing in concrete, demolition, earthwork, underground and railroad was pleased to learn about the new opportunity. "After learning about the new 179 depreciation rules, we decided to buy some used excavators that cost us around $900,000. Without being able to immediately depreciate them, we would have been hard-pressed to afford it." The incremental percentage of expensing available under the act is set to phase down 20



percent every year after 2023 and expire completely for most property placed in service after Jan. 1, 2017.

LIMITS ON BUSINESS INTEREST DEDUCTIONS

The TCJA modified the rules regarding the deductibility of interest expense. The new limits on the deductibility of interest expense is equal to the sum of: business interest income, 30 percent of the business's adjusted taxable income and business floor plan financing interest. Business interest that is not allowable as a deduction in the tax year may be carried forward indefinitely.

Additionally, "adjusted taxable income" is determined without taking into account any deductions made for depreciation, amortization or depletion for tax years beginning before Jan. 1, 2022. These limits on the deductibility of business interest could hamper business operations that rely on loans to finance construction projects.

LONG-TERM CONTRACT SIMPLIFICATION

The act amended Section 460 to allow taxpayers with average gross receipts of less than $25 million for the prior 3 tax years to be exempt from the requirement of using "percentage-of-completion" accounting method for long-term construction contracts that will be completed within 2 years. This simplified methodology should reduce accounting and bookkeeping expenses for small businesses and contractors.

HISTORIC REHABILITATION TAX CREDIT

The act provides for a 20-percent tax credit for qualified rehabilitation expenditures, with respect to a historic structure. "Qualified rehabilitation expenditures" are generally those costs directly related to the repair or improvement of structural and architectural features of a historic building (e.g., hard costs, such as walls, chimneys, stairs, windows and doors and soft costs, such as architect fees, construction management costs and reasonable developer fees). The credit may be claimed ratably over a 5-year period after the structure is placed into service. This doubles the prior one-time, 10-percent credit.

MORTGAGE INTEREST DEDUCTION LIMITS

The act reduced the mortgage interest deduction to $750,000 of acquisition indebtedness for debt incurred after Dec. 15, 2017. (Older debt is still subject to the $1-million limit.) It is anticipated that residential construction companies in high-rent areas will see a negative effect from this reduction in mortgage interest deductibility.

David Baxter, principal of Dallas-based residential contractor Accolade Construction, has seen a slowdown. "Last year, before the tax law change, we were having to turn down high-end projects … we could barely keep up," Baxter said. "We've seen that [type of] business start to tail off, and we're beginning to focus more on midrange price homes. I'm not sure if it's a long-term deal or if people are just skittish, but we'll see."

You should note, however, that the act did not limit the deduction on mortgage interest to the principal residence of the taxpayer only, as was originally proposed. Builders located in popular vacation destinations should feel less impact than they might have otherwise. After Dec. 31, 2025, the limits will revert $1 million, regardless of the date the debt was incurred.

THE BOTTOM LINE

The act is multilayered and is still being absorbed by professionals and the public alike. As such, this is not an exhaustive list of the tax law provisions that will affect those in the construction industry. It is best to work with an experienced tax attorney to identify any actions that need to be taken for your business. **CBO**

Jamie T. Katzen is a senior counsel member of Gray Reed Attorneys & Counselors. Katzen focuses on domestic and international estate planning (wealth transfer), tax planning, estate and trust administration, and wealth preservation planning. He guides clients through the design and implementation of effective wealth transfer planning. Katzen holds a bachelor's degree in history from the University of Kansas, a J.D. from St. Mary's School of Law, and an LLM in taxation from SMU Dedman School of Law. Contact Katzen at jkatzen@grayreed.com. Visit grayreed.com.



3 TECHNOLOGIES THAT TURN BUSINESS CHALLENGES INTO ADVANTAGES

When discussing technologies that will have the biggest impact on the construction industry in 2019, it's important to think about them in the context of how they can support top business priorities. By taking a closer look at the ongoing issues driving these priorities, we better understand how rapidly advancing technologies can turn business challenges into competitive advantages.

IDENTIFYING & ADDRESSING TOP PRIORITIES

According to KPMG's 2017 Global Construction Survey, 72 percent of respondents report that technology is a prominent piece of their strategic plan or vision for the year. However, less than half (48 percent) of respondents say their company has developed a specific data/technology implementation plan.

Fortunately, while most companies' strategies may not yet be fully established, or exist at all, the industry as a whole is headed in the right direction in terms of technology adoption.

Still, more construction businesses need to fully embrace modern project delivery technology that enables project teams and other stakeholders to leverage common tools (and a common data environment) to drive automation and process improvements across project activities and portfolios. This is critical to any business transformation initiative.

One promising area involves the use of machine learning algorithms to automate certain aspects of the scheduling process, improving both speed and the accuracy of planning and resource management. Additionally, the ease with which teams can adjust alongside changes to the schedule increases.

A second imperative is the need for construction businesses to realize true, real-time collaboration across all stakeholders. Glaring holes still exist in the collection, sharing and use of critical performance and other project data. Although construction companies are collecting vast amounts of data from enterprise resource planning and other technologies like project controls, the information is often disconnected and delays project activities in ways that limit its utility.

This reality undermines the value of the data and forces organizations to react after the fact. But cloud collaboration and maturing technologies, such as sensors, are enabling the immediate collection of data that feeds into project controls systems. Ultimately, this allows organizations to run artificial intelligence algorithms in real time, enabling them to analyze and manage projects proactively.

