NOVEMBER 2018 | CONSTRUCTIONBUSINESSOWNER.COM

CONSTRUCTION BUSINESS OWNER®

THE LEADING BUSINESS MAGAZINE FOR CONTRACTORS



The ART & SCIENCE of RISK MANAGEMENT

Hoar Construction's Amye Carle & how she used ERM to redefine her role

ALSO INSIDE

The industry's top 3 M&A problems

IN THE OFFICE

How Construction Career Collaborative is changing the outlook for trade workers

IN THE FIELD

Bridgestone's Rob Seibert on tire management technologies & safety



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FROM THE EDITOR | Kathy Wells

November's cover series focuses on risk management, and as you well know, the construction industry faces a number of risks unique to each company, specialty and project. Featured on the cover this month is Amye Carle, director of risk management at Hoar Construction in Birmingham, Alabama. In her position, Carle frequents the ideas of change, evolution and adaptation—she says it's what has paved the way for better collaboration and more opportunities. To find out what Carle is doing to redefine the image of risk in construction, turn to page 30 and read "The Art & Science of Risk Management."

Next up, on page 34, I sat down with Bob Kreuzer, vice president of construction risk control at Travelers, to talk about severe weather risks in "The Busy Season Isn't Over Yet." Travelers is one of the United States' largest commercial property casualty insurance providers and writers of personal insurance through independent agents. With an estimated $345 billion in damages from recent storms, many businesses owners were left to pick up the pieces. According to the National Hurricane Center, the official hurricane season runs from June 1 to November 30, and the peak of the season is from mid-August to late October. However, deadly hurricanes can occur anytime during the season. With 14 storms and 87 fatalities already this season, CBO turned to Kreuzer to learn more about what this means for contractors facing the risk.



We're always on the hunt for jobsite solutions that will help you run your business more efficiently. Managing Editor Elizabeth Manning recently traveled to Baltimore, Maryland, to attend the Craftsman Tool media event. While there, Manning tested some of Craftsman's newest power tool offerings, including the V20 cordless solutions, and took her rightful place on Craftsman's Chrome Throne. #winteriscoming

Next in the series, we shift our focus to another area of risk: employees. With renewed initiatives supporting mental health across the industry, such as the Construction Financial Management Association's Construction Industry Alliance for Suicide Prevention, business owners are learning more about the importance of the health and wellness of their employees. According to Psychology Today, the term "behavioral health" includes not only a focus on ways of promoting well-being by preventing or intervening in mental illnesses, such as depression or anxiety, but also aims at preventing and intervening in substance abuse and other addictions. On page 38, check out "Navigating Behavioral Health in Construction," where you will learn ways to manage the risks relevant to mental illness in today's workforce.

Closing the series, "Preventing the Inside Job" gives readers a glimpse into the forensics of data theft. Most business owners anticipate an outside hacker going for their confidential information, but they often least expect it when the attack comes from one of their former employees. Turn to page 40 for tips on how to properly protect your data from those departing your company.

With risk foremost in our minds, the CBO team is headed to the International Risk Management Institute's (IRMI) Construction Risk Conference (CRC) in Houston, Texas, this month. Every year, the IRMI CRC brings together nearly 2,000 project owners, general contractors, subcontractors, developers, insurers and insurance agents, and brokers. The conference serves as an educational forum for attendees, providing information on the latest construction risk management and insurance trends, strategies, and tactics, while also offering the opportunity to network with leaders in the industry. Look for our post-conference coverage in our next issue!

Take good care,

Kathy Wells

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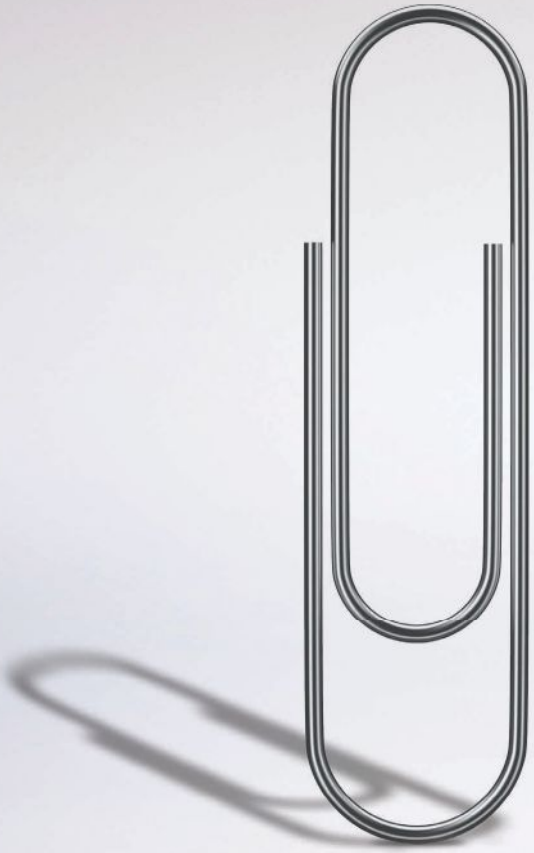




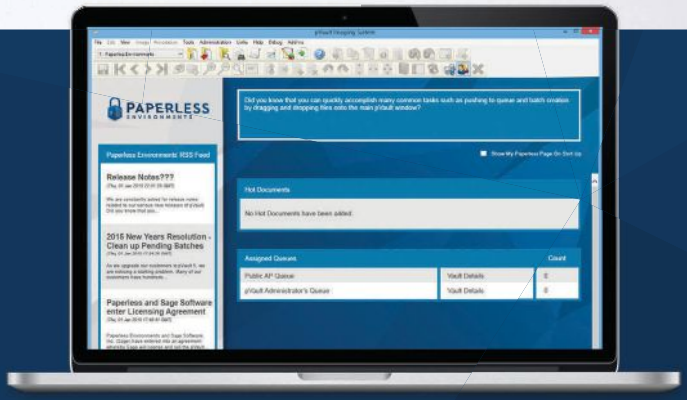


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▶ Rosenberg Assumes Role as Chair of the American Bar Association Forum on Construction Law


Thomas Rosenberg

Thomas Rosenberg has undertaken the role of chair of the American Bar Association forum on construction law following his yearlong tenure as the forum's chair-elect. Rosenberg, a longtime member of the forum, has served on numerous committees and subcommittees, including chair of division 4 (project delivery systems), nominating committee, membership committee, marketing committee, diversity committee, program co-chair for the 2014 annual meeting in Las Vegas, book editor and chair of the division chairs committee. The forum is the largest organization of construction lawyers in the United States. Its roughly 6,000 members and associates are drawn from all types and sizes of construction practices—from law firms to public sector professionals. Forum members represent all segments of the construction industry: owners, developers, design professionals, contractors, subcontractors, suppliers, construction managers, lenders, insurers and sureties. Visit americanbar.org.

▶ U.S. LBM Acquires Blevins Building Supply

U.S. LBM Holdings LLC, distributor of specialty building products in the U.S., has acquired Blevins Building Supply, a building materials distributor with five locations in western North Carolina and one in southern Virginia. Founded in 1946 by Quincy and Wayne Blevins, Blevins Building Supply provides building materials, including roofing, cabinetry, windows, appliances, insulation and paint. With this acquisition, U.S. LBM expands its presence in the rapidly growing North Carolina market and adds the company's first location in Virginia. Blevins Building Supply will continue to operate under the Blevins name as a unit of U.S. LBM's Parker's Building Supply, which has 25 locations in Texas and California. Third-generation Owner Bill Blevins, who has led the company for more than 60 years, will continue with Blevins in an advisory role, with General Manager Randy Miller leading day-to-day operations. Blevins will also continue its relationship with Do it Best, a home improvement co-op in the building products industry. U.S. LBM is one of the largest Do it Best dealers in the country. Visit uslbm.com.

▶ Skanska USA Names New Executive Vice President & General Manager of D.C. Metro Region


Dale Kopnitsky

Skanska USA has named Dale Kopnitsky executive vice president and general manager of the greater D.C. Metro area. Kopnitsky was previously Skanska's vice president of preconstruction services, a position he held since joining Skanska in 2013. A graduate of the University of Maryland University College, Kopnitsky holds a bachelor's degree in finance. He is a member of the Associated Builders and Contractors (ABC) Metro Washington chapter's board of directors, and a member of the Washington Building Congress's board of governors. In conjunction with Kopnitsky's new role, there are two additional changes in the leadership in the greater Washington region: Pamela Murray Johnson has been promoted to account manager and Tony Pereira to executive director of preconstruction. An engineer by training, Pamela Murray Johnson is a 33-year industry veteran who has worked as a developer, design engineer, program manager, builder and, most recently, as a vice president. Since joining Skanska in 2012, Johnson has overseen the construction of several school projects for the District of Columbia Department of General Services, adding to her portfolio of prominent Superior Courthouse renovations. She has also worked throughout Europe on a Department of Defense contract for the Pentagon. Johnson is also a professional facilitator for NeighborWorks America, a federally funded community empowerment institute, and has served as an adjunct faculty member for Northern Virginia Community College. She received a bachelor's degree in civil engineering from Howard University and earned her Professional Engineering designation in 1997. Like Johnson, Pereira has more than 30 years in the construction industry. Previously a preconstruction director, Pereira has extensive experience with clients across the construction management spectrum. Pereira holds a degree in business administration from IES Universidade S.A., Brazil, and is a SAVE International certified Associate Value Specialist with expertise in the systematic improvement of projects, products and processes. Visit skanska.com.


Pamela Murray Johnson


Tony Pereira

▶ American Concrete Institute Forms Committee to Address 3D Printing

The American Concrete Institute announced the formation of ACI Committee 564, a new committee to develop and report information on 3D printing and additive manufacturing with inorganic cementitious materials. Chaired by Scott Jones, 3D Printing with Cementitious Materials, aims to develop publications relating to additive manufacturing with cement-based materials. Publications will focus on impact, challenges and construction applications. It will also collaborate with other ACI committees to disseminate additive manufacturing information and determine ways additive manufacturing may be integrated into the concrete community; collaborate with technical organizations to facilitate and coordinate information sharing; foster discussion on research needs and challenges, preventing additive manufacturing from wide adoption in the concrete construction community; and develop guidelines to evaluate materials and technology for additive manufacturing. Visit concrete.org.

▶ Discussion about Trade Draws More than 150 to "I Make America" Town Hall

The Association of Equipment Manufacturers (AEM) co-hosted a town hall Sept. 20, 2018, in partnership with Genie, a Terex AWP brand, in front of 150 Genie team members on the business's showroom floor and with thousands more watching online. The discussion on trade came as tensions continued to rise between the U.S. and several longstanding trade partners, including China, which are involved in an escalating trade war, impacting the equipment manufacturing industry. Speakers included John Garrison, chairman of the board, president and chief executive officer (CEO) of Terex Corporation; Fred Hochberg, former chairman and president of the Export-Import Bank; and Anja Manuel, author and principal at RiceHadleyGates LLC. Discussion topics ranged from the importance of equipment manufacturers gaining access to new

markets, to the government's role in promoting trade, and highlighted several trade challenges impacting the future of the equipment manufacturing industry. The event was the final stop on AEM's "I Make America" town hall tour, which launched in May to educate and engage manufacturing voters about the policies that are critical to the future of the industry, and brought policy and industry experts to shop floors across the country for engaging and productive discussions with the men and women who help make America. Recently, AEM joined Americans for Free Trade, a new initiative aimed at "opposing tariffs and highlighting the benefits of international trade to the U.S. economy." Visit aem.org.

▸ Copeland to Lead National Asphalt Pavement Association



Audrey Copeland

Audrey Copeland, Ph.D., P.E., has been named the next president and chief executive officer (CEO) of the National Asphalt Pavement Association (NAPA). She will assume the new role in January 2019. Copeland succeeds Mike Acott, who has served as NAPA's president since 1992. Acott and Copeland will work together to ensure an orderly transition of the leadership of NAPA, which is the only national trade association focused exclusively on the interests of asphalt pavement mix producers and paving contractors. During the transition period, Copeland will serve as NAPA's chief operating officer (COO). Copeland joined NAPA in 2012 as vice president for engineering, research and technology. In that role, she has grown NAPA's engineering team and forged strong relationships with industry professionals and partners. She also served as technical lead for more than $2 million in industry-funded research projects and secured a cooperative agreement with the Federal Highway Administration (FHWA) that has invested more than $2 million in government funding to advance asphalt technologies. Prior to NAPA, Copeland served as a highway and materials research engineer with FHWA. She holds a doctorate degree in civil engineering from Vanderbilt University and a master's and bachelor's degree in civil/environmental engineering from Tennessee Technological University. Visit asphaltpavement.org.

▸ Procore Acquires BIMany where

Procore has announced the acquisition of BIMany where, a visual building information modeling (BIM) collaboration platform for construction and facilities management. Based in Oakland, California, BIMany where was co-founded in 2012 by Peter Wu and Winson Chu. Through an optimized mobile app and web application, the BIMany where platform offers an intuitive 3D viewing engine that streamlines communication across project teams, giving everyone access to valuable BIM information. Both co-founders and all BIMany where employees will join Procore working on the research and development team. Visit procore.com.

65 years

In celebration of the company's 65th anniversary, WD-40 Company enlisted the an armored vehicle and security to move its secret formula. Starting at WD-40's San Diego office, President and CEO Garry Ridge was transported, handcuffed to a briefcase carrying the formula, which will be housed safely at a nearby bank vault. The formula hasn't been touched by human hands in more than 15 years. Visit wd40company.com.

▸ Former Western Specialty Contractors COO Rechtin Sr. Passes Away



Jim Rechtin Sr.

Western Specialty Contractors announced the passing of former Chief Operating Officer (COO) Jim Rechtin Sr. on Sept. 17, 2018, following a battle with cancer. Rechtin officially retired from Western on Jan. 1, 2018, after 46 years of service to the company. He started working for Western in 1971 as a laborer. He was then was promoted to foreman in 1973; to superintendent in 1975; to sales/project manager in 1977; to department branch manager in 1982; to region manager in 1992; to eastern division manager in 2006; to vice president of operations in 2009; and finally, to COO in 2014. Those who knew and worked with Rechtin described him as a dedicated business partner, family man and friend whose leadership qualities and expertise helped to grow Western. Visit westernspecialtycontractors.com.

