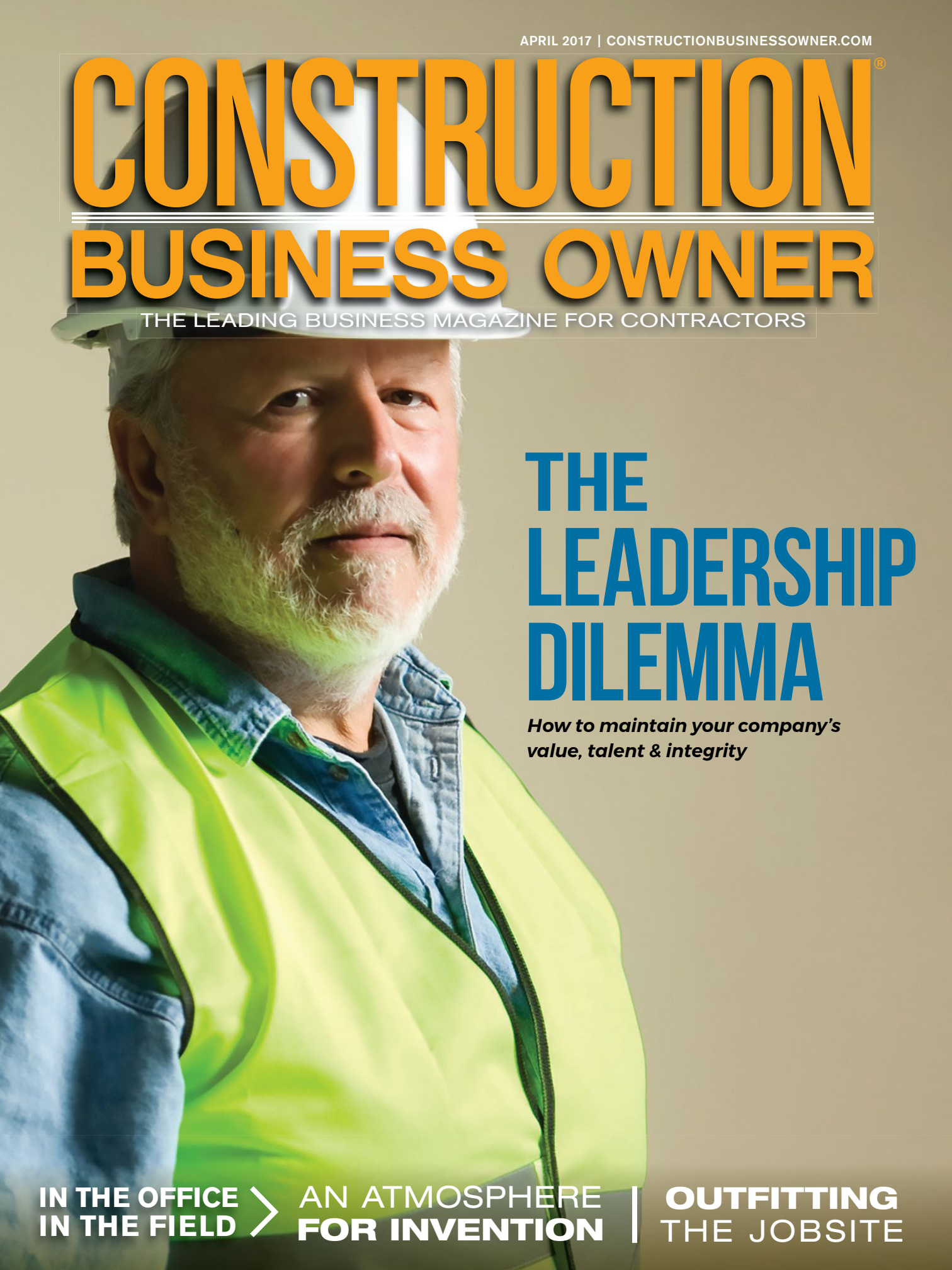
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FROM THE EDITOR | Kathy Wells

Last month, the *CBO* team attended CONEXPO-CON/AGG 2017, held in Las Vegas, Nevada, at the Las Vegas Convention Center. The monumental show covered more than 2.8 million square feet of exhibit space over 11 different halls and lots. As a first-time attendee, I can honestly say I've never seen anything like it—the events, special guests, new product releases and industry innovations made the show an incredibly memorable experience. *CBO's* team covered a lot of ground, and will be bringing those show insights to you in our post-show coverage in the upcoming May issue.



Editor Kathy Wells met with the mining team from Discovery Channel's "Gold Rush" at CONEXPO-CON/AGG. The team spoke with attendees visiting Chevron's booth about using Chevron's latest product, ISOCLEAN, in their everyday mining operations.