TECHNOLOGIES PRIMED TO TRANSFORM YOUR BUSINESS

So, how can construction businesses learn from 2018 and make progress through technology in 2019? The following technology categories are already paying important dividends for the early adopters and offering a promising path to innovation and business transformation for those who have yet to.

1. Cloud-Based Data Processing

In a field characterized by large numbers of personnel—working across highly distributed teams on increasingly larger and more complex projects—pursuing an integrated, cloud-based approach to data and processes can have a tremendously positive impact on project outcomes. Leveraging the cloud via mobile devices and applications is providing more businesses with the ability to quickly, easily and inexpensively manage an end-to-end project control and delivery platform. Most importantly, this technology combination improves both productivity and margins through collaborative workflows and communication, allowing stakeholders to access up-to-date data and work together more efficiently in real time.

2. The Internet of Things

The internet of things (IoT) continues to change how we approach data by enabling real-time collection and proactive management through the cloud, connected devices and mobile applications. Drones, sensors and autonomous construction equipment are also contributing to the method by which data is captured. Wireless carriers will start deploying early stage 5G in 2019, which is going to bring fiber-optic-like, high-bandwidth connectivity and

low latency, greatly speeding up data transfer. Together, these developments and applications offer significant opportunities to transform project delivery by providing the tools for a truly connected worksite, helping to improve productivity, quality, safety and standardization.

3. Building Information Modeling

As building information modeling becomes increasingly prominent, its uses will continue to grow and become more valuable. Coupling innovative software applications that offer reality capture from an array of sources—including drone photos and other digital images—with integrated scheduling tools, presents a deeper and more immediate level of insight into project progress, performance and risk. These technologies are developing quickly and can yield benefits in terms of visibility into key operational project (not just design) information.

EMBRACING CHANGE FOR CONTINUED GAINS

As Darren Bechtel, built world venture capitalist and founder of Brick and Mortar Ventures, recently said, "For an AEC organization to remain relevant, survive and thrive over the next 10 years, we believe they need to be investing in innovation right now. And much more than just talking about it, they need to be actively seeking out new technologies and learning how to work with the new generation of ever-improving solutions, or they will have a hard time remaining competitive."

As the construction industry continues to experience a digital transformation, project- and asset-intensive organizations must navigate this changing landscape. Business decision-makers should talk to early adopters and be ready to experiment with emerging technologies. By doing so, they can quickly move their businesses into an industry leadership position and be fully prepared to harness these advancements for even greater integration and success. CBO

Burcin Kaplanoglu leads industry strategy and innovation at Oracle's global construction and engineering business unit and is co-founder of Oracle's Construction and Engineering Innovation Lab. He frequently speaks on and publishes articles related to IoT, disruption of construction and engineering, investments and construction technology in industry publications. He is also an adjunct professor at Northwestern University's McCormick School of Engineering. Visit oracle.com.



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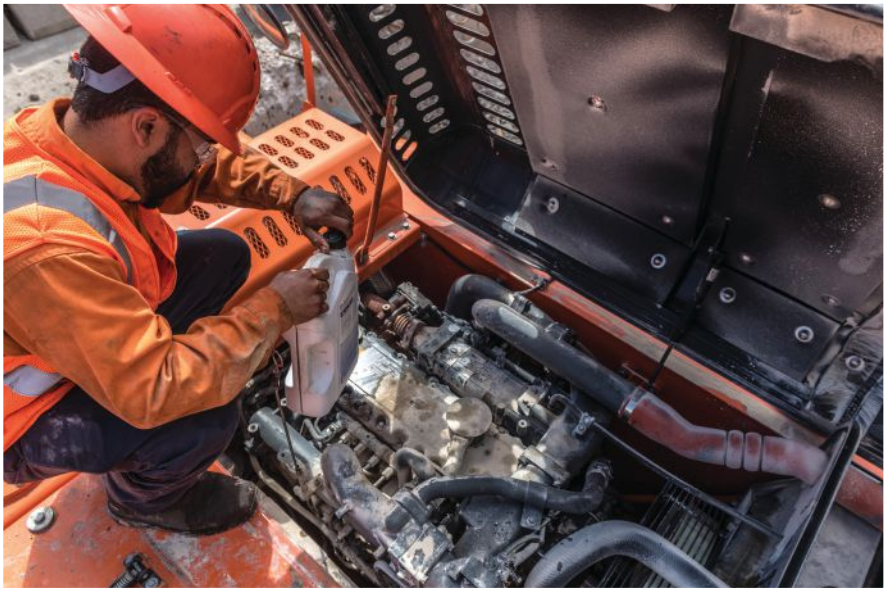
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Clean, Mean Construction Machine

7 tips for prepping your fleet for the busy season

BY AARON KLEINGARTNER

Before you take on your first job of the season, it's vital that your machines go through a tuneup. To ensure reliable operation once the ground thaws, check the maintenance procedures in your operation and maintenance manual and follow these seven tips.



1. START EARLY

As temperatures rise and project start dates flow in, plan to conduct full machine inspections a few weeks before you return your fleet to service. Follow post-storage procedures, as listed in your machine's manual, which includes the recommended intervals, a checklist of spring maintenance items, and oil and fluid recommendations. It's also a good idea to request maintenance training and assistance from your local equipment dealer and expert on proper techniques. Familiarize yourself with decals and key maintenance points on the machine. If you are strapped for time or don't feel comfortable maintaining your machine, utilize your local dealership. By partnering with your dealer, you can help extend the life of your equipment, minimize downtime and save money with their preventive maintenance services.