▸ InEight Acquires BASIS

InEight, developer of construction project management software, has announced its acquisition of BASIS, a company that develops an artificial intelligence (AI) planning software tool. As a part of the acquisition, BASIS Founder and CEO Dr. Dan Patterson will join the InEight executive leadership team as chief design officer. BASIS was founded on Patterson's vision to provide a tool that helps more accurately forecast large, complex capital projects and uses AI to assist and guide planners through building project planning. In his new role, Patterson will continue to innovate and develop BASIS software, expanding on his vision of creating an effective planning and scheduling software solution for the construction industry. The acquisition of BASIS comes on the heels of InEight's acquisition of QA Software, including its flagship product, TeamBinder. Visit ineight.com

▸ JCB Awarded More US Army Orders for High-Mobility Engineer Excavators

JCB has received an extension to its current production contract with the Department of Defense to manufacture high-mobility engineer excavators (HMEEs) for the U.S. Army. The $72.8 million deal for approximately 180 HMEEs will continue production through 2020. In 2005, JCB was awarded the first multi-year production contract for 636 machines. Subsequent contract extensions were made. A new multiyear contract is expected in the future and will further HMEE production into the middle of the next decade. JCB manufactures the HMEEs at its North America headquarters near Savannah, Georgia. In August, the company hosted military and community leaders and visiting dignitaries at the facility to commemorate the production of 1,000 HMEEs for the U.S. military and allied nations. "The people of JCB are proud to build the construction machines our soldiers need to safely complete their military and humanitarian missions around the world," said Richard Fox-Marrs, president and chief executive officer (CEO) of JCB North America." Visit jcb.com.

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Technologies on Top

What 2 tech solutions should take priority in today's construction business?



SEAN OLCOTT
Technical Director
Virtual Design & Construction
Gafcon



BURCIN KAPLANOGLU
Senior Director
Industry Strategy & Innovation
Oracle



MIKE CLARK
Senior Technology Manager
Balfour Beatty

"Prioritizing tech solutions is the most difficult and important thing a construction organization can do right now, and the first priority should be a project management information system (PMIS). A PMIS provides the digital engine for core project management (PM) workflows related to cost, schedules, contracts, correspondence, etc. When used properly, it allows you to implement best practices across the project portfolio, drive efficient processes, increase visibility, reduce risk, and generate more reliable data for reporting and analysis. (Note: An enterprise resource planning (ERP) system is not a PMIS.)

The second priority should be virtual design and construction (VDC) solutions, which are characterized as digital tools for executing and managing a project's scope, including design authoring, model analysis, reality capture, geographic information system (GIS), virtual reality (VR)/augmented reality (AR), and documentation solutions. The key shift is in moving away from relying solely on point solutions run in isolation to ones that leverage the cloud, integrate workflows and facilitate collaboration throughout the entire process.

Ultimately, inefficient processes are not fixed by replicating them digitally. Prioritize defining requirements and processes above adopting the newest technologies/solutions.

"The first priority should be focusing on technology that connects project supply chain elements, enabling collaboration and optimizing processes. The industry is making progress, but there remains some reliance on manual and disconnected processes. Modern project management solutions enable project teams and other stakeholders to use common tools (often in the cloud) to streamline and automate activities and collaboration. Deployed across the project life cycle, this technology can unleash true digital and business transformation, with the potential for significant improvements to profit margins and project delivery.

The second priority is leveraging technology that transforms project data into project intelligence. Construction firms already are capturing massive amounts of data, via systems such as enterprise resource planning (ERP) and project controls, but much of it is collected and reported too late. Newer technologies, such as the internet of things (IoT) and sensors, are yielding ever more data, but without the tools and processes to extract insights from this information, the usefulness is limited.

No matter what tech solution you are exploring, it's critical to get the data piece right. That's what will deliver continuous improvement and fuel more insight.

"As an industry, we are highly proficient in designing, planning and constructing the built environment. But, we live in a data-driven world, and the industry has not yet harnessed the full potential of utilizing analytical data from projects to better manage and perform work.

The introduction of artificial intelligence (AI) as a tool to leverage data can help us understand past and current trends on our projects. This data has been collected over the last decade through the adoption of digital field reporting and Job Management Systems (JMS) systems. AI can help us leverage historical data to proactively identify potential risks associated with low-performing subcontractors, design constructability issues, poor quality control and safety. This data can and must also be able to be viewed and analyzed by all stakeholders—from field staff to executive leadership—anywhere, anytime.

The days of working in silos are gone, and cloud computing has taken over the digital arena. No longer can we use the excuse of having limited access to information due to location or processing power. Properly utilizing the cloud in workflow breaks down barriers of access to proper software or hardware and provides a single source of truth for project documentation, from data analytics to building information models.



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Lead the Company You Want

4 ways to improve your leadership chops & ensure your company's growth



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.

Small to midsize business owners must focus on the same top priorities as successful leaders of major Fortune 500 corporations. Arguably, most construction company owners and managers get hung up on the day-to-day details, rather than focusing on the company's top priorities. If you long to grow your company, you should take note from leaders of companies larger than your own. Here's where you can start:

1. PRIORITIZE

Take a close look at your calendar. Where is most of your time spent? To improve your business and become the best leader, you need to invest your time and energy in the things that provide the highest return. A recent survey of 50 business leaders indicated that construction business owners have a tough time staying focused. Here are the top responses to three of the most critical survey questions:

1. Our biggest challenge is:
   - Finding qualified people
   - Job-profit margin fade and going over budget on labor
   - Micromanagement of tasks
2. To improve results, I need to:
   - Spend more time on the business
   - Focus on priorities instead of details
   - Coach and mentor others more
3. I should delegate and let go of:
   - Project management
   - Estimating
   - Scheduling crews and equipment

When you spend your time too focused on the minutia, you can't focus on the big tasks that produce big results. At this moment in time, your business is designed to produce the results you're currently getting. Lackluster results are the outside indicator of an inside problem and are determined by your focus. Consider the following challenges and solutions:

- *Too few high-margin, loyal customers*—Prioritize customer relationships, marketing and sales
- *Low profit margins*—Standardize and enforce your systems and processes
- *Over-budget projects*—Create and monitor job-cost tracking and production scorecards
- *Staffing problems*—Focus on creating better programs to attract, incentivize, motivate and retain talent
- *Inefficient business procedures*—Take time to draft or update your business plan, structure, systems and/or goals

2. CONQUER FEAR

Most business owners and managers already know what they need to do to achieve better results. But, they don't do what they need to do, and often make excuses for why they can't.

The No. 1 reason poor leaders fail is fear—fear of failure, making bad decisions, trusting others, letting go, hiring the wrong people, losing money, taking a risk, making decisions, etc. Being ruled by fear results in loss of profits, equity, growth, accountable



managers, responsible employees, high-margin customers and business value.

Effective leaders direct and coordinate, inspire and influence others to want to achieve expected results as well. Leaders must be unafraid to establish and share a clear, focused vision of targets, goals, strategies, systems and processes. They should motivate and inspire their teams to follow them by providing coaching, knowledge, information, feedback and statistics to keep the team headed in the right direction.

Poor leaders blame poor results or plateaus on circumstances beyond their control. Great leaders take responsibility and hold others responsible as well.

3. CHANGE YOURSELF FIRST

Achieving great results is the main indicator of a leader's vision and performance. Real leaders make calculated (but not delayed) decisions to change how they do business to get results. Though they may think it, great leaders don't walk into the office on Monday morning and declare, "I've made a big decision: I've decided to change myself, how I manage, how I lead and the direction of our company."

However, poor leaders often walk into the office saying, "Why aren't you making it happen?" You've got to work harder. You've got to get this done now, or I will have to do it for you."

Leaders must have the courage to change themselves first. They have a mission, adapt their behavior, change their markets, innovate, try new methods, and go against the grain.

More than 90 percent of employees rate their company leadership below excellent. The top 10 percent of companies have leaders who continually look for new ways to improve and set themselves apart from the competition.

4. HONE YOUR FOCUS

To start, decide where your company needs to improve. For instance, if you are not making enough net profit, stop the following poor business habits:

- Pursuing poor projects awarded via negotiations or to the lowest bidder
- Seeking easy-to-build jobs with lots of competition versus high barrier-to-entry, complex customers/projects
- Allowing your foremen and supervisors to work without job-cost labor targets, job-cost tracking, production meetings and performance-based incentives
- Running your business without enforced systems and procedures
- Letting your employees decide if/when they will be team players
- Buying equipment you don't get full and efficient use of
- Postponing the use of or not investing in the latest technologies
- Ignoring industry-specific and future economic trends
- Expanding, hiring and winning more work than you can properly manage or handle well

Being an effective leader starts with discovering your role. Often, hands-on managers find it difficult to transition into becoming a true leader after spending so much time running projects and doing work. Once you have hired reliable employees to run projects, estimate, supervise, order materials, award subcontracts and keep track of the finances, let them do it!

Your role as the leader is to transform your company into the best it can be and achieve results with the help of the teams you put in place. The key is focus. So, what aspect of your business will you focus on first to become a great leader? **CBO**

7 PRIORITIES GREAT LEADERS FOCUS ON

1. Building profitable sales revenue and growth
2. Creating a winning strategy with written and enforced systems
3. Driving high net profits
4. Growing equity and business value
5. Finding, training and retaining top talent
6. Seeking, obtaining and retaining high-margin customers
7. Staying ahead of future economic and business trends

The Industry's Top 3 M&A Problems

How you can avoid the hazards that halt success



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Experts will tell you that the mergers and acquisitions (M&A) market is ripe for activity. The construction industry is seeing continued, positive traction in revenue growth and, more importantly, profitability. Additionally, the demand for construction services, specifically in the infrastructure arena, provides a stimulus, further improving the attractiveness of many candidates by inflating potential backlog. As existing businesses continue to age, many firms are looking to seek acquisition or seek to be acquired. However, while valuations vary, there are also plenty of hazards that companies fail to identify long before the transaction is complete.

1. STRATEGY

M&A often fulfills the strategic needs of a company. As such, a niche market or geography can enable the buyer to claim an additional competitive advantage. However, there has to be more to a company. Using this rationale, if a buyer moved to a new city, any residence would be acceptable; but in reality, the sector, niche or geography should be the starting point to engage in deeper conversation, rather than a terminal point from which to make an offer An acquisition target should have some other compelling feature(s) that make it desirable. For instance, it may be that company's strategy in dealing with customers or internal systems (discovered during the due diligence phase) are appealing. Too often, one company acquires another only to conduct a wholesale overhaul, leaving little semblance of the original target. By forcing an integration or wholesale change to the parent company, teams, customers, vendors and trade partners become disenchanted, resulting in flight and leaving the parent with nothing but an office. If you are in the M&A market, leverage the acquisition appropriately and view the target as something with more intrinsic value than simply an office and equipment. It should be attractive for multiple reasons. Find a way to learn from this new organization and bring those lessons back to home base.

2. TECHNOLOGY

It sounds simple, but so many business owners forget the costs of integrating multiple, and sometimes incongruous, systems. This is more than just transferring data from Timberline, Viewpoint or Spectrum. Think about all of the costs and challenges associated with the following platforms:

- *Estimating*—Be it customized, elaborate, macro-enabled spreadsheet or off-the-shelf, integration must occur.
- *CRM*—Customer and activity tracking, whether via a database or a cloud-based application, need to be the same across the board.
- *Accounting*—This item often gets the most attention, but integrating disparate systems can sometimes be a big dollar proposition.
- *Websites and social media*—The good news is the company will be able to

announce the assimilation. The bad news is that the outcome might look like two separate companies instead of one streamlined business.

- *IT infrastructure*—With a mass migration to the clouds, there seems less emphasis on hardware and storage. Regardless, this takes time and requires a great deal of thought.
- *Phones and hardware*—Apple versus PC. Samsung versus iPhone. The mechanics and costs associated with simply determining the right tools for your conglomerate business opens Pandora's box.
- *Other considerations*—There is no shortage of tools outside of the traditional spreadsheets and word processing program. Scheduling, building information modeling (BIM), document control, project management, punch-list control, etc., are just some considerations that may require additional time and energy.

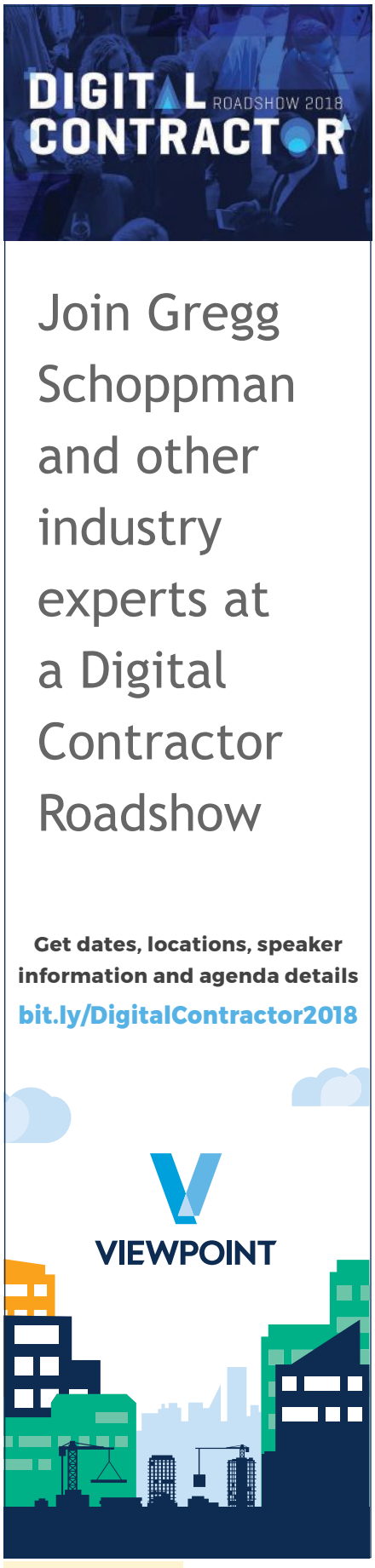
Often, businesses look at equipment with a heavy emphasis on yellow iron. In today's construction world, those considering an acquisition would be better suited to look equally at the integration of these new tools. The raw costs are one serious consideration, but when you add the effect of transitioning 10, 50 or 500 people onto a new system, as well as the training and heartache associated, it may change the complexion of the deal.

3. CULTURE

Ultimately, the most important asset of any transaction is the people. These are the people who know the market, the players, the customers and the intricacies of doing business within that sector or geography. The fascinating aspect is that this is the one variable of the deal that is not guaranteed. The computers, the office and the equipment will stay put, but if the people do not buy in, they will leave. One of the most common reasons for acquisition failure is the owner's inability to recognize the impact of culture. This amorphous, intangible component that so many leaders wrestle with has an important impact on strategy and tactics. In the end, there has to be a cultural fit between the two companies. Think of an acquisition as a marriage; it is an intricate blending of two firms into one that often begins with a relationship predicated on similar compatibilities. The people must believe in the potential of what is taking place, so careful consideration should be given to:

- *Communication*—How frequently will the parent and target be in communication? How will this transaction be portrayed both internally and in the marketplace?
- *Leadership*—How will the satellite or target firm be led? Who will lead this initiative from the parent company's perspective?
- *New opportunities*—How will the satellite or target receive access to new opportunities? For instance, as promotions and advancements spring up, how will the new target's team be tapped as potentials?
- *Culture integration*—What can the parent firm learn from the target? What can be brought back "home" to make everyone better and demonstrate a truly symbiotic relationship?

All signs point to a fertile market, ready for organizations to expand their empires. Growth can often occur organically through leaders migrating to a new market or sector. But remember, challenges do exist. M&A are excellent vehicles to allow firms to grow quickly. However, in the haste to do something, it is always important to find the time to do it right. CBO



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The Future of the Field

How technology is changing the jobsite as we know it



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There is a surge of change occurring in and around the industry. Because there is arguably no other industry more resistant to change than construction, the ascendancy will not come easily. But it will be worth it. Theoretically, there is no limit on how far this process will extend, or how quickly it will evolve. So, if you plan on working in this industry 5 or 10 years from now, you should embrace the change because one thing is certain: You will not be able to resist it. Technology and demographic changes will alter the entire work environment, including construction.

Human capital is already at a premium due to generational dynamics. Baby boomers are leaving quickly, and there is a shrinking pool of talent available to replace them. The human resources (HR) department is burning through Generation X new hires with mixed results. Millennials are next in the hiring crosshairs. This means you should introduce a graduated hiring process that includes a battery of tests—psycho-social, physical strength and agility, overall state of health and wellness, and more. Advanced hiring processes are now imperative, and as a result, one large organization is calling their new hires "industrial athletes."

The burning HR question is where Generation Z (those born in or after 1996) is going to land on the employment map. Will they opt for work in air-conditioned, digital-design studios or in mud-on-the-boots, hard-hat jobs? No amount of skills training grants will create the replacement bodies. Part of the answer lies in technology, an area of the industry which is already seeing explosive growth, especially as it relates to the following advancements:

- *Machine learning and artificial intelligence*—These are the game changers. The amount of research being poured into these two fields is already paying off and will see exponential growth in 3 to 5 years.
- *GPS, audio visual lighting (AVL) and drones*—Refinements in these technologies will enable highly precise metrics. You can now have a live feed of your delivery, courtesy of a precision GPS-guided drone. Data streams include traffic-jam avoidance, driver-safety behavior, red-flag notices and more.
- *Telematics and wearables*—Linked to the internet of things (IoT), wearables can report on all kinds of human behaviors, such as how many steps, lifts and bends the wearer made, as well as point out inefficiencies and risky deviations. Employee wellness and health monitoring is built into the application in the form of heat-stress advance warnings, break-time alerts, hydration and fatigue-level updates, etc. Insurance companies are currently investing heavily in this technology, with the aim of preventing soft-tissue and back-injury claims.
- *Modular construction techniques*—Giant automated factories are churning



out entire pre-packaged buildings with the assistance of high-speed, ultra-precise robotics. China recently erected a 57-story skyscraper in 19 days using prefabricated modules.

- *Composite materials*—3D printers are already turning out rudimentary buildings using low-weight, high-strength, rigid composites, such as carbon fiber, aluminum, complex polymers, etc. A product designer in the Netherlands has rolled out a model for collecting floating plastic in the Pacific Ocean.
- *Advanced manufacturing processes*—Computer numerical control (CNC) machining, a staple in the manufacturing field, will find new applications to speed up building construction. Advanced programmable logic controllers (PLCs) just got a lot smarter, now self-teaching and self-learning. Precision plasma cutting, laser cutting and ultra-high-pressure water cutting are gaining traction in the industry. All of these result in shorter assembly time, enhanced quality assurance and control, minimal chance of error, and less inspection and testing.
- *Nanotechnology and hydrophobic coatings*—This field will change the face of the infrastructure maintenance industry. Bridge joints and bearings are now impervious to wear and never fail or clog. Self-cleaning drainage structures and catch basins are now available. Exterior surfaces can be made resistant to deterioration, graffiti, corrosion and more.
- *Trenchless technology*— An example of this is Tesla's Elon Musk, who started The Boring Company in 2016 (a hyper-tunnel directional boring operation) when he became frustrated with the glacial pace of subway construction in Los Angeles, California. He is planning for a high-speed link from downtown Chicago, Illinois, to O'Hare International Airport.
- *Exoskeletons and robotics*—A single worker will soon have the capacity to replace a fork lift. Tool balancers and robotic-assist devices will minimize worker contact with production material. Dangerous jobs like confined space entry are destined to become digitized and robotized.
- *Driverless vehicles and programmable heavy machinery*—They're already here and improving fast. Komatsu's Intelligent Machine Control is at least 5 years old, and many manufacturers have their own versions of this concept. Entire fleets of mine-haul trucks in Australia are driverless. Toyota recently invested half a billion dollars in Uber for the development of driverless vehicles. General Motors Co. and Google have also teamed up to refine driverless technology.

The list of advancements goes on—renewable fuels; Leadership in Energy and Environmental Design (LEED) efficiencies; sustainable materials; multi-function, high-strength lifting machinery; interlocking components and more—each one reducing the need for skilled labor.

As for the regulatory safety environment adapting as quickly, don't hold your breath. A significant part of the Occupational Safety and Health Administration's (OSHA) regulations is already functionally obsolete—standards and rules more concerned with rust-belt industries and long-extinct job practices. It is not likely that OSHA will keep pace with rapid technological changes occurring in any industry, with the newest update being advisories on how to protect workers from heat stress, due to the prevalence of climate-change discussion.

Construction work, by its nature, will remain a focus of OSHA for the near future, but the real drivers of safety in the trade are the general contractors, developers, owners, lenders and personal injury attorneys.

Innovation and experimentation are terms we do not normally associate with our industry. Because of the increasingly rapid pace of change and industry pressures to innovate, these concepts will be defining factors in our business in a few short years. If you plan to be in construction for the long term, you have some studying to do. **CBO**

Setting Yourself Up for Success

How to position your business for future growth & higher profitability

BY BOB NAGLE

Uncovering opportunities for growing any business, no matter the industry, requires that leadership be open to the idea of change. Technological advancements, a changing economic climate and movement within the industry are all contributing factors that can alter the outlook of any business.

When searching for ways to increase business volume and capabilities, the ability to embrace technological parity and effectively planning for it are critical. This is particularly true for the construction industry, as new technologies routinely change the type of equipment and machinery used for any one job.

Further, as urban landscape and planning evolve and more innovative designs are proposed for developments, construction companies often find themselves faced with having to expand their capabilities to meet changing project needs.



PLANNING & FINANCE

Business planning in construction can be highly volatile. The industry is often held hostage by trends, such as unpredictability in skilled labor, especially because construction businesses often employ part-time or contract workers to satisfy project demands. Coupled with changing project timelines and budgets, financial and business planning can become challenging.

The uniqueness of each project often results in shifting deadlines or additional measures that must be taken before completion. When project start dates are pushed back, planning for and accepting new business projects increases risk. As a result, a company may be forced to reject other projects, negatively impacting the business's cash flow. Additionally, large increases in under-contract work and due cash still being processed can severely mitigate a business's ability to plan for the future, making it vital to have a process in place to account for changes and have the capacity to react quickly.

One way to navigate through the risks and challenges associated with the industry is to build a strong relationship with a

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The industry is often held hostage by trends, such as unpredictability in skilled labor, especially because construction businesses often employ part-time or contract workers to satisfy project demands. Coupled with changing project timelines & budgets, financial & business planning can become challenging.

financial advisor who can provide support to companies and business owners by developing an ongoing review of the strategic business plan.

An annually reviewed plan with flexible solutions can provide a guide to understanding ever-changing budgets. Establishing a process for adapting the annual business plan in accordance with changing factors provides business owners with better insight into what portion of the budget they can truly use to invest in technological advancements and other solutions.

VALUATION & YOUR FUTURE

Determining the company's greatest pain points and concerns, as well as its greatest strengths, is key in determining existing and potential business opportunities. A true valuation of the company provides a scale from which business opportunities can grow.

A number of different methods and strategies should be considered when valuing a business, all of which depend on the particular circumstances of each business and its owners.

Two common methods of valuation are evaluating discounted cash flows or taking a market approach. With either method, the balance sheet should be cleaned up as much as possible to arrive at a fair and accurate enterprise value.

For these valuations, the business owner can lean on his/her financial advisor's professional advice and assurance of accurate information. The financial advisor should either be credentialed for business valuations or willing to lead the effort in seeking assistance from other professionals.

Another critical strategy for defining the future of a construction business is exploring the hopes and fears of the owners and other parties holding equity in the company. As one explores the funds available to take on a project, investment or other venture outside of the company's typical scale, it is vital to calculate and clearly outline the division of equity.

This proves particularly valuable when the time arises for an owner or top executive to leave the company. Paying out equity without harming the needs of the business is essential to navigating through any ownership or leadership succession.

Too much capital pulled out of a business can leave the company in distress and make it difficult to move forward successfully. Even worse, losing experienced company leaders and executives, without having a tested succession plan in place, can significantly stunt its growth.

Due to the risk of changing deadlines and an unstable workforce, ensuring the protection of the owner's personal assets is important, as owners often need to secure bank guarantees at the beginning of a project.

The various risks associated with any construction project in the industry's current labor condition make keeping an owner's personal assets out of agreements in bank guarantees imperative.

MOVING FORWARD

Ultimately, when exploring potential business opportunities, investing in the right products, brainpower and projects will help open doors for future business. And having a plan for asset allocation—or the distribution of future earnings—will help achieve long-term business goals.

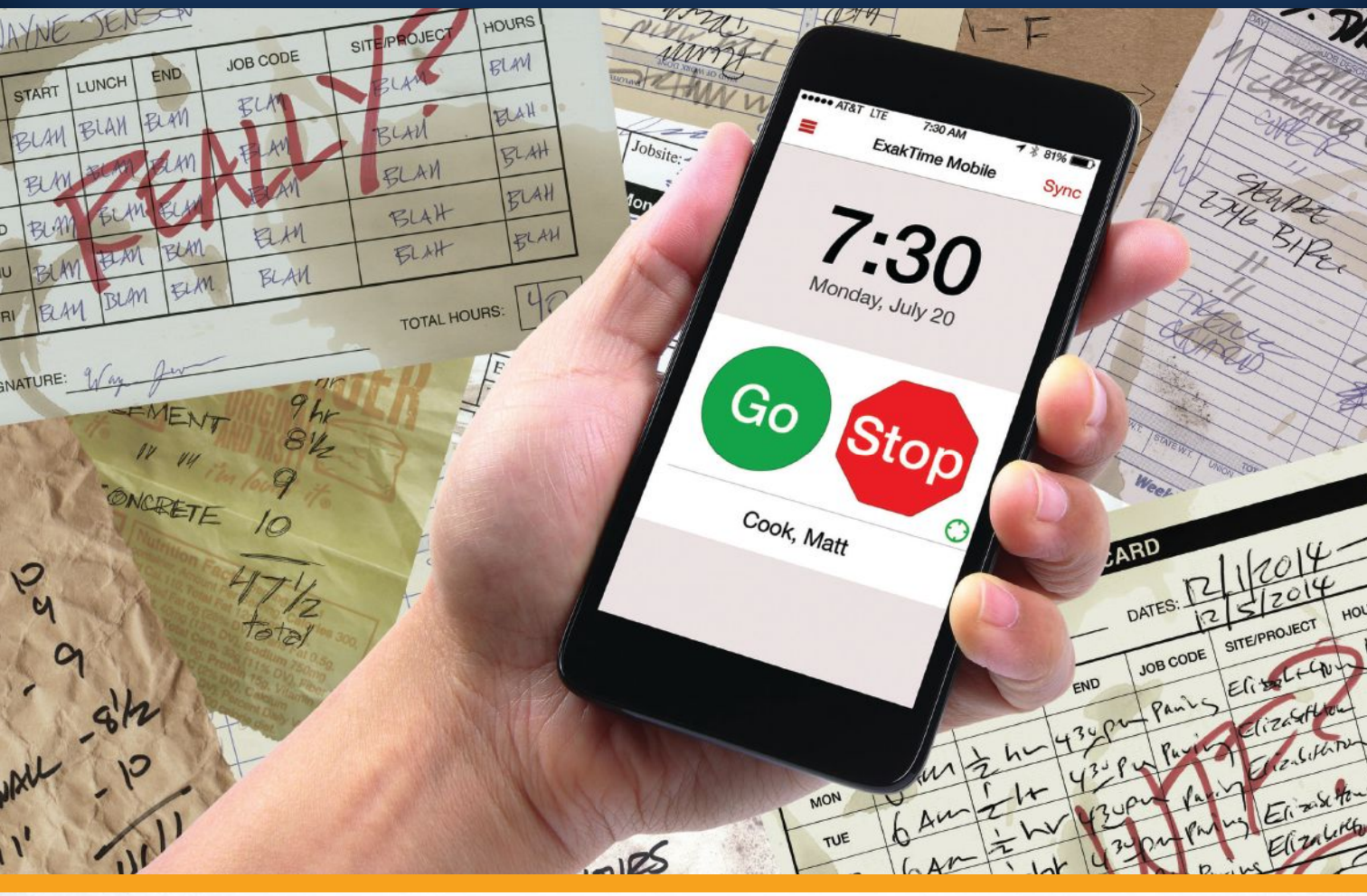
Technology in the field has allowed construction companies to be able to react quicker and better judge how jobs are progressing. By tracking construction activity data, such as capital planning and change management statistics, construction managers can better plan for the future.

Effective resource planning is key to allowing your construction company to continue to grow and maintain sufficient profitability levels. Through working with a financial advisor, evaluating opportunities to increase business volume, implementing technological advancements, and managing processes adaptable to changing factors, you can position your construction business for a strong, fruitful future. **CBO**

Bob Nagle, CPA, CGMA is a principal based in Rehmann's Farmington Hills, Michigan, office. Specializing in assurance, tax and business consulting, Nagle serves an expansive roster of clients in construction and ready-mix concrete, distribution, manufacturing and technology. He began his career in public accounting in 1985, and has served a wide range of industries throughout his career. Visit rehmann.com.



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An Inside-Out Approach to Growth

5 ways to develop a company culture that inspires employees & retains customers

BY BRIAN RIGGS

Culture is the living value system of an organization. It is also the organizational narrative you create and live by, and the story you tell your employees and customers. Nurturing your company's culture is critically important to moving the company forward.

But how do you move the concept of culture from an owner's vision, through the mind of an inspired employee, and into the hands of your clients? What can you do as a leader to ensure mission statements become more than veiled sentiments or posters in the lunchroom? How do you use them to become the fuel that drives employees, engages customers and propels growth?