2. CLEAN MACHINE

An often-overlooked step during spring maintenance is the cleaning of equipment. Last year's grime should have been cleaned before storing your equipment; however, it doesn't hurt to give your machines a quick wash before returning them to service.

Remove any dirt, grease or debris from the machine, including the engine compartment, that was not cleaned prior to storage. If you have an excavator, inspect the undercarriage. All machine components should be properly lubricated, and exposed cylinder rods should be greased. In addition, the machine's cab should be cleaned. Some equipment manufacturers offer an optional on-board air compressor to easily remove dust and debris from the cab. Last on the list, replace machine safety and warning decals that are scratched, illegible or missing and contact your local dealer to order new ones.

3. INSPECT BATTERY

Before your busy season hits, inspect the battery and connect it to the machine. For batteries that need to be charged periodically, a trickle charger can be used to help maintain the voltage at a slower rate, improving the battery life. Battery connections should also be inspected and cleaned at this time, as corroded terminals can cause hard starting and charging issues. If you need to unexpectedly start your equipment during winter, use a block heater to

assist in starting the engine and let it run until it reaches the proper working temperature. This helps prevent the valves from sticking and distributes oil to places it's needed. If you do not have a block heater, consider purchasing one.

4. COMPLETE WALK-AROUND

After the machine has been cleaned and the battery has been inspected, complete a top-to-bottom walk-around. Make sure all components are in proper working order, specifically the bushings, cylinders, hoses and pivot points. Take note of any component leaks that took place while the machines were in storage and replace them as soon as possible.

Look for signs of obvious machine damage, including cuts or tears in the tires or rubber tracks. Make sure the tracks have the correct tension and tires have the proper inflation pressure (displayed on the sidewall of the tire). Refer to the manual for the recommended levels.

Check comfort features, such as heat and air conditioning, radio, seat belts, and windshield wiper blades. In addition, test cab controls, headlights, brake lights and other safety devices to ensure they are in good working order. If there are worn or damaged parts, controls or switches, replace them. Then, also consider these maintenance items:

- Remove all grease from the hydraulic cylinder rods
- Add grease and oil to all lubrication points
- Adjust the fan and alternator belt tensions
- Inspect for signs of animal nests

5. CHECK FUEL, OILS & FILTERS

When transitioning from winter storage to spring use, follow the hydraulic oil warm-up

HAUL YOUR WAY INTO SPRING

Before hauling crawler excavators or wheel loaders to your jobsite, ensure the transport and towing vehicles are in good working condition this winter.

Inspect the tires, brakes, lights, coupling system and tie-down points used to secure your machine. All pins and connection points should be secure, and the hooks should be functional. If you see any cracks, stretches or fatigued links in your tie-down equipment, remove them from service.

If you are located in the Northern United States or in Canada, there may be springtime load restrictions. Load ratings vary from state to state, so check federal, state and local laws and regulations regarding weight, width, length and height of a load before preparing to transport your machine on public roads, bridges, highways or interstates.



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procedures listed in your manual and match excavator fluids to the proper ambient temperatures. If you are getting close to your next preventative maintenance scheduling, replace hydraulic fluids, fuel and filters.

As always, refer to your machine's manual for the proper fluid levels. After long-term storage, make sure fluids are correctly filled, especially for machines with diesel exhaust fluid (DEF), as purity and concentration are critical with DEF and can be affected by temperature. Work with your local dealer to better understand how to store and handle this fluid.

If you used your equipment in winter, switch from a special winter-blend fuel (typically No. 1 diesel fuel) and replace with the standard No. 2 diesel fuel to prepare for warmer temperatures. Drain any water from the water separator on your machine. Then, fill the fuel tank. Check to make sure excess water from condensation is not present in the fuel tank or in the oil, as condensation can cause start-up issues at the beginning of spring. Lastly, change all filters, specifically the cabin filter and air filtration system.

Filters should be changed annually or sooner, depending on how many hours the machine is in use and the conditions where you are using your equipment. Use the correct replacement filter to reduce the risk of premature engine failure.

6. PREP ATTACHMENTS

Everything that engages with the ground should be inspected for wear and damage. Perform visual checks of attachment components, such as hydraulic hoses, cylinders, guards, cutting edges and teeth before returning your equipment to service. Connect the attachment and operate it briefly to make sure the attachment is working properly. Check attachment-specific fluid levels and change them as needed.

7. STOCK UP ON PARTS

Always keep an inventory of basic parts and fluids on hand—including grease, engine oil, antifreeze, air filters, fuel filters and drive belts—which reduces any potential downtime if a component breaks down on the job. Contact your dealer to help you determine what additional parts and/or fluids you should add to your inventory. CBO

Let us hear from you!

Have an equipment matter you'd like to see us cover? Email Editor Kathy Wells at kwells@cahabamedia.com with your questions, topics and feedback.

Aaron Kleingartner is the marketing manager for Doosan Infracore North America LLC, headquartered in Suwanee, Georgia. Kleingartner has 16 years of product development, analytics and strategic marketing experience with Doosan. Visit doosanequipment.com.



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10 hydraulic attachments to elevate your project to the next level

BY RICH ELLIOTT

This month, the construction industry will converge in Las Vegas for World of Concrete 2019. Many show attendees will be looking for hydraulic attachments to help them maximize productivity and profitability in the construction season ahead. But, with so many different applications and myriad hydraulic attachments to choose from, selecting the proper attachment can be a challenge for construction business owners and managers. To assist you in the process, following is an overview of the 10 major types of hydraulic attachments and their applications.