The following questions will explore growth through the lens of the construction industry; how various corporate cultures reflect value systems; how different companies view their employees' roles in shaping culture; and why creating an inspired team is necessary to develop a positive culture.

1. WHAT ARE SOME CHALLENGES OF DEFINING COMPANY CULTURE?

Regardless of the approach, it's hard to argue against the importance of culture as it relates to growth, employee engagement, employee retention and profitability. But has the construction industry fully embraced its potential?

Recent research shows a clear interest among business owners to develop cultures that engage their teams and increase the bottom line. However, the nuances found within this industry present unique challenges that must be considered when designing a company culture.

Trae Lamborne, chief executive officer (CEO) at Egress Solutions, a specialty contractor in Tabernacle, New Jersey, points out some of these challenges: "The socioeconomic, cultural and intellectual diversity of employees, teams and organizational structures within our industry presents unique challenges to creating a unified culture for construction companies," Lamborne said. "For example, the personal and professional goals of a laborer may be vastly different from those of an administrative employee, manager or leader. His/her goal may be to simply be treated well, have a steady income, and provide for his/her family. Being an active part of an organizational culture is less likely to be important to him/her."

This issue presents a real challenge in the industry's efforts to use company culture as a mechanism for cohesiveness and growth, particularly as it relates to employee retention in an ever-present and increasing skilled labor shortage.

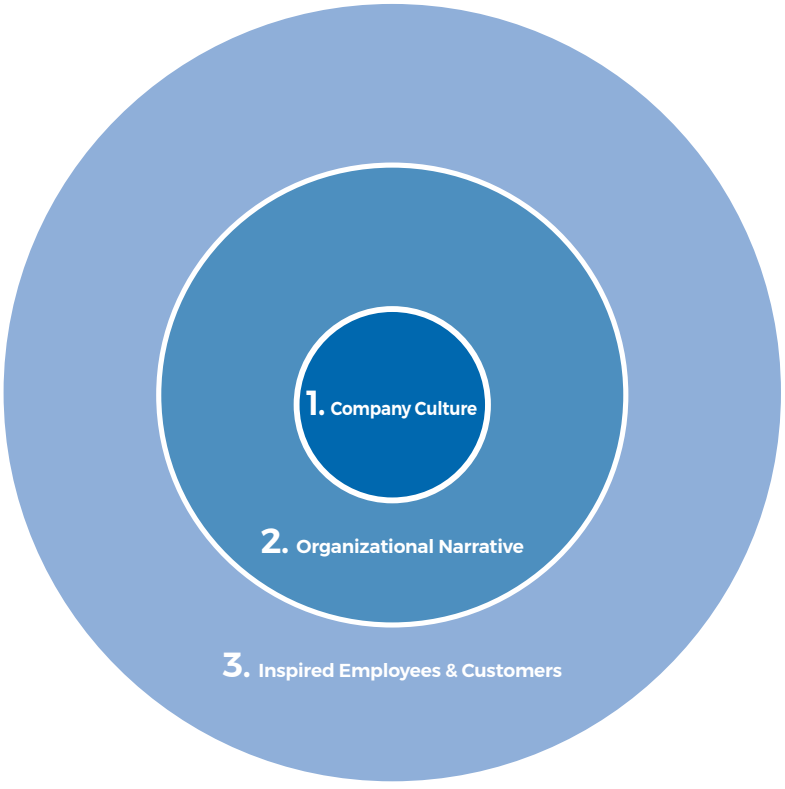
"It is imperative our industry embraces the utilization of culture as a mechanism for sustainability and growth" said Chris Stone, vice president of Hyde-Stone Mechanical Contractors in Watertown, New York. "It is becoming increasingly difficult to find and retain good employees. Whether it's office or field staff, future leaders or managers—as owners and leaders, it is our responsibility to build a culture that attracts and represents the needs, interests and future of all our team members."

Garnering authentic employee engagement and maintaining the culture you develop are two critical approaches to sustaining a positive culture.

Although involving every employee in designing and maintaining corporate culture isn't always possible, it is important to allow for input, recognize the interests and needs (beyond leadership) of the entire team, and incorporate those voices into the organization.

2. WHAT DOES CULTURAL MAINTENANCE LOOK LIKE?

Chief Operating Officer (COO) Jamie Porterfield and President Dennis Pruitt of Waldrop Inc., a specialty contractor located in Greenville, South Carolina, understand the importance of both employee engagement and cultural maintenance. "We work on culture every day. Our underlying principles are to treat people fairly, care for our team, inspire our team to care for others



1. ***Company culture***—Culture is the foundation of the organizational narrative. Culture represents the various vision, values and interests of the team. Once identified, this becomes the basis for the company's story or organizational narrative.

2. ***Organizational narrative***—A company's organizational narrative is the foundational story told to all members of its business ecosystem: vendors, employees, prospective employees and customer base.

3. ***Inspired employees & customers***—Inspired employees drive customer loyalty and propel growth. When team members are allowed to contribute to the organizational narrative, they become inspired and connected to the company on a much deeper level. In turn, inspired employees transform the way customers feel about companies.

Figure 1. A look at the inside-out approach to growth

and ensure that we treat everyone in our business ecosystem like family—including our customers," said Porterfield.

According to Pruitt, "The most important thing to note is that the maintenance of your culture cannot be done in weekly meetings or monthly get-togethers. The maintenance of your culture is a minute-by-minute affair and must be reflected in every decision you make and every action you take. It is only through this approach that it can be woven into the DNA of past, current and future generations of team members, leaders and customers alike."

3. HOW DO I BUILD AUTHENTIC EMPLOYEE ENGAGEMENT?

Nothing can compete with a team that is cohesive, and nothing brings people together more than everyone on the team feeling valued. "After many years in the construction business, I have determined that there are two great motivators of human beings: love and loyalty. Clearly, you will not always love everyone you work with, but there can always be loyalty. And loyalty it is a two-way street. Building real equity with your employees by having a sincere interest in them and their families will build loyalty and inspire people to give their best," said Pruitt. "As leaders, our responsibility is not only to ensure our teams feel valued, but also to ensure they understand the role they play within the company and its future. The more educated an employee is as it relates to the company, the more they feel valued and want to advance in their career to be part of something bigger than themselves."

Living by the golden rule and educating team members on their roles and value to the company are two important approaches to maintaining a positive culture.

A third, which is perhaps an extension of understanding employee needs, is introducing a sense of freedom to team members that transcends both the workplace and their responsibilities at home.

"We give our employees freedom to make decisions and have input into possible changes within the company, particularly when it comes to areas that impact their work. This provides them with sense of connectivity, voice and buy-in," said Pruitt.

"In addition, long ago we introduced the philosophy and credo of 'Go.' When my kids were younger, I coached lacrosse and rarely missed a play, musical or game, and that made me enjoy my work more. I was not a slave to it at the cost of my family life. We now have employees in the same situation, and if they need to 'Go,' we encourage it," Pruitt said.

4. HOW DO I DESIGN A SUSTAINABLE CULTURE?

There are many different approaches to designing an organizational culture, and sometimes—though not often—corporate cultures emerge naturally. The first of two popular approaches to this is the "top-down" approach.

In a recent article from Inc. Magazine, author Peter Cohan describes the creation of corporate culture as "a set of values that leaders use to shape how people think and act." He continues, "Leaders create culture by choosing an organization's values, publicly acting in ways that make those values

"It is becoming increasingly difficult to find & retain good employees. Whether it's office or field staff—future leaders or managers—as owners & leaders, it is our responsibility to build a culture that attracts & represents the needs, interests & future of all our team members," Stone said.

clear to others and using the values to hire, promote and fire people." In this top-down approach, owners and/or leaders determine what values best represent the organization's current or future state and construct a company culture around those values. They use them to shape hiring practices, engage their community and drive employee engagement.

The second approach is the "bottom-up" approach, or a team approach. Perhaps the best example of the bottom-up approach is the strategy Whole Foods Market Inc. (WFM) used to create its culture, and ultimately, differentiate itself in what, at the time, was an "industry characterized by negligible growth rates and declining profits," as described in Unique Work Culture and Practices: A Case Study.

After struggling to differentiate itself in a crowded marketplace, WFM managed to pull away from its competition in early 2005 by employing a team-centric approach to creating culture. "Teams were the focal point of operations, and they formed the core of the company's culture. The entire system was divided into teams, even up to the highest level in the hierarchy," according to the study.

This approach is usually dictated by the size and structure of the organization. The top-down approach is frequently adopted by larger firms, while small to midsize companies seem far more eager to adopt an all-inclusive strategy. In either approach, culture must be seen as a culmination of the wants, needs, value systems and interests of all employee segments and teams.

5. WHAT DO I DO IF MY CULTURE IS MISALIGNED?

In construction's ever-evolving environment, it isn't uncommon for an organization's culture to lose traction or become misaligned. Shifts in the marketplace—including labor, technology and generational shifts—are forcing companies to revisit, and often redesign, their corporate culture.

To combat both internal and external shifts in environment, you might consider revisiting the culture (and its purpose) by engaging in one or more of the following:

1. *Schedule an off-site meeting*—Having a facilitated, off-site meeting to revisit your company's mission, core values, culture and organizational narrative (what story you are telling your stakeholders) is always a good idea. Getting your leadership team and others away from the office and looking at the company through a variety of different lenses will challenge your view, help you envision a different future, and lay the foundation for an adjusted culture.
2. *Benchmarking through surveys*—There are several individual and group personality assessments to help you and your team assess how your employees feel about their work and the organization's culture. Try the Golden Personality Type Profiler, which explores an individual's strengths, as well as their ability to work with a team.
3. *Creating a culture committee*—Every company has that group of employees who are willing to go the extra mile. Once you have identified this group in your organization, empower them to help the leadership team redesign current strutures, policies, procedures, etc. to achieve the company culture you desire.

Ultimately, culture doesn't reside solely within the vision of the founder, owner or leadership team. It is in the collective voice of everyone that makes the engine turn, and it should be the driving force for growth and a top priority for every business owner. In the end, it's what keeps employees—and customers—coming back. CBO

Brian Riggs is the CEO of the Dialogue Shop, a division of Riggs Enterprise that focuses on leadership development, strategic planning and internal and external communications. More specifically, he works closely with leadership teams and organizations on developing internal and external goals, driving change through those goals, and inspiring team members to embrace a purpose-driven mindset. His clients range from the construction industry to banking to technology firms and hospital systems. Riggs holds a bachelor's degree from the University of North Carolina at Greensboro and a master's degree from Rutgers University. He is also a graduate of Cornell University's Change Leadership program. Visit dialogueshop.com.



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The Root of the Labor Problem

How Construction Career Collaborative is changing the trajectory of the trades

BY RACHEL FULFORD

If you're reading this, chances are you may be struggling to hire the skilled laborers you need to successfully run your construction business. And, as you probably know by now, you're not alone.

According to the Bureau of Labor Statistics, throughout Q1 of 2018, employers sought to fill an average of nearly 223,000 construction jobs each month—the largest need since 2007. However, the factors leading to the current shortage aren't as cut and dry.

Influences related to generational timing and economic uptick have diverged to create an industry crisis. Retiring baby boomers, lingering negative ideas surrounding construction as a viable career path for millennials, declining technical school enrollment, a lack of trade classes in high schools and the lowest unemployment rate in decades have all contributed to the problem.

And the problem has grown so much that the Q3 2018 USG and United States Chamber of Commerce Commercial Construction Index reports that 91 percent of more than 2,700 contractors, managers, builders and trade workers surveyed are having a difficult or moderately difficult time finding skilled workers.

The Construction Career Collaborative (C3), a nonprofit organization in Houston, Texas, has formed an alliance to find a solution. Beginning at what they believe to be the root of the problem, C3 uses safety and craft-training programs and collaborations with local endorsers and contractors to meet labor needs across the industry.



Angela Robbins, associate director of people development, compliance and operations at C3, frequently leads craft-training sessions, and last month she presented at the Associated General Contractors' (AGC) 2018 Construction HR & Training Professionals Conference. Following the event, Robbins took time to talk with CBO about the state of labor in the construction industry, why C3 believes a sustainable craft workforce can be created and how exactly they're doing it.

CBO: What caused the skilled labor shortage in construction?

AR: There are a variety of reasons why the construction industry has regressed to an unskilled and unsustainable craft workforce over the past 35 years. In the local Houston market, for example, in an effort to be "low-bid," construction companies shifted from hiring a workforce of skilled employees (who receive a W-2) to hiring independent subcontractors (who receive a 1099) to avoid paying benefits and lower their



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cost burden. Compounding the problem, craft training is the foundation for construction career paths, but is often neglected. Without formal skills training linked to a specific career path, the industry cannot demonstrate that construction offers a prosperous career—not just a dirty job—to young people considering a future in the craft trades.

Add the repercussions of changes at the federal government level, such as the implementation of the No Child Left Behind Act, which cut funding for career and technical training in public education to focus on sending all students to college, and you are left with a small pool from which to select replacements for the aging construction workforce.

CBO: How is this issue impacting the industry and its future?

AR: According to AGC, 80 percent of companies that responded to their recent annual workforce survey are not able to locate and hire qualified candidates, and the lack of incoming young people, combined with an aging (and retiring) skilled craft workforce, will only exaggerate the problem. As a result, productivity will continue to drop, and costs will continue to rise until the industry begins to make major changes in how we recruit and train craft workers. Either we voluntarily make these changes, or they will be forced upon us.

CBO: In your opinion, what is the solution?

AR: The solution must come from a combined effort to change the perception among young people and the general public, as it relates to careers in the construction trades, through increasing training opportunities in high schools, trade schools and community colleges. The industry must partner with those schools that have the labor pool in their classrooms, and begin to train them in construction basics in addition to math and computer skills. In Houston, we see success in combatting this problem when community-based initiatives like United Way Thrive, SER Jobs for Progress and Community Family Centers partner with local contractors to train and develop workers who can be placed directly into the field. But it can't stop there. As we recruit new employees into the industry, we must simultaneously offer them rewarding work and a career path that includes the opportunity to master their craft, be promoted to higher levels of pay, and take on more responsibility as a result.

CBO: Tell us more about the mission and vision behind C3.

AR: C3 is a collaborative effort of building owners, contractors, specialty contractors and design professionals to create a safe, skilled and sustainable craft workforce. We believe that a trained, skilled craft employee is a safer employee that also does high-quality work—and more of it—in less time, with less rework, which creates demand for his/her services.

Then, through the economic law of supply and demand, the craft worker's wages grow naturally, attracting more people to a career in the craft trades. Construction employers benefit from greater productivity, efficiency and higher-quality work, thereby making them more profitable. Building owners receive high-performing buildings with lower maintenance costs and longer building life cycles. C3 is a rare example in which all parties benefit from participating in the process.

CBO: What solutions does C3 offer business owners?

AR: C3 works with contractors to help them define and develop new craft training programs or refine and refresh existing programs. This approach, combined with a strong connection to building owners who believe that the sustainability of a skilled craft workforce is a priority, allows C3 to mandate that all companies working on C3 projects employ craft workers who are: W-2 employees, protected by workers' compensation insurance, credentialed in OSHA 10 or 30 safety training, provided with ongoing safety refresher training, and enrolled in craft training linked to a career path.

CBO: What do business owners have to gain from these methods?

AR: By using C3's endorsement structure, companies are able to demonstrate their level of craft-training program implementation and success as a key component of their qualifications in the pre-bid process. This increased focus on providing a safe and skilled workforce improves construction quality and reduces the cost of a building's construction and operation for owners and users across its life cycle. Then, companies can win more work, create more profitable operations, upgrade their technologies and build for the future.

CBO: What does the future of the industry look like?

AR: Skilled craft professionals are increasingly in high demand, and I don't see that changing in the future, making it that much more urgent that members of the industry work together collaboratively to create a sustainable future for themselves through strong programs.

But simply paying a skilled craft worker as an employee isn't enough. The smart business owner realizes that managing talent is a priority and creates programs to train and retain skilled craft workers. Business owners who don't prioritize will continually be stuck in a hiring cycle as their contract workforce cycles through the door, rarely staying long enough to gain better skills.

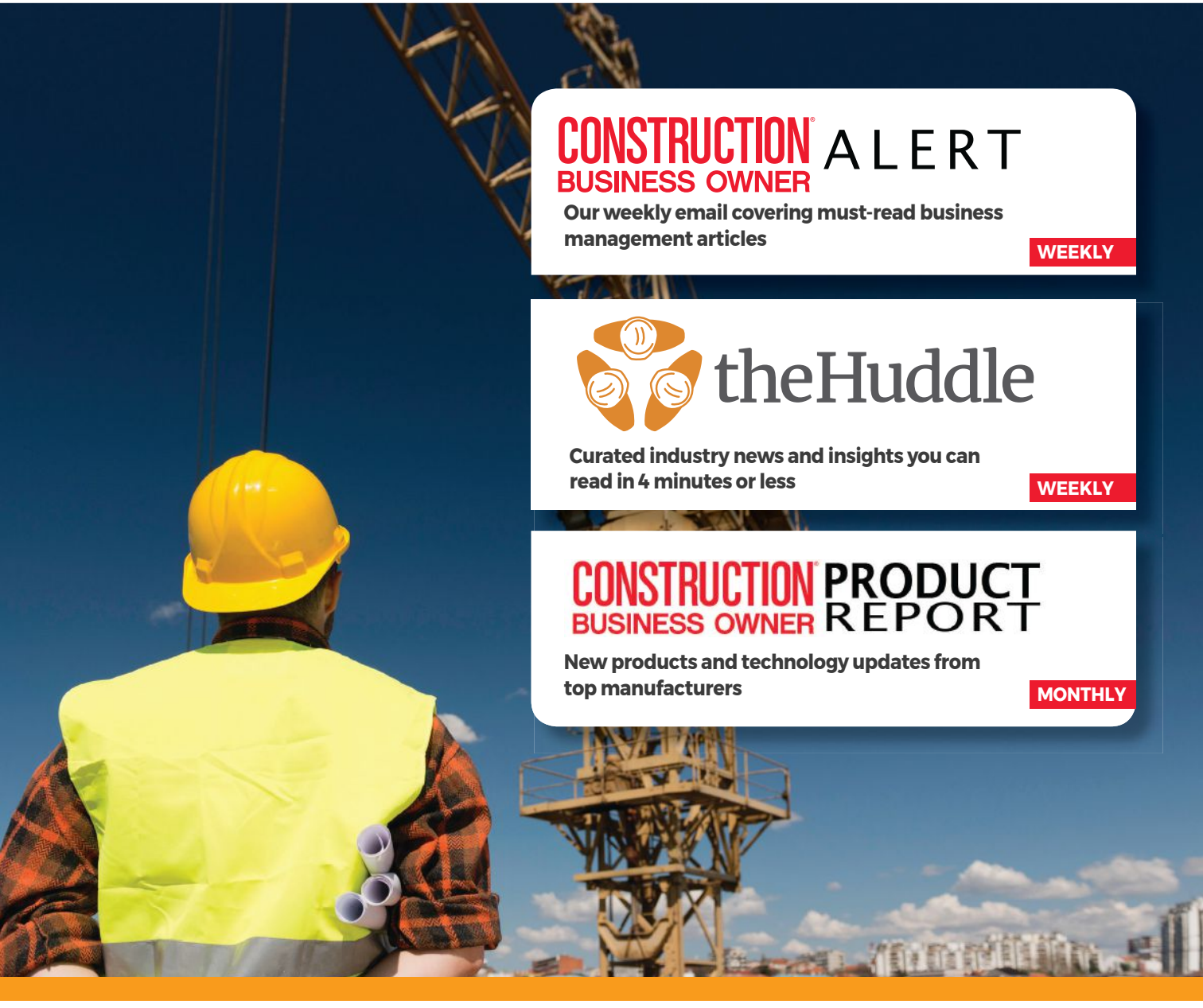
The more an employer invests in the future of an employee, the more that employee is likely to stay and invest back in the company. Business owners who refuse to train and provide incentives for employees will lag behind the competition. CBO

Rachel Fulford is the associate editor of Construction Business Owner magazine.

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The Art & Science of Risk Management

How Hoar Construction's Amye Carle is redefining the image of risk in construction

By Elizabeth Manning



Sometimes the key to significant improvement is simple: Find a new perspective. And sometimes that new perspective is found where you least expect it. For Amye Carle, director of risk management at Hoar Construction, successful risk management comes from outside the industry entirely. According to Carle, risk can be broken down into two parts: the art of collaborating with the entire team and the science to support why any one company should do it.

THE BACKGROUND

Carle hasn't always been in the construction industry, which she said was beneficial in preparing her for her current position at Hoar. She began her career in the legal field, working for both a defense law firm and a plaintiff firm. According to Carle, the job involved a lot of trial and tech support. "I would run all of the evidence for attorneys," she said. "At the time, I thought I wanted to go to law school, but I had a front-row view of the legal process, and what attracted me more was the problem-solving and risk management involved."

Her legal experience laid the groundwork for opportunities in risk management, and she soon got the opportunity to move into the field, first with the construction and engineering company BE&K Inc., and then for KBR Inc., an engineering, procurement and construction company. Carle believes her background in the legal field allows her to think differently from the professionals who have spent their careers in construction by giving her the ability to see a project or risk from another point of view, providing clarity and enhancing collaboration. Carle worked in construction risk for several years prior to joining Hoar's team. "What I really love about working in construction risk in particular is the variety," she said, "It's always a different puzzle you have to put together."

Even the differences in geographical sites for projects provide new and exciting challenges. There are a multitude of risk areas for each specific project. "We have an executive at Hoar who calls himself a 'professional firefighter,' and I love that," Carle said. "I may walk through the door with a plan in mind for tackling the day's tasks, but I never know what else will come up."

THE CHANGE OVER TIME

When Carle first started working in risk management, the role was insurance-driven. And while insurance still plays a sizeable part in her position, it's certainly not her main focus. "When I got started in risk, I never would have guessed cybersecurity and self-driving cars would be things I would be trying to keep up with on a daily basis," she said. "Back then, it was really about having an insurance program in place to fall back on when you needed it."

But, having insurance is simply not enough anymore. Construction is an environment inherently teeming with risk, which is why Carle views working with an insurance team as a partnership, rather than just a backup plan. Recently, she's seen a major push toward diversified recruitment as well. The labor shortage is not ending any time soon, and bringing in new (often younger) skilled workers opens the company up to a new spectrum of risk. Carle said she has increased her involvement in local and industrywide programs designed to expose elementary and high-school students to different career opportunities in the trades. According to her, many of these students haven't considered a career in the trades, so attending these kinds of events has been beneficial on several levels—they are not only helpful to the students in showcasing the variety of job opportunities the industry offers, but also to Carle's team in understanding and explaining exactly why diversified recruitment is needed and the risk involved in it.

The implementation of new technology allows companies like Hoar to compete for young professionals who are looking for cutting-edge organizations that are open to adaptation. However, the technology must also be accompanied by processes that effectively manage the risk of using a solution. Often, the additional risk is welcome because those solutions allow the team to manage the risk more effectively. "Drones, for one, have enabled us to provide owners and their lenders with better progress reports on their projects," she said.

Hoar has also placed focus on developing apps internally for better communication. "We work on large jobsites, so being able to get information out quickly is necessary," Carle said. One of the apps aids in crisis situations. If a worker is injured on a project, for example, the app allows the crisis team the ability to communicate with and update key stakeholders on the situation. The quicker the team is able to get support to that individual, the better chance that the team can keep a lesser incident from becoming severe. Apps like these support strategic planning on jobsites. Carle and her team use the data to lead conversations with the goal of preventing reoccurrence.

THE RIGHT APPROACH

Carle's role at Hoar continues to evolve, similar to how enterprise risk management (ERM) should. When Carle joined Hoar in 2011, the company's risk processes were scattered throughout the business. "In some areas, it was difficult to understand the risk processes we had in place," Carle said. "Don't get me wrong, we were managing risk very well, but as a risk professional, I could see where Hoar stood to benefit from having a more detailed program."

So, she set out to accomplish the goal of implementing an ERM program used throughout all divisions of the company. According to Carle, one of the biggest benefits of this approach was that it created the capacity to bring all of the key stakeholders together. "As the risk professional, I am thinking with a completely different mindset than that of a quality control director or a safety professional," Carle said. "With ERM, you just get a more holistic approach to risk management; and it has been really cool to see our processes evolve over time through this approach."

According to Carle, Hoar works with a lot of repeat clients, so she and her team often find themselves working through contracts and issues long before the project begins—a method which, from a



risk perspective, is a much smarter approach, she said. Negotiating contractual terms ahead of the project allows the team to be proactive, rather than reactive, about potential risk. And working proactively means spending a considerable amount of time collaborating with Hoar's safety department. "We touch base weekly to find out what is going on across all of our projects," she said. "We look at warning signs for issues that could become severe risks and work to understand why they are happening and how we can prevent them in the future."

Carle asserted that the entire team at Hoar is now better at collaborating on a much larger level because of the use of ERM. "With ERM, we've managed to have broader conversations with more key players at the table," she said. "Each team leader will approach a problem differently, and it's important to consider the benefits of each approach. My team may not always have the best solution to mitigating risk."

THE NECESSARY DATA

Wondering where the science comes in? Part of running a successful ERM program includes having the right data and analytics to support any proposed changes in processes. That's where Carle spends a lot of her day—figuring out how to use data to paint an accurate picture for the rest of the team (and for Hoar's project partners) that explains the potential risk and how to mitigate it. "This is the fun part of what I do. The data allows me to have better, more informed conversations around risk," Carle said.

It's important to be specific with the data Carle's team uses, too. "Looking at construction industry data as a whole, there are some scary trends," Carle said. "It's good to have that data as a benchmark, but for us, we need to use data [that is] specific to our company and where it stands in the industry." The team gathers all of that data and then trends it based on locations and project types. The data is shared with all key stakeholders, including the project team and divisional and executive leadership, with the goal to influence change in their specific areas. "As such, it's important that we put the data together in a way that is easy to understand and never overwhelming," Carle said. "We've tried to be creative in how we present the data. For instance, if we are taking on more nighttime work, are we having more issues at night than we are for daytime crews? If we are escalating a schedule, how are we creating more risk for that team? Are certain days riskier than others?"

Herein lies the art of risk management: Not only is it important to build relationships with all key stakeholders, but it's also important to make sure the data Carle's team is sending out is immediately useful. Team leaders should be able to take the data and apply it to their projects in real time.

So, what does that data look like exactly? It runs the gamut. For Hoar's insurance program, data is collected from June 1 to June 1 of each year. The team gathers policy statistics, yearly statistics, Occupational Safety and Health Administration (OSHA) items and trends, and then breaks all of that data down by division. For incidents on the jobsite in particular, this includes number of incidents per month, number of incidents per week, time of day incidents happen, type of projects incidents take place on, which trade partners were involved, and more. The team also looks at industry best practices and tries to apply that data to the company in a project- or division-specific way.

A major part of gathering all this data involves maintaining good relationships with the teams and all those working on the jobsites. "I'm not on the project, so developing strong relationships, in which the safety director, for example, is quick to send me photos and descriptions of jobsite incidents, only helps us create a better overall picture of why injuries may happen and how we can work to prevent them in the future," Carle said. Anytime an incident occurs on the jobsite, Carle's team makes it a practice to communicate the incident to Hoar's company ownership across all divisions within 48 hours.

THE TAKEAWAY

Carle said it's important to constantly evolve and adapt. More data and increased collaboration lead to more opportunities to improve. And the biggest mistake you can make is being resistant to change. "We all fall prey to it," she said. "Our world is evolving, though, and our risk programs should, too." The more you and your team can embrace change, the better off you will be across your entire company—specifically in identifying and mitigating potential risk. In the industry's current climate, there is much talk concerning delivering projects faster, with less money and fewer people, putting pressure not only on the risk management team, but on everyone involved with the project. "This makes it all the more important that we break down those barriers and trust each other more," Carle said. "Everyone may have different priorities, but we all have the same goal." CBO

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



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The Busy Season Isn't Over Yet

Travelers' Bob Kreuzer shares tips for contractors facing the risk of severe storms

By Kathy Wells

After the devastating effects of Hurricane Florence crippled the East Coast economy, local businesses owners were left to pick up the pieces. In late September, thousands of residents and evacuees began the process of recovery from the estimated $38 billion in damages and will continue to recover for months to come. And, just as this issue went to press, Hurricane Michael reached the Florida coast, creating catastrophic damage and leaving 18 dead in its wake.

According to the National Hurricane Center, the official hurricane season for the Atlantic Basin (the Atlantic Ocean, the Caribbean Sea and the Gulf of Mexico) is from June 1 to November 30, and the peak of the season is from mid-August to late October. However, deadly hurricanes can occur anytime during the season. With 14 storms and 99 fatalities already this season, CBO turned to the experts for insight on how contractors can prepare and recover.

Bob Kreuzer is vice president of construction risk control at Travelers, one of the United States' largest commercial property casualty insurance providers and writers of personal insurance through independent agents.

With many construction projects currently underway, and the livelihood of their companies hanging in the balance, business owners face a unique set of risks while this dangerous storm season continues.