1. BREAKER

Hydraulic breakers are the oldest hydraulic attachments for carriers. They are designed to break any kind of rock or concrete with any hardness level or other physical property. Applications include demolition, deconstruction, primary rock excavation, secondary rock breaking, trenching, foundation work, asphalt cutting and many others. These attachments have a high level of breaking force, to power through materials quickly, and require minimal routine maintenance, which makes them a cost-effective option with minimal downtime. Breakers are available to match any excavator, backhoe or skid-steer loader. Over 60 years, development of the hydraulic breaker has produced advancements, such as self-lubricating systems, sound and vibration dampened systems, automatic rock hardness adjusting systems, energy recovery, the intelligent protection system, the solid body concept, and many more.

2. BUCKET CRUSHER

A bucket crusher is a small jaw crusher that is mounted onto a carrier. In the most common setup, the bottom of the bucket is fixed, with one moving jaw crushing the material against it. This jaw is moved by an eccentric element that is mounted on an axle being rotated by a hydraulic motor. For adaptation, it normally requires pressure and return lines and one free shock line to the tank. Bucket crushers are used to crush the demolition materials used for backfilling on a new building or to be transported to a customer. On construction sites, they can crush the stones excavated from the jobsite, and the aggregate can be used for construction. In quarries and gravel pits, they can crush small amounts of soft stones and boulders that have been prescreened.

3. COMBI CUTTER

Combi cutters, or multiprocessors, are designed to enable a single-host frame and cylinders to accept different, interchangeable jaw variations—each designed for a specific application. There are various

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working jaws available, including concrete cutting, pulverizing, steel cutting and more. They are found on demolition jobsites and are mainly used as primary demolition cutting tools. For optimum operation, combi cutters have 360-degree integrated rotation devices, and the hydraulic installation on the carrier is more sophisticated than other hydraulic attachments, such as breakers. While breakers require a single direction hydraulic circuit, combi cutters require a bidirectional circuit for opening and closing and an additional installation for rotation functions.

4. COMPACTOR

The compactor is ideal for compacting soil on slopes or in confined places where self-moving plates or rollers cannot operate, such as pipeline backfills and road or railway slopes, making it possible to add thicker layers on a backfill. Compactors can also be used for installation and extraction of sheeting, piling, posts and other formworks. When used with a quick coupler, the same excavator can easily perform filling and compaction without waiting for a separate machine.

5. CONCRETE BUSTER

Concrete busters are similar in appearance to combi cutters when they are equipped with concrete cutting jaws. However, they have a much larger jaw opening than comparable sizes, and they are stronger in design. Concrete busters are used for thick concrete wall structures, such as building foundations, or for very tough applications, such as long front demolition where the operator has restricted visibility. The focus on these machines is to have the widest possible jaw opening to better bust thick concrete walls.

6. DRUM CUTTER

A drum cutter is an attachment in which rotating drums, equipped with picks strategically positioned around the outer diameter, are rotated by a hydraulic motor at relatively low revolutions per minute to cut rock, concrete or frozen ground. The picks are wear-resistant and exchangeable. Drum cutters can be used for rock excavation, demolition, underground scaling, tunnel profiling, trenching and other applications. The excavated material can then be used for backfill without separate crushing.

7. GRAPPLE

Grapples are universal tools for demolition, sorting and loading all kinds of materials. The basic structure is simple: a rigid main body with two moving jaws mounted on both ends of the frame. The jaws are powered by two to four hydraulic cylinders, and they are connected together so that they move simultaneously. Grapples are also equipped with a powerful hydraulic rotator for ease of picking, sorting and positioning the materials being picked up or set into place. Grapple design is based on which specific features

are needed for your applications. For sorting, it is essential to have fast movements and precise control of the jaws to penetrate the pile easily; while for demolition, it is more important to have a powerful, strong tool with more weight. For even more versatility, it can be equipped with various accessories for different applications.

8. MAGNET

The magnet is a self-contained attachment in which a generator, powered by a hydraulic motor, creates a magnetic field below the bottom plate. The magnetic force is used to hold steel particles, rapidly demagnetizing them so that the particles drop immediately. The operator controls the functions by means of the auxiliary hydraulic system and remote control. There are no other connections needed. These magnets are used in demolition and recycling applications for loading and separating out steel from other materials. They are ideal for removing the steel from demolition and construction jobsites, tunnels and bridges where steel can harm pedestrians or puncture tires.

9. PULVERIZER

A pulverizer crushes demolished material between one fixed and one moving jaw to reduce the particle size and to separate iron from other materials. There are two main categories of pulverizers—bulk and demolition. A bulk pulverizer is designed to pick up demolished material from the pile. Therefore, many contractors do not need a rotator for it. Without a rotator, the machine is lighter and can perform more precise and shorter movements for maximum digging power. A demolition pulverizer is designed to crush the material (straight from the wall) and pick up the iron. These attachments are usually equipped with a hydraulic rotator for easier positioning and are particularly good for renovations where it is critical to avoid causing damage to surrounding structures and there is no room to handle the falling debris or rubble.

10. SHEAR

A steel shear is an efficient tool for demolishing steel structures with large plates or girders. Typically, steel shears have a fixed pair of jaws and a single, nonfixed jaw that moves between them, cutting the steel like scissors. For maximum cutting force, there is a large hydraulic cylinder, which makes the frame very long compared to the jaws. Steel shears are equipped with hydraulic rotation, and they need two, two-way hydraulic connections. CBO



Rich Elliott is the product manager, hydraulic attachments for Epiroc, a manufacturer of hydraulic attachments. Elliott has worked in the hydraulic attachment and construction industry for more than 20 years. Visit epiroc.us.

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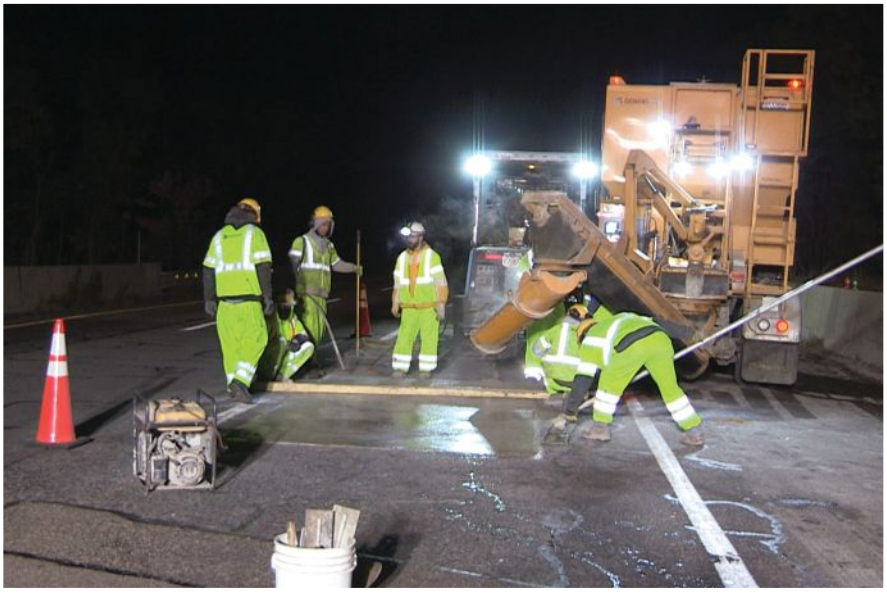
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Pour Me One, Will You?

Exploring the role of volumetric concrete in the future of U.S. infrastructure

BY MARK RINEHART



Earning an infrastructure report card rating of D+ should be a wake-up call for the United States. At this point, everyone knows that our nation's infrastructure is failing, and for those of us who work every day in markets like roads and bridges, water systems and airports, it's becoming even more obvious.

Many workers involved in industry associations are out banging on representatives' doors in attempts to get help with putting together and enacting a plan to correct these problems. And it seems like things have been slow-moving, but it's time to push forward and get a comprehensive infrastructure bill approved.

Every moment that infrastructure projects sit stalled and unfunded creates a larger backlog of work, and the longer we wait, the bigger the task will be. Although one would think this would be a completely bipartisan issue, a real reach across the aisle remains to be seen.

People don't seem to realize that our infrastructure systems need maintenance just like a car, house or a piece of construction equipment. It seems obvious, but you can't just let something go for 10 to 20 years and think that it's going to remain problem free.

Unfortunately, the U.S. has never had an official long-term funding program in place for infrastructure, deciding instead to look the other way. But now that the inventory of repairs is enormous, it must be addressed before more major accidents happen.

It's important that we do something while the economy is booming. The country does have more money coming in, so the time to focus on infrastructure is now.

Over 200,000 U.S. bridges are more than 50 years old. Knowing that a typical paving mix has an average lifespan of about 30 years—and many of these bridges have been out in the elements for 50 or more years with minimal maintenance—should be enough to worry anyone.

This is especially true in the Midwest and other regions where salt, sand and fluctuating temperatures factor into the problem, creating more damage to already struggling structures.

With that in mind, let's take a closer look at what's actually happening to these ailing roads and bridges.

THINGS FALL APART

One of the many upsides to concrete is that it does have a lower maintenance cost over its lifetime than other materials.

However, it tends to cost a bit more in the beginning due to higher installation fees. This can lead to slightly higher bids, which can be bad news for government contracts. And, given enough time,

A recent study showed that up to 22.3 million cubic yards of ready-mix concrete poured on any given day in the U.S. goes back to the plant as wasted—a tremendous & ultimately unsustainable amount of squandered time & money.

concrete will crack, but it's important to know that there are a number of factors that cause it to do so.

Corroding reinforcement materials, subgrade settling/erosion, the type of mix, the way it was poured, quality of finish work—all of these factors affect the durability and life span of any concrete project.

Concrete that has been around for 100 years exists all across the built world, but from an infrastructure perspective, the material decision ultimately comes down to a cost-benefit analysis. If you want 100-year concrete, 100-year concrete can be made, but then come the questions you may not be ready to face, such as, "Are you willing to pay for it and do the necessary maintenance to make it last? Are you willing to pay a higher price for longevity?" This becomes a challenge, especially in the public arena where, the majority of the time, the lowest bid wins.

VOLUMETRIC TECHNOLOGY

A recent study showed that up to 22.3 million cubic yards of ready-mix concrete poured on any given day in the U.S. goes back to the plant as wasted—a tremendous and ultimately unsustainable amount of squandered time and money, all due to outdated methods of both concrete mixing and placement.

Leaders in the volumetric concrete space are now in the process of working with departments of transportation (DOTs) across the country to educate them on the value of volumetric technology; how it can speed up projects; and how it can save them money by using technology for different types of infrastructure repairs.