To learn more about what all of this might mean for you, your teams and your jobsites, read below for Kreuzer's insights.

CBO: What preparations should be made as the threat of a major storm grows?

BK: As a best practice, we suggest contractors have a business continuity plan to prepare for the unexpected, and part of that should include contingencies in the event of severe weather, such as hurricanes. Ideally, this would be a well-thought-out plan, in writing, communicated to employees in advance to increase its effectiveness and to help reduce pre-storm anxiety.

Some items to include in this plan are a checklist of the specific areas to protect against water and wind; a relocation plan for workers, equipment and vehicles; a list of supplies to be gathered in advance (like tie-downs, anchors and banding material); and an evacuation strategy.



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Protecting incomplete construction projects can be a challenge and may take a significant amount of time to complete. If your business is caught off guard without a plan when a storm is imminent, there are still several things that can be done to protect employees and property, such as identifying areas for potential water intrusion and temporarily sealing what can be sealed; moving at-risk equipment to another area; securing loose materials; anchoring equipment; and installing additional bracing to walls or roofs, if necessary.

CBO: For jobsites using existing infrastructure, what considerations can be made to help recovery in flood-prone areas?

BK: There are several steps that can be taken if a jobsite is in a flood-prone area, such as installing temporary drainage systems, moving large equipment, and installing finished products only when the building is watertight.

Because some storms are unpredictable, we recommend a site-specific plan for every job, outlining ways to protect the jobsite (including the unfinished building), equipment storage and evacuation procedures. The more contractors can prepare in advance, the faster they can recover following an event.

CBO: How can contractors ensure subcontractors are diligent in their hurricane preparedness?

BK: The general contractor is in the best position to see that subcontractors brought onto a site are properly trained for severe weather preparations. We recommend that general contractors include weather preparedness as part of their site-specific plan and discuss this with subcontractors frequently to ensure plans are understood.

CBO: If a storm hits and contractors want to take on post-storm recovery work, what are some things they should take into consideration before doing that?

BK: It's a good idea for contractors to ask themselves a few questions before getting started, including: "Do I have enough qualified employees to handle this work? Do they have the proper training to navigate this hazardous area? Can I mobilize my workforce in a safe way? Will I have the materials necessary to successfully and safely complete the job?"

The demand surge for labor and materials, coupled with unfamiliar locations and the unique jobsite hazards associated with post-event situations, can create significant risks and challenges for contractors. The potential for worker injuries increases dramatically for new workers. Travelers Construction claim data shows that more than 40 percent of worker injuries occur in the first year of employment. As contractors hire new workers, it is imperative to include robust onboarding procedures with a focus on safety.

Normal suppliers may not be able to provide the amount of materials necessary for a job. Now may not be the right time to seek out a new supplier for the first time, since the quality of materials is critical to the success of the project. Using materials that have not been vetted for quality and working with new suppliers without taking the time to research them can lead to construction defect issues down the road.

In addition, many workers in these post-storm situations end up working extended shifts and traveling to unfamiliar areas, increasing the risk for accidents and injury, so contractors should select drivers who have safe driving records.

Storm work can be fast-moving, and sometimes responding companies may feel pressured into expediting safety procedures. It is at this time that contractors need to be even more disciplined about safety best practices, such as supervisor on-site management, daily walkthroughs and site inspections, as well as robust risk-management plans that include thorough safety training when onboarding new hires for the additional demands of storm work. **CBO**

Kathy Wells is the editor of Construction Business Owner magazine.

IRMI'S 12 THINGS YOU NEED TO KNOW ABOUT YOUR HURRICANE INSURANCE

As recovery continues, this year's storms have left economic damages estimated at $45 billion. Victims covered by the proper insurance will begin the claims process, filing damage claims and wind-damage losses across various insurance companies.

To help with the details, the International Risk Management Institute (IRMI) has shared insurance tips for individuals, corporations and business owners affected by these deadly hurricanes.

Visit irmi.com/hurricane-faqs to get the answers to the following frequently asked questions about property and auto insurance matters to consider and more:

- When should I contact my insurance agent or insurance company about my property damage?
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- What if I have a flood loss, but no flood insurance?
- Does my personal or commercial auto policy cover flood and wind losses to my vehicle(s)?
- When should I inspect my home or business?
- What about my additional living expenses or business interruption expenses?
- What are some tips for filing claims with multiple insurance providers?
- What if I am dissatisfied with the claims process? What are my options?
- How do I go about finding a reputable contractor to repair or rebuild my home or small business?
- What additional disaster relief resources are available?

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Navigating Behavioral Health in Construction

Managing the risks relevant to mental illness in today's workforce

By John Brown

I met with J.C. at his country home overlooking a vineyard near Healdsburg, California, on an August afternoon. He is the general contractor of a company with a $100 million aggregate bonding capacity and nearly 50 years in business.

"The construction business is just like high school," he said. "You have the brainiacs, the jocks, the 'normal' kids and the jokers—the guys like me who shot spitballs at substitute teachers and hung out behind the auto shop. And the guys like me didn't become doctors and lawyers, they went into construction." But construction has been more than good to J.C. From the looks of it, J.C. is doing well for himself. His life today doesn't look anything like what you would expect from the spitballing teen he described.

He seems to recognize that general contractors are cut from a different cloth. "Our industry still has a lot of the old-school attitude that views people like tools," J.C. said. "You use them until they break, and then you replace them—a kind of thinking that gets worse as you move away from federal contracting, to smaller companies and nonunion labor, where business can be cycles of boom and bust—and you need people until you don't." It can sometimes be a tough industry to stay in.

These conversations are often the same, as if everyone knows that it's a tough-guy industry, and everyone knows someone who has "gone off the rails," or "can't handle their paycheck and a bottle in the same day."

When asked about mental health in the construction industry, one construction risk manager offered, "You have to be crazy to go into construction. And if you aren't already crazy when you start, the general contractors will make you crazy." All kidding aside, the construction environment is demand-driven and high-stress, which often leaves workers susceptible to breakdowns. And as it stands now, not many business owners seem to know how to start the conversation about what, if anything, should be done to help.

According to the Centers for Disease Control, this year, more people will take their own lives in the construction and extraction industries than any other Standard Occupational Classification. In some states,

almost 70 percent of workers' compensation claims will involve the use of prescription opioids; and in other states, construction workers will account for 13 percent of all narcotic prescriptions, even though they make up only about 4 percent of the workforce. But the evidence isn't just in the Unites States workforce. The British medical journal, The Lancet, reported that stress, anxiety and depression are thought to be responsible for 400,000 lost workdays in the United Kingdom's construction industry last year. It's as if no matter how overwhelming the evidence, we just don't seem to be able to be able to look at mental health issues clearly, without the lens of stigma.

"I like the term 'behavioral health,'" said Chuck Yorio, a construction risk manager in Western Pennsylvania. "We observe behavior all the time, and we coach and correct with a focus on changing behaviors." Yorio seems to recognize that what goes on in someone's head is their business until it affects the safety of others. He's been studying the problem for most of his 40-year career in risk management. When Yorio was a kid, his father and brother were shot and injured by a random neighbor who then took his own life, and the experience made Yorio something of an autodidact social scientist, curious about the human psyche and aware of the need to address the huge burden that behavioral health issues create in the construction workplace.

"For over a decade, the Occupational Safety and Health Administration's (OSHA) initiatives have been focused on the four leading causes of workplace fatalities: fall, struck-by, caught-in or -between, and electrical incidents," said Yorio. "They've provided tools to educate workers and companies on the prevention of these identified hazards." But in 2016, the numbers indicated that workplace fatalities related to violence or suicide have exceeded at least three of OSHA's original Construction Focus Four Training initiatives.

"Very few would deny that behavioral health issues contribute to distractions, which could lead to injuries, quality failures, reduced productivity, and at worst, workplace violence, including suicide," said Yorio. This is why he is building an informal coalition of like-minded safety and risk managers, modeled on the same principles of OSHA's Focus Four, and oriented toward providing accurate information and resources for the most common behavioral health issues in the construction workplace.

Depression, anxiety, response to stressors, and drug and alcohol abuse are the four behavioral health topics that Yorio asserts disproportionately impact the construction workforce, and for which there are straightforward, "system navigator" responses that guide people to the professionals and resources they need. For example, primary care providers (your average family doctors) are trained to diagnose and treat most common depression and anxiety problems, but getting people to open up to their primary care doctor can be a challenge. "We can't be mental health counselors," said Yorio of safety and risk managers, "but we can provide sound information."

Some organizations are beginning to take note. A recent Rand Corporation study found that within a survey group of construction companies that offer employee assistance programs (EAPs), only 40 percent of employees even knew that they had access to an EAP, and even less (about 25 percent) understood that behavioral health counseling is an EAP service, proving that companies are neglecting to inform employees of their existing resources.

"For over a decade, OSHA's inititatives have been focused on the four leading causes of workplace fatalities," said Yorio. But in 2016, the numbers indicated that workplace fatalities related to violence or suicide have exceeded at least three of OSHA's original Construction Focus Four inititatives.

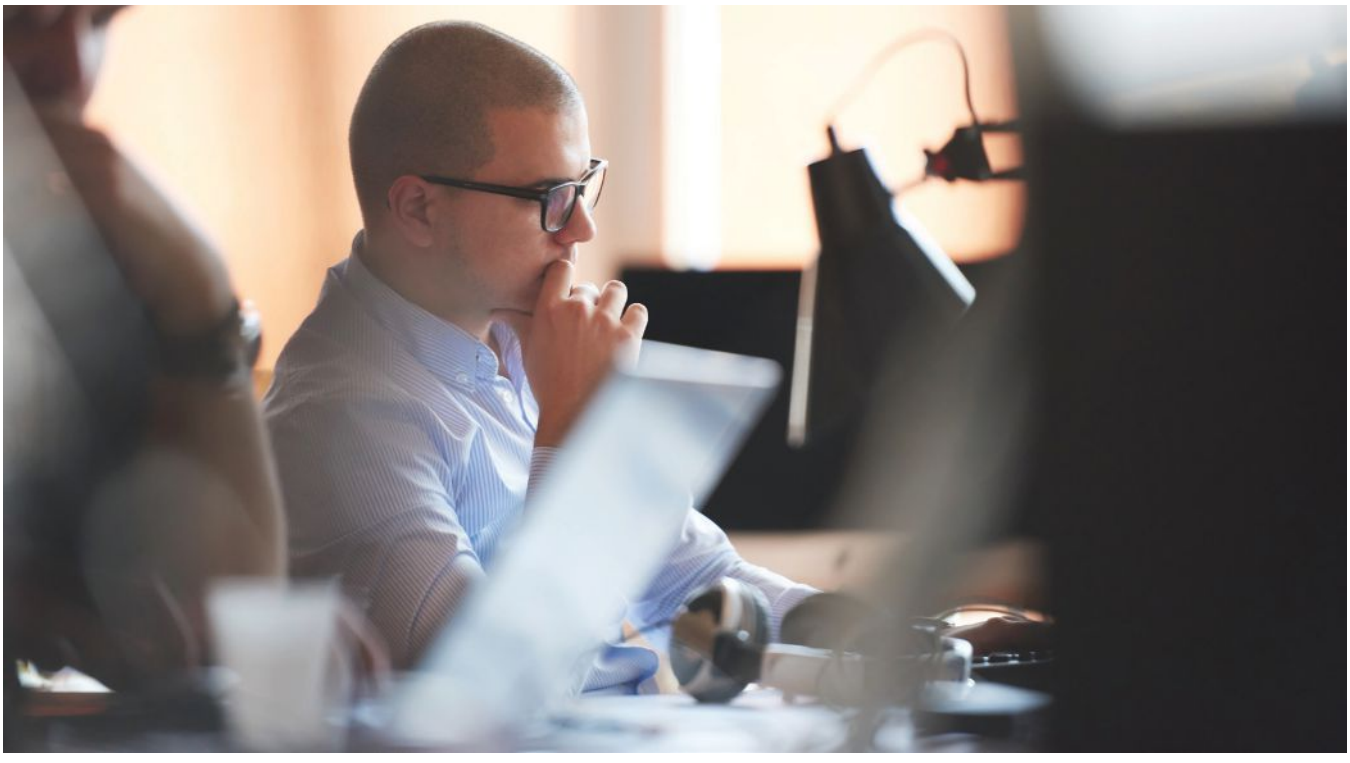
In 2010, after 14 employees took their own lives by leaping from the roof of their manufacturing plant in Shenzhen, China, Foxconn executives spent months hiding behind a "no comment" policy, then insensitively required employees to sign "no suicide" agreements and installed fall nets around the roof of the buildings as prevention for future suicides. The ham-fisted approach cost them hundreds of millions of dollars before they began initiating more thoughtful changes that have reduced suicides at their manufacturing plants to far below the national average.

Yorio and others in the industry believe that we can do the same in construction. "Let's get ahead of the behaviors related to common mental health problems that lead to these terrible situations," Yorio said. For the last few years, he's been involved in the Construction Financial Management Association's (CFMA) Construction Industry Alliance for Suicide Prevention. This initiative lists reducing stigma and providing factual information about resources as the key steps to greater outreach and a reduction of the impact of suicide in construction.

The painful, statistical truth is that behavioral health problems are disproportionately impacting the construction industry. Fortunately, for Yorio and a few other courageous individuals, that's a statistic worth working to change. **CBO**

John Brown is a senior consultant in organizational development at EPIC Insurance Brokers and Consultants. He has more than 40 years of experience in psychology and education, and his scientific contributions to the study of the behavior of effective teams have been published in the New England Journal of Medicine. Brown holds degrees from Michigan State University, New Mexico State University and the University of Costa Rica. Contact Brown at john.brown@epicbrokers.com. Visit epicbrokers.com.





Preventing the Inside Job

Tips for protecting your company's data from departing employees

By Jason Park

In today's data-driven world, cyberattacks occur almost daily, leaving many construction business owners to worry that an external hacker may target their business's data. But what most owners don't realize is that their biggest threat is actually internal—their own departing employees.

According to Osterman Research, one in five employees uploads sensitive and confidential data to an outside cloud, specifically for the purpose of sharing it with others. Further, a survey by Biscom found that 87 percent of employees who leave a job take with them the data they created at that job, and 28 percent take data others created. Among the majority who reported having taken company data with them, 88 percent took corporate presentations and/or strategy documents; 31 percent took customer lists; and 25 percent took intellectual property.