Volumetric equipment offers the ability to limit the amount of time a road or bridge must be shut down because of how quickly you can get in, pour and get out. This allows the general public to utilize that repaired structure in hours instead of days.

The key advantage of volumetric concrete is that it allows the exact type of concrete that is needed to be poured directly on-site in the exact quantity needed for that particular repair.

Typical repair projects, such as overlays and hinge repairs, usually require smaller pours that can be hard to estimate when working with traditional concrete placement. Volumetric technology allows contractors to pour the exact amount of concrete and the exact mix design with zero waste, saving time and money.

As opposed to rotary drum mixers, mobile volumetric concrete mixers allow for an efficient and more environmentally friendly method of producing and pouring concrete. Volumetric solutions produce the exact amount of concrete needed at the precise time, eliminating the possibility of under or over ordering concrete that will ultimately be wasted.

And, as a result of mixing on-site, volumetric solutions generate less waste and consume fewer fossil fuels.

Volumetric provides a way for contractors to use the minimal amount of water needed to achieve the acquired strength for project requirements. When working with concrete, the more water you add to a mix, the less strength it will have when it finally hardens. So, the goal is to use as little water as possible.

Volumetric mixing has been around for 50 years, and it's evolved exponentially in the past 5 to 10 years. Extremely high-quality concrete can be produced, placed, tracked and monitored, which allows contractors to get their projects done faster and have full control over the concrete production process.

Ultimately, that means DOTs can get a higher volume of repairs completed faster, at a lower cost and with less impact on the U.S. public.

COMING SOON

To rebuild a stronger future, it's important to understand how our roads and bridges got to this point and how we can prevent those problems next time. With the nation watching, volumetric concrete technology could play a large role in meeting the demand for infrastructure repairs and help the U.S. pour the foundation for a better future. **CBO**

learn more

For more on volumetric solutions, check out ***Grow Your Business with Volumetric Concrete*** by Mark Rinehart at constructionbusinessowner.com/grow-your-business-volumetric-concrete.

Mark Rinehart joined Cemen Tech as director of sales and marketing in September of 2014 after 11 years with Ziegler Caterpillar. While at Ziegler, Rinehart served as a technology territory manager before being promoted to director of technology. Rinehart has a bachelor's degree in geography from Northwest Missouri State and a master's degree from the University of North Carolina at Charlotte. Visit cementech.com.



You've Got (Too Much) Mail

What you really need to know about email backups & archiving

BY SCOTT LEWIS



Email: We love it; we hate it; we don't want it; but we need it. However, managing it can be difficult and costly. One of the biggest issues with email is that, as humans, we want to save everything because we have that sinking feeling that someday, for some reason, we might need that email or attachment.

The facts behind this trend are interesting. There are an estimated 246 billion emails sent every day. The average person gets about 131 emails per day, and the average employee will spend 13 hours per week dealing with emails.

It is estimated that than 99.2 percent of saved emails will never be accessed, used or referenced again. This is precisely why, in the corporate world, the methodology used to help individuals and organizations manage, store and archive emails is such an important issue.

COMMON EMAIL MISTAKES

The Muse, which was named one of 2018's Most Innovative Companies for its human resource services, lists the top three mistakes people make in the management of their email as:

- *Leaving email in your inbox*—Based on a 2011 Princeton study, if your environment is cluttered, your brain has a hard time focusing on the tasks at hand. Clutter, even virtual clutter, will negatively affect your ability to process information. It will also make you more irritable, less productive and more likely to be easily distracted by other activities happening around you. Clear out the clutter. Make sure that you are deleting what needs to be deleted. Develop processes for storing relevant emails in a central repository for all client or user information.
- *Deleting, archiving or filing everything*—There are reasons to keep emails, especially in the corporate world where, in some cases, litigation or human resource issues can go back years. Handle it in the moment. It doesn't take much time to think about what to do with a specific email once you have read it. Deal with it or file it. Saving it for later is not productive, so get rid of the junk.
- *Using your inbox as a to-do list*—Email systems are not designed to be long-term storage. Nor is your inbox designed to be used as your to-do list, which causes a time-management

There are an estimated 246 billion emails sent every day. The average person gets about 131 emails per day, & the average employee will spend 13 hours per week dealing with emails.

issue. When you are trying to manage a to-do list within your constantly changing inbox, your focus wanders from the things you need to get done to what is happening at the moment. Separate the to-do list from email, and this will help you stay focused on the important tasks at hand.

ARCHIVING VS. BACKUPS

Archiving and backing up are two different functions that require different resources. A backup is used for operational recoveries. So, in the event of a file deletion, corrupted database or another immediate data loss, the data files can quickly be recovered.

Archiving, on the other hand, is long-term storage for files that shouldn't be changed and are not typically used on a day-to-day basis, but instead are more of a historical record. Archiving is more about the process of searching and sorting data for a specific need and is meant for files that are not to be changed from the original.

If changes need to be made to an archived document, change the name or revision number instead of saving over the original document.

LET'S TALK DOLLARS

When you are talking about the differences between backups and archiving, in many cases, it comes down to dollars and cents. Historically, when companies archived, they would use some kind of tape storage method, and then assign that as a permanent record in a safe or underground vault. This methodology did save dollars over continuous backup because, following the archiving process, that data was removed and no longer backed up. With cloud-based storage or electronic data storage in a safe, secure place, the cost of archiving data goes down drastically. Yet, it still allows you access to the flies for litigation or other reasons. Keep in mind, though, that even with electronic storage within your own network, drive space is finite. At some point, you will have to add drive space.