So, what can construction companies do to ensure their data is safe after employees leave? First, business owners must understand what they are trying to protect before they can stop anyone from exposing it. As such, you must determine exactly what data you have and where it is stored. In as much detail as possible, map out where your organization's data is located, who has access to specific files, when each file was created and/or modified, and where each file is stored. Then, you can begin to proactively secure it by:

- Establishing employee access levels to sensitive and confidential data based on role, function, need to know, etc.
- Including confidentiality provisions about ownership of sensitive, confidential and trade-secret data in employment contracts
- Requiring each employee to sign a document stating that they have read and agree to each policy
- Encrypting sensitive and confidential data in transit, at rest and in use—regardless of its location—through an encryption platform that's integrated with your existing systems and workflows
- Requiring two-factor authentication for sensitive content
- Properly managing mobile devices and laptops, allowing yourself the ability to remotely wipe every mobile device that may contain company data
- Frequently reminding of and training employees on data policies and procedures to reinforce that the data belongs to the company

and of management's intent and right to monitor
- Introducing and using policies to monitor and audit employees using any resource with access to corporate data
- Updating and training managers frequently so they are aware of the various data risks involved when employees leave

These steps can significantly help to mitigate the risk of employee data theft; however, you can't prevent it altogether. So, you must take extra precautions once an employee is let go or gives his/her notice.

On an employee's last day, obtain custody of their company-supplied computer(s) and mobile device(s), as well as external hard drive(s), thumb drive(s) and backup disc(s). If the employee had the ability to use a personal device for work-related tasks, analyze the device and remove all company-related files, emails, texts, etc. according to the policies set forth. Also, collect company credit card(s), security access card(s), key(s) to the building, and parking tag(s) or decal(s).

During the exit interview, ask the employee questions about their future plans for employment to help determine the potential risk of intellectual property (IP) theft. Remind the employee of the confidentiality agreement he/she signed upon being hired and have him/her sign a document stating that he/she has returned all company data and have not retained a copy of anything. When the employee leaves, don't forget to disable his/her access to computer systems and networks, phone and voicemail systems, cloud providers, customer relationship management (CRM) platforms, etc.

Before issuing the employee's computer, tablet and/or phone to another employee, a forensically sound copy of the computer's hard drive should be made. Companies that fail to complete this step significantly hinder their ability to prosecute IP theft. Be sure to have licensed or certified personnel or vendors handle the process, called "imaging," which goes beyond what an IT backup can do. It not only copies active files, but also deleted files and fragmented files, and it preserves unallocated space on the drive.

This data collection is conducted with the aid of a write blocker—a read-only hardware device that allows your certified vendor to acquire information on a hard drive without the possibility of accidentally damaging the contents. The procedure should be repeated for all departing employees' hard drives, flash drives, USB drives and mobile devices. And it should encompass all platforms and files accessed by the employee—not just emails, databases and conventional documents like Microsoft Word files, but also games, messaging apps, browser histories, social media networks, cloud platforms and more.

Once you have a forensic image of a device, which should include hash verification and detailed logging of files (including password-protected



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and encrypted files), you can make additional forensic images in case your forensic team needs to perform further investigation and analysis of the files. If anything happens to the copy as the forensic team works on it, they can always go back to the original image and make another copy. In addition, if you suspect a departed employee stole company data, your team can use the working copy to look for unusual activity, such as:

- File transfers involving a high volume of copied files or specific, confidential files moved to another device or cloud account
- Proprietary files residing locally (like a downloaded customer list from your CRM)
- CAD files on a computer that doesn't have the CAD program
- Unusual after-hours, weekend or holiday activity
- Significant increase in outbound emails
- Recently added or deleted software, such as a disk-wiping tool
- Recently upgraded or downgraded software and/or applications

If needed, a forensic team may be able to recover deleted files, expose hidden files and even recover temporary files, such as data that was copied to another storage device. Depending on your company's setup, it may also be smart to check the server backup tapes and remove them from rotation so they are not overwritten.

If an investigation shows suspicious activity, these actions will provide the information you need to decide how to proceed. Many times, if someone is confronted with evidence of copying files, he/she simply returns the files and puts an end to the discussion. Other times, it escalates and requires litigation. If your forensic team is associated with an e-discovery company, your vendor will be able to facilitate the entire process of collecting, analyzing, filtering, reviewing and producing the data.

When dealing with electronic data, time is of the essence. According to the 2018 Thales Data Security Report, nearly 9 in 10 companies plan to increase cybersecurity spending this year. If you want to protect your company's data, you should follow suit. Just remember that not all threats are external. Insiders know where you keep your files, what's important and how to access them. Consider working with a team of forensic and technology experts to ensure your data stays safe. **CBO**

Jason Park is senior vice president of digital forensic services at BIA, a leader in reliable, innovative and cost-effective e-discovery services. A licensed private investigator with over two decades of diverse e-discovery and computer forensics experience, Park oversees BIA's data collection, digital forensics, investigation and analysis services for matters of all sizes and complexities. Contact Park at jpark@biaprotect.com. Visit biaprotect.com.





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Prep Your Equipment for Winter Storage

5 tips for protecting your machines from seasonal damage

BY AARON KLEINGARTNER

As your construction season winds down and colder weather blows in, now is a good time to think about what needs to be done to your heavy construction equipment, such as excavators, wheel loaders and articulated dump trucks, before winter arrives—especially if you are located in the northern region of the United States or in Canada, and your equipment won't be used until after the ground thaws.

To ensure reliable operation once it returns to service, your equipment will require storage, as well as preparation and maintenance before and after storage. Consider the following tips to help you prevent your equipment from damage due to winter weather this year.



1. PREP FOR STORAGE

First, complete pre-storage preparation tasks as listed in your machine's operation and maintenance manual. Review the manual for recommended intervals and a checklist of winter maintenance items, as well as oil and fluid recommendations. It's always a good idea for you and your operators to request maintenance training and assistance with proper techniques from your local equipment dealer. Familiarize yourself with decals and key maintenance points before winter hits. Thoroughly clean the machine of grease and debris, including the engine compartment. If you are storing your excavator, clean out the undercarriage as well. All machine components should be properly lubricated, and exposed cylinder rods should be greased to reduce rust and moisture while in storage. In addition, be sure to clean the machine's cab. Some equipment manufacturers offer an optional on-board air compressor to easily remove dust and debris. Remember to throw away trash to declutter the cab before spring.

After the machine has been cleaned, look for signs of obvious machine damage and replace any worn or damaged parts. Document the items that will need attention prior to spring. Check the cab door and window seals to ensure there are no leaks or cracks. Install a new windshield wiper blade and add low-temperature washer fluid. Replace any burnt-out bulbs to ensure your operators have the appropriate lighting.

2. CHECK FUEL, OILS & FILTERS

If you are getting close to your next preventive maintenance schedule, replace hydraulic fluids, fuel and filters before storing your equipment, referring to your operation manual for fluid level requirements. When you are filling fluids, leave room for expansion, especially for machines with diesel exhaust fluid (DEF). In very cold temperatures, DEF can freeze, causing the



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volume to increase. Though machine reservoirs are designed to accommodate, you should keep bulk DEF in heated storage. Purity and concentration are critical with DEF and can be affected by temperature, so work with your local dealer to better understand how to store and handle this fluid.

Before storage, place a fuel stabilizer in the fuel tank and run the engine for a few minutes to circulate the liquid to the pump and fuel injectors. If there is a possibility you will take the machine out of storage before winter, add the appropriate gel-additive to the fuel. In addition, drain water from the water separator on your machine, and then, fill the fuel tank at the end of your last shift. Condensation in the fuel tank can cause start-up issues at the beginning of spring. Lastly, inspect the air filtration system and use the correct replacement filter to reduce the risk of premature engine failure.

3. DISCONNECT THE BATTERY

Always disconnect the battery and store it in a cool, dry place above 32 degrees Fahrenheit to reduce the potential for battery discharge. For batteries that need to be charged periodically, a trickle charger can be connected 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.

4. PROTECT IT FROM THE ELEMENTS

If you are not able to keep equipment inside (preferably in an enclosed, heated facility), park the machines in a dry, protected shelter, out of the wind and direct sunlight. If possible, cover the equipment with a tarp to block moisture and prevent snow buildup. When you start your equipment again, use a block heater to assist starting the engine and let it run until it gets up to the working temperature, which helps prevent the valves from sticking and distributes oil where it is needed.

5. PREP & LOWER ATTACHMENTS

Perform visual checks of attachment components, including hydraulic hoses, cylinders, guards, cutting edges and teeth, for damage before storage. Attachments should be stored inside, out of the elements. When ready to store, lower them to the ground. If you have an excavator, the blade, if equipped, should also be fully lowered to the ground's surface. Once those steps have been completed, tag the machine to indicate it is ready for storage. **CBO**

Aaron Kleingartner is the marketing manager for Doosan Construction Equipment. Kleingartner has nearly 15 years of product development, analytics and strategic marketing experience with Doosan in North America. Visit doosanequipment.com.



Fuel for Thought

Controlling what's in your tanks & how much you're spending on it

BY JENNY SHINER

How to maintain controllable fleet operating costs—assessing the cost of preserving assets and rightsizing the fleet to ensure optimal cost-efficiency, all while improving management and efficiency—is an important conversation for construction organizations. How to reduce fuel use and costs should also come into play. The answer is simple: Excessively high fuel costs cut into profits. While fuel is a consistent overhead cost and is likely to fluctuate, construction fleets are now stabilizing fuel spending by using technology to optimize their use of it.

Organizations that believe their fuel costs are higher than they should be must work to better understand their baseline costs and potential areas for savings. Do this by focusing on a few aspects. First: dive into the fuel itself and the options available to power the fleet. Second: use fuel management technologies to track fuel spending, correct driving behaviors that increase fuel expenses and monitor fuel card transactions to identify fraud. Third: identify specific challenges that increase fuel costs for the fleet and make connections with the data to solve these issues.



WHAT'S POWERING YOUR FLEET?

To start the conversation about reducing fuel costs, it's important to ensure vehicles and equipment are powered by the optimal energy source. In deciding which fuel is best for a fleet's vehicles and equipment, construction organizations should consider their fuel efficiency and sustainability goals, operational needs, and the frequency and distance between times assets are used and in travel. The most common fuel and energy options include:

- *Gasoline*—Gasoline is the most commonly used fuel for vehicles and is the least expensive. The three main grades of gasoline include regular, midgrade and premium.
- *Diesel*—According to the United States Energy Information Administration, "Diesel fuel powers most of the construction equipment in the U.S. Diesel engines can do demanding construction work, such as lifting steel beams, digging foundations and trenches, drilling wells, paving roads, and moving soil safely and efficiently." Though it retails at a higher price point than gasoline, the higher power-to-weight ratio of diesel offers better fuel economy.
- *Hybrid*—Hybrid vehicles capture energy for their batteries through

regenerative braking and use the energy to provide power to the wheels, reducing emissions and improving fuel economy tremendously. Hybrids still rely on either gasoline or diesel to generate power.

- *Electric*—Electric vehicles run 100 percent on electricity supplied from a rechargeable battery, offering a clean form of transport, completely absent of tailpipe emissions.

While fuel and energy-efficient vehicles are likely to gain popularity for commercial fleets in the coming years, construction fleets are dominantly utilizing gasoline and diesel in today's current landscape.

MONITORING FUEL USE

While the cost of fuel will vary relative to the real or expected demand or consumption, it's common for fleets to use an unnecessary amount of fuel if they are not monitoring it. Using fuel-management technologies allows construction organizations to achieve significant savings. Some of the most common ways fleets use telematics and fuel-card systems to reduce fuel use are increasing route efficiency, reducing excessive engine idling, coaching drivers on more efficient driving, and identifying fuel-card fraud.

OPTIMIZING ROUTE EFFICIENCY

Taking the scenic route to jobsites not only wastes time, it also extends the time of use of the vehicle, increasing the fuel it takes to operate it. To avoid the unnecessary fuel expenses that route inefficiencies cause, construction fleets are using telematics to ensure drivers take the best route to every jobsite, with the shortest and quickest distance between locations. Along with proactively sending drivers on the best routes, reviewing the historical routes taken provides insight into potential fuel savings.

REDUCING EXCESSIVE IDLING

The worst mileage a vehicle gets is during idle times. Reducing excessive idling is one of the fastest ways to reduce unnecessary fuel costs. Paying attention to idle reports and alerts allows organizations to act as soon as vehicles or equipment surpass acceptable thresholds. In doing so, West Coast Sand and Gravel, a construction materials delivery fleet, was able to reduce fuel usage by 5,205 gallons and costs by 37 percent, saving the organization over $18,000.

COACHING EFFICIENT DRIVING

In addition to the safety implications of monitoring driver behavior, telematics can be used to review inefficient driving and identify potential fuel savings. According



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to the U.S. Department of Energy, aggressive driving wastes gas and lowers gas mileage by roughly 15 to 30 percent at highway speeds and 10 to 40 percent in stop-and-go-traffic. Using driver behavior data for coaching helps reduce speeding, rapid acceleration and harsh braking, while diminishing excessive fuel use in the process. Telematics can send alerts directly to drivers, helping managers by proactively correcting these behaviors.

PREVENTING FUEL-CARD FRAUD

Using telematics to report fuel-card transactions provides driver and vehicle information, fueling location, date and time, and the number of gallons pumped. One of the main data points in this reporting displays the fuel capacity of the vehicle compared with the amount of fuel pumped, allowing for quicker fuel-card fraud identification. If a higher number of gallons are pumped than the vehicle's tank can hold, it can indicate that the person pumping gas was filling up an unauthorized vehicle. Another important piece of information revealed in this reporting is the location the fuel card was used compared to where the vehicle of the associated card was located at the time. For example, if the fuel card was used at a gas station, but the vehicle was still parked in your yard, the fuel card was potentially stolen or being used for nefarious purposes.

CONNECTING ISSUES WITH DATA

High fuel costs are one of the hardest line items in a fleet's finances to correct because many of the waste goes unnoticed at the time. It's easy to see when fuel costs are higher than they should be, but it takes more insight to understand where unnecessary costs can be eliminated. To identify these unnecessary costs, start asking:

- Is distance taken into consideration when dispatchers select a vehicle to send to a jobsite?
- Does our organization review historical routes taken by drivers to ensure that they are the most efficient?
- What's our policy for idling?
- How often are acceptable thresholds of idling surpassed?
- Who is our best driver?
- Who is our worst driver?
- What data are we using to coach drivers? **CBO**

Jenny Shiner is the marketing communications manager for GPS Insight. She graduated from Arizona State University with a bachelor's degree in communication and is responsible for external marketing communications for all business segments that GPS Insight targets. For more information on telematics and fuel card technologies, visit gpsinsight.com.





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Understanding the Road Ahead

Bridgestone's Rob Seibert on tire management technologies & how they enhance safety on the jobsite

BY KATHY WELLS

We don't get far without them, and neither does the progress of a construction project. They are a big contributor to production on every jobsite and are, quite literally, the things that keep everything moving. They are not your employees or your equipment: they're your tires. And, whether we acknowledge it or not, the safety of our teams and projects greatly depend on the tires we take to the jobsite every day.

One major name in the tire market is Bridgestone Americas Inc., manufacturer of tire and rubber products. Bridgestone has more than 180 manufacturing plants and research and development (R&D) facilities in 26 countries, and sells products in more than 150 countries worldwide.

Rob Seibert is the director, marketing, off-the-road (OTR) tires, commercial group, at Bridgestone Americas Tire Operations (BATO), where he leads all marketing research, planning and execution for Bridgestone's OTR tires in North America. Seibert also manages the strategy development and execution of special projects aimed at advancing the organization's OTR solutions offerings, some of which promote jobsite safety through technological solutions.

CBO sat down with Seibert to talk tires, technology and the direction of jobsite safety. Read on for his insights.



CBO: Why is regularly inspecting and monitoring tires important for construction safety?

RS: Proactive tire maintenance is key for OTR fleets to keep their operations productive on jobsites. It helps ensure optimal performance and mitigate tire-related events that can lead to unwarranted repairs, downtime and labor costs. For example, under-inflation, overloading and over-speeding can lead to irreversible wear, and productivity and profitability can be hindered through downtime. For these reasons, technology has become an integral part of tracking and managing tires on the jobsite. From monitoring real-time tire pressure and temperature to sharing key insights for maintenance, the incorporation of new technologies within jobsite operations is becoming an industry best practice.

CBO: What does proper tire maintenance and management look like on a construction jobsite?

RS: The rough terrain and rigorous conditions of the construction jobsite provide everyday challenges for tires, which can

lead to tire damage and result in unplanned downtime, negatively affecting jobsite productivity. Just like your personal vehicle, construction equipment, loaders and articulated trucks require attention and upkeep, such as wheel alignment, tire rotation, tire-pressure management and inspection. Bridgestone recommends these four best practices to ensure your tires continue to live up to the job and contribute to a more secure workplace.

1. *Select the right tire*—This is the first and most crucial step of any tire program. Not matching the appropriate tire to the application can compromise tire performance, machine traction and safety. It is important to take into consideration the type of application, environment, necessary loading capacity and speed ranges. Additionally, tread patterns, casing design and compounding allow tire manufacturers to engineer products tailored to customer needs, including traction, stability, treadwear and heat resistance.
2. *Work with tire experts*—While daily inspections identify issues early on, trusted dealer partners play a significant role in ongoing maintenance and management. Operators should call their dealer as soon as an issue is identified, allowing the dealer to help address the issue immediately. As the tire expert, a dealer can help manage a tire program to ensure the right tire is selected and then address potential issues before they impact operations.
3. *Maintain air pressure*—Low tire pressure can increase stress on tire components and is caused by factors, such as not following tire manufacturers' cold inflation pressure recommendations, using pressure gauges that are out of calibration, having leaking valves and bad wheel components. Operators and site managers often aren't checking tire inflation pressure frequently enough. This is where a tire pressure monitoring system (TPMS) can really help to provide real-time tire-pressure information.
4. *Make inspections part of everyday operations*—Equipment operators should also know how to conduct pre-shift tire and equipment visual inspections to identify problematic wear and tear between professional inspections. Hazardous tire indicators, such as irregular wear, mismatched tread depths, cuts, cracks, bulges or penetrations can be tied to larger maintenance issues or improper tire pressure. These quick, daily checks can make a big difference. By identifying issues early on, operators are able to avoid unplanned downtime.

PRE-SHIFT TIRE INSPECTION

Visit Bridgestone's website at commercial.bridgestone.com/en-us/otr-tire-inspection to learn more about daily inspection best practices and to get a Pre-Shift Tire Inspection poster for your jobsite.

CBO: How do tire management technologies impact maintenance programs and enhance jobsite safety?

RS: In addition to pre-shift inspections, many construction companies are integrating technologies into their day-to-day jobsite operations to improve safety, productivity and efficiency. Data-driven tire tools enable more accurate maintenance inspections and more timely identification of potential problems that are contributing to asset performance and jobsite safety. TPMS is an example of how technology is improving a formerly time-intensive process with real-time data and analytics to make inspections faster, easier and



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more accurate. Wireless, in-cab systems supply instantaneous inflation pressure and temperature data to drivers, signaling if a change needs to be made in loading weight, inflation pressure or driving speed. The technology also provides more accurate readings and measurements on these metrics, decreasing the room for human error. For example, the Bridgestone PressureStat system provides instantaneous tire pressure and temperature data as well as wireless, in-cab system updates. This particular tool can also be integrated with the Bridgestone TreadStat system, a cloud-based tire and rim tracking software platform that allows end users to forecast tire needs and track against their inventory based on real-time tire performance and condition. These technologies can help business owners improve their operations by maximizing safety and productivity and minimizing the total cost of ownership. Working with a trusted dealer who offers these types of resources is a great way for construction equipment owners to apply today's tire technologies to their business in a practical and impactful way.

CBO: Will new tire technologies eliminate the need for manual tire inspections altogether?

RS: Intelligent technologies are transforming the world around us, and the construction industry is no exception. The industry is moving toward a sensor-based monitoring and reporting model for real-time updates to maximize jobsite safety and productivity. It will continue to modernize inspections and monitoring. Further, hands-on coaching and encouragement from both project leadership and tire professionals will allow operators to be well-informed and involved, building a stronger culture of safety one shift at a time.

CBO: Is there anything else you would like to add?

RS: Remember: Intelligent tire management technologies can help owner operators improve jobsite safety by providing real-time data that allows for critical operational adjustments.

However, they can never replace a hands-on tire inspection. Pre-shift diligence, along with intelligent tire management technologies, work best together to help maximize uptime and performance.

Construction applications take place in tough environments that affect tires, and it is important to be proactive in your company's tire maintenance to help safeguard against detrimental tire conditions that can impact equipment and, most importantly, people. CBO

Kathy Wells is the editor of Construction Business Owner magazine.

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New Products to Watch

Selected by the editors of Construction Business Owner, these new-to-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.

JLG INDUSTRIES INC.

X1000AJ Compact Crawler Boom

Released: 11/1/18

Availability: All markets

What's new? 106-foot work height; 56-foot, up-and-over work envelope; and 500-pound, unrestricted platform capacity with below-grade capabilities

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CM LAB SIMULATIONS

Dozer Simulator Training Pack

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Availability: U.S., Canadian, European markets

What's new? Realism of simulated heavy excavation and fine grading possibility due to simulator's ability to engage a simulated transmission and engine the moment the virtual blade touches virtual soil

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Circle 212 on card.



NOSWEAT
Hard Hat Liners
Released: 7/1/18
Availability: U.S. & Canadian markets
What's new? Thin, disposable liners that instantly absorb sweat to prevent stains, odors, fogging, acne and other distracting side effects
Specs: Universal fit in all brands and makes of hard hats and bump caps; can be installed in seconds by simply peeling and sticking a liner to the inside of the headwear; depending on the person and activities being performed, can last from one use to 2 weeks
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FOX
VersaPlow
Released: 6/28/18
Availability: U.S. market
What's new? Hydraulically rotating end panels that combine the functions of a box-style containment pusher, backdrop containment box and conventional snowplow
Specs: Available in 8-foot and 10-foot blade widths with a steel trip-edge or urethane-resilient edge; available with a 14-pin connector, 7-pin CANbus adapter or universal single-button diverter control and harness; comes in floating or standard mount configurations
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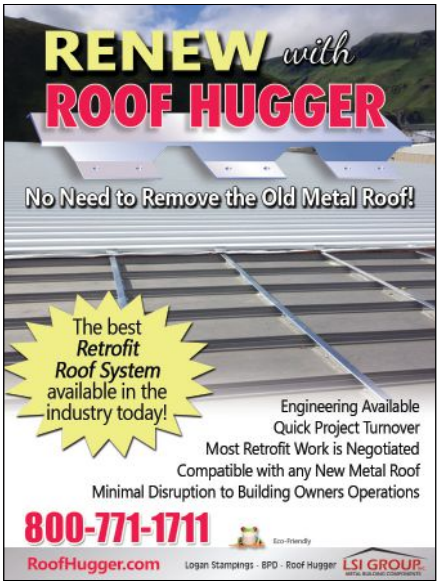
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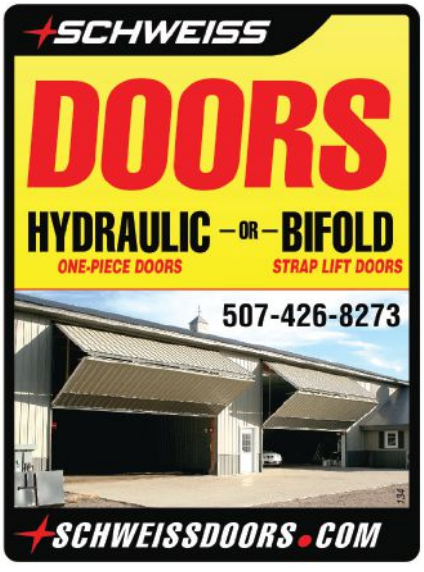
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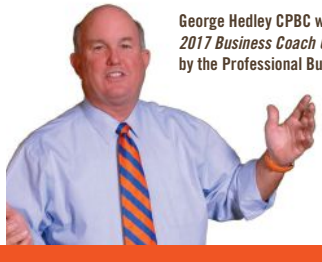
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Annual Value of Construction Put in Place

August 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 August 2018 figures. (Millions of dollars. Totals may not add up perfectly due to rounding.)

	2016*	2017**	Aug 18
Total Private Construction	**911,540**	**959,548**	**1,001,749**
Residential	466,559	527,533	548,892
Nonresidential	444,981	432,016	452,858
Total Public Construction	**277,518**	**277,945**	**316,736**
Residential	6,728	6,491	6,859
Nonresidential	270,790	271,455	309,877
TOTAL Construction	**1,189,057**	**1,237,494**	**1,318,485**

**Seasonally Adjusted Annual Rates. Source: U.S. Census Bureau*
***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.*

$1,318,485

AUGUST 2018 TOTAL ANNUAL VALUE OF CONSTRUCTION PUT IN PLACE

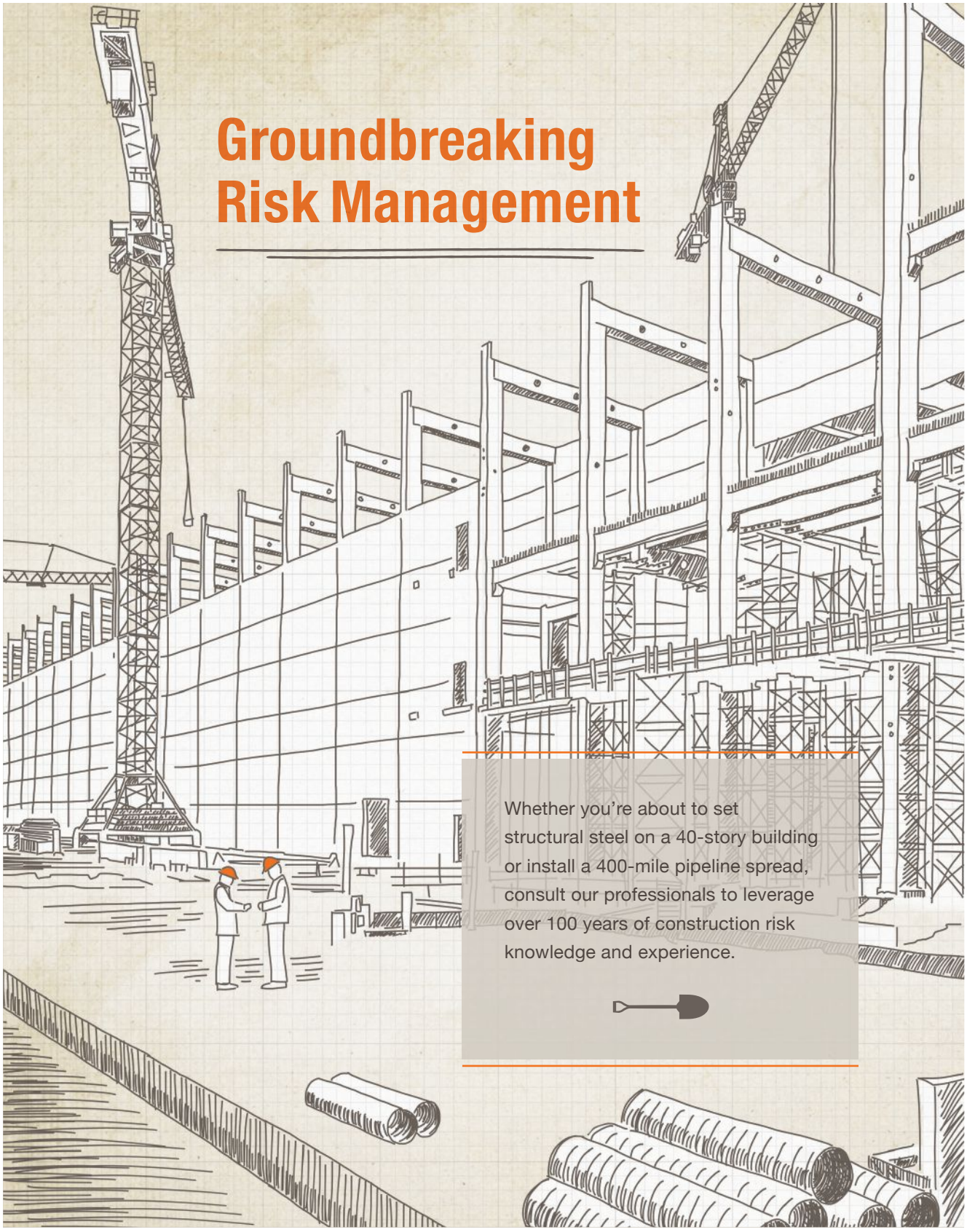
"Billings at architecture firms in the South continue to lead the healthy increase in design activity that we've seen across the profession in recent months," said AIA Chief Economist Kermit Baker, Hon. AIA, Ph.D. "Nationally, growth across all building sectors remains solidly positive."

AIA Architectural Billings Index (ABI)

National			*Regional - Billings				*Sectors - Billings			
Month	Billings	Inquiries	Northeast	Midwest	South	West	Multifamily Residential	Commercial/ Industrial	Institutional	Mixed
Mar-18	51.0	58.1	49.0	50.7	53.2	53.4	53.4	53.1	49.7	51.1
Apr-18	52.0	56.7	50.3	49.6	51.8	55.1	50.7	52.7	52.0	50.6
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

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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