When considering the differences between backups and archiving, it's easy to confuse the two and/or want to combine them. Make sure you are using the right tools for the right reasons, but keep in mind that your email system isn't meant to be either of these. Backups are a snapshot of operational data, and archiving is a long-term storage methodology. CBO

learn more

For more tips on email management, check out *Think Before You Click Send on Work Email* by Preston Ingalls at constructionbusinessowner.com/strategy/business-management/think-you-click-send-work-email.

Scott Lewis is the president and chief executive officer of Winning Technologies Group of Companies, which includes Liberty One Software. Lewis has more than 30 years of experience in the technology industry and is a nationally recognized speaker and author on technology subjects. He has designed thousands of systems for large, medium and small companies. Call 877-379-8279 or visit winningtech.com.





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New Products to Watch

Selected by the editors of Construction Business Owner, these new-to-the-market products are just a few of our favorites recently released to the construction community. Stay tuned in every issue to find out what you need to know about the latest gear, solutions & industry-leading innovations.

JOHN DEERE

MH60D Mulching Head

Released: 10/18/18

Availability: U.S. & Canadian markets

What's new? Removes 8-inch (203-millimeter) trees and 12-inch (305-millimeter) stumps with ease; shreds underbrush and woody materials into beneficial mulch in minutes

Specs: Two speed hydraulic system; 30 double carbide-tipped teeth; 60-inch (1,524-millimeter), high-capacity, smooth rotor design; oversized, 2.5 inch (64 millimeter) sealed rotor; internal counter combs

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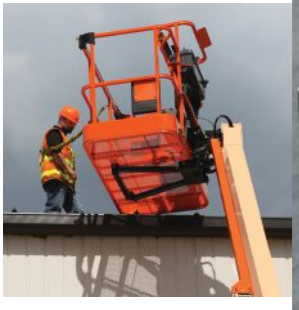
Released: 10/5/18

Availability: U.S., Canadian, Latin American & Asia Pacific markets

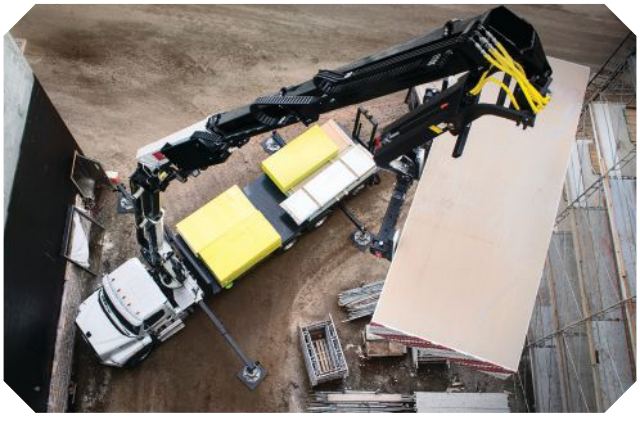
What's new? Full, 270-degree access that gives operators extended workspace outside the platform

Specs: Two large steel brackets securing a 6-foot cable with a ring that can move from one end of the cable to the other; option to attach the lanyard to the ring, improving maneuverability and allowing the operator to perform tasks outside the platform while being tied off to an approved lanyard anchor point on the platform

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◀ IOWA MOLD TOOLING CO. INC.

IMT 42684 Hydraulic Loader

Released 10/23/18

Availability: U.S. market

What's new? Highest-rated hydraulic loader from Iowa Mold Tooling that offers precise handing and maneuverability of palletized materials

Specs: 305,580 foot pounds; maximum lift capacity of 10,500 pounds (4763 kilograms); up to 82 feet, 10 inches (25.25 meters) of horizontal reach; maximum vertical reach of 93 feet, 6 inches (28.51 meters)

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COOPER TIRE
Cooper SEVERE Series MSD
Released: 12/1/18
Availability: U.S. & Canadian markets
What's new? A premium drive tire for demanding, mixed-service applications
Specs: Made with 32/32nds dimensions; designed to handle the toughest off-road conditions, while delivering long, even wear; engineered to withstand heavy scrub, cut and chip environment
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▲ MINNICH MANUFACTURING
Stringer Flex Shaft Concrete Vibrator
Released: 1/1/19
Availability: U.S. market
What's new? Lightweight motor that offers a more compatible speed range of 11,000 to 13,000 vibrations per minute to meet placement changes
Specs: 14.5-pound, double-insulated universal motor that drives a full line of Minnich shafts and heads; comes standard with a quick disconnect that adapts to the vibrators of many manufacturers; available in 15-amp (110-volt) version
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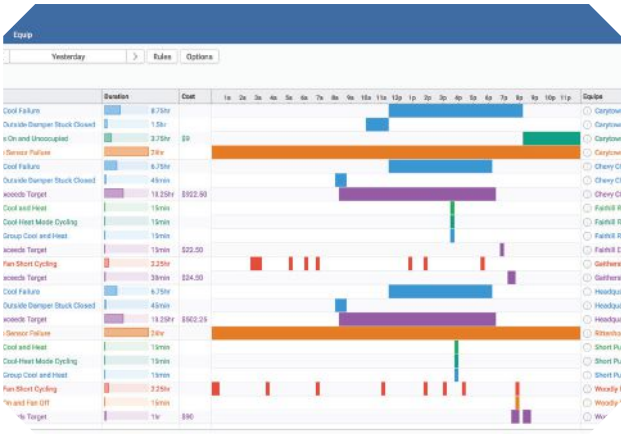
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TENNA
TennaGO Cellular Tracker
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Availability: U.S. & Canadian markets
What's new? Flexibility; durability; ease of installation; rechargeable plug-in availability; and longer-life battery models
Specs: Ideal for heavy equipment and machines providing power sources; delivers precise GPS tracking and engine-hour data for management of high-value assets; feeds equipment data into Tenna's intuitive, cloud-based platform for analysis
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SKYFOUNDRY LLC
SkySpark Everywhere Automated Replication
Released: 11/19/18
Availability: All global markets
What's new? Automatic replication of databases from distributed SkySpark nodes for backup and high-availability data access
Specs: Automatically analyzes data from automation systems, meters and other devices to identify issues, patterns, faults and opportunities for operational improvements and cost reduction; helps operators find what matters in the data produced by equipment systems
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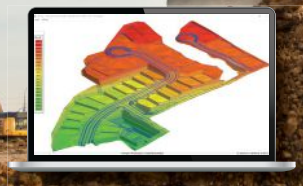
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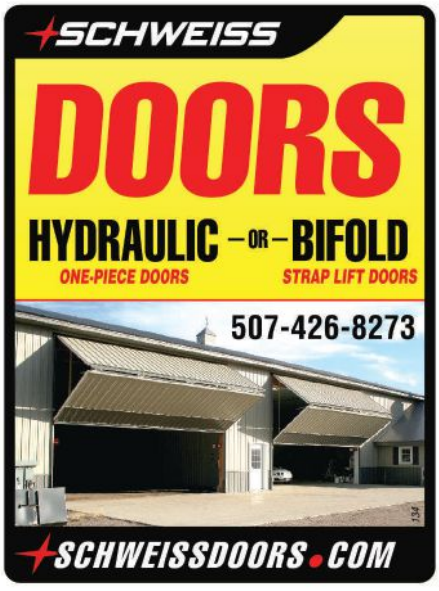


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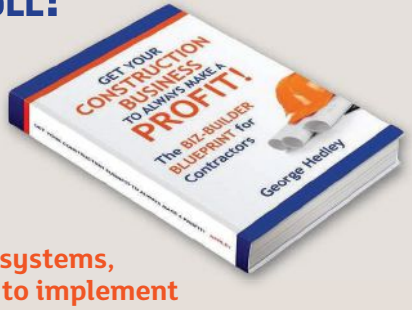


George Hedley CPBC was named *2017 Business Coach Of The Year* by the Professional Business Coaches Alliance

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Annual Value of Construction Put in Place

October 2016/2017/2018 Annual Rate Comparison

This chart compares the two previous years' total value of construction put in place to an annual forecast based on October 2018 figures. (Millions of dollars. Totals may not add up perfectly due to rounding.)

	2016*	2017**	Oct 18
Total Private Construction	**920,097**	**961,630**	**998,692**
Residential	482,029	529,523	538,958
Nonresidential	438,068	432,106	459,733
Total Public Construction	286,477	285,901	310,156
Residential	6,921	6,413	6,108
Nonresidential	279,556	279,488	304,049
TOTAL Construction	**1,206,574**	**1,247,531**	**1,308,848**

**Seasonally Adjusted Annual Rates. Source: U.S. Census Bureau*
***Notice: With the May 2018 release, unadjusted data will be revised back to January 2016 and seasonally adjusted data will be revised back to January 2011. With each May release, seasonally adjusted data will now be revised for an additional 5 years beyond the revision period for unadjusted data. Research has shown that this revision span should produce more reliable seasonally adjusted time series.*

$1,308,848

OCTOBER 2018 TOTAL ANNUAL VALUE OF CONSTRUCTION PUT IN PLACE

"The effects of the 2018 hurricane season are the probable cause of the temporary contraction in billings in the Southern region," said AIA Chief Economist Kermit Baker, Hon. AIA, Ph.D. "This decrease in demand for design services is limited, & the region should rebound over the next several months."

AIA Architectural Billings Index (ABI)

National			*Regional - Billings				*Sectors - Billings			
Month	Billings	Inquiries	Northeast	Midwest	South	West	Multifamily Residential	Commercial/ Industrial	Institutional	Mixed
May-18	52.8	59.3	50.6	50.2	55.0	51.9	52.1	53.6	54.3	47.9
Jun-18	51.3	56.0	50.2	49.8	57.4	46.9	54.6	53.4	51.6	49.3
Jul-18	50.7	60.5	48.0	49.3	55.2	49.6	54.6	50.1	51.1	48.2
Aug-18	54.2	58.0	46.9	52.5	57.0	54.2	55.6	53.6	52.3	51.7
Sep-18	51.1	58.8	46.6	59.7	54.1	53.1	54.9	50.8	55.1	53.4
Oct-18	50.4	58.6	51.8	57.8	48.4	46.9	52.3	48.9	52.0	52.7

For more information on the index or to subscribe to the complete historical data going back to 1995 for your internal analysis, **please contact economics@aia.org.** The ABI presents monthly construction billings data, using a base score of 50. A score of more than 50 indicates a growth from the previous month, and a score of less than 50 indicates a contraction from the previous month. A score of 50 indicates no change. Source: The American Institute of Architects (AIA), Architecture Billings Index (ABI).

*Regional and Sectoral indexes are three-month moving averages, due to small sample size. All data is seasonally adjusted.
**Every January, the AIA research department updates the seasonal factors used to calculate the ABI, resulting in a revision of recent ABI values.

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