As this issue went to press, our team was on the ground covering NTEA's Work Truck Show 2017. The show was held in Indianapolis, Indiana, at the Indianapolis Convention Center and hosted more than 500 exhibitors and an estimated 11,000 attendees. Look for our post-show coverage featured on constructionbusinessowner.com.

As part of our ongoing, educational webinar series, *CBO* has partnered with Procore to present "Validation of Construction Data," a free webinar that will take place May 4 at 1 p.m. EST. Presented by Kristopher Lengieza and Nathan Wood, the webinar will show attendees how to aggregate, analyze and report data so your teams can start making smart, informed decisions. The webinar will also include real examples of using project data from multiple sources to track performance and take corrective action using simple analytics dashboards. To learn more and register to attend, visit constructionbusinessowner.com/webinars.

In this issue, our cover series focuses on better leadership. Beginning on page 26, in "An Integrity Self-Test for Leaders," author Dave Martin offers a scoring process to help you strategize for greater success in your role as a leader. Next, on page 28, in "Easy Transitions for Your Company's Next Owner," author John Hamel shares reasons why your business might be worth more without you, and how to make sure it succeeds once you step down. Closing the series on page 30, author Tammara Sutton discusses observing employee talent from a talent acquisition specialist's perspective, when to build on positive attributes and when to let someone go in "Perfecting the Imperfections." We hope the articles in this series provide you with solutions as you strive to make the best business decisions possible.

Take good care,

Kathy Wells

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Construction Business Owner (ISSN 1551-3246) is published monthly by Cahaba Media Group, 1900 28th Avenue South, Suite 200, Birmingham, AL 35209. Periodicals postage paid at Birmingham, AL and additional mailing offices. Subscriptions: Free of charge to qualified construction business owners. Publisher reserves the right to determine qualifications. Annual subscriptions: U.S. and possessions $48, all other countries $125 U.S. funds (via air mail). Single copies: U.S. and possessions $5, all other countries $15 U.S. funds (via air mail). Call 205-278-2840 inside or outside the U.S. Postmaster: Send changes of address and form 3579 to Construction Business Owner, Subscription Dept., P.O. Box 530067, Birmingham, AL 35253. ©2017 Cahaba Media Group, Inc. No part of this publication may be reproduced without the written consent of the publisher. The publisher does not warrant, either expressly or by implication, the factual accuracy of any advertisements, articles or description herein, nor does the publisher warrant the validity of any views or opinions offered by the authors of said articles, descriptions or any advertisements. Submissions: We welcome submissions. Unless otherwise negotiated in writing, by the editors, by sending us your submission, you grant Cahaba Media Group, Inc. permission by an irrevocable license to edit, reproduce, distribute, publish and adapt your submission in any medium on multiple occasions. You are free to publish your submission yourself or to allow others to republish your submission. Submissions will not be returned. VOLUME 14 ISSUE 4

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THE LEADING BUSINESS MAGAZINE FOR CONTRACTORS

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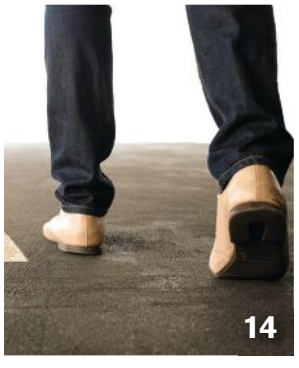
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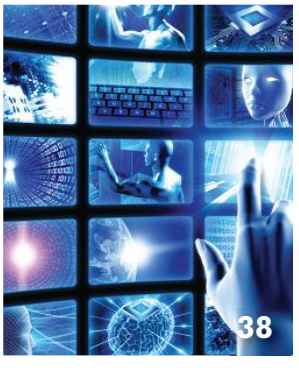
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The Announcement of the Decade

AIA Releases 2017 Contract Documents

Like the fog that drifts through the Grand Canyon every ten years, the core set of AIA Contract Documents gets updated every ten years to ensure your design and construction projects are protected against changing industry trends and needs.

Changes affecting contractors include a new insurance exhibit that allows for the selection of insurance coverages specifically tailored to the needs of the project. Other changes to the insurance requirements have been made to keep AIA Documents consistent with legal and practice developments in the insurance industry.

Learn more and download samples at
aiacontracts.org/cbo



AIA Contract Documents

Photo by Maci MacPherson / National Park Service

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5 Solutions to Keep Workers Safe & Productive

Evaluating PPE needs to ensure equipment is safe, meets standards & is functional & comfortable

The first step in ensuring safety at heights on the jobsite is the proper fall protection equipment installation or fitting.

DAN WARD
NATIONAL SAFETY TRAINING MANAGER, WERNER CO.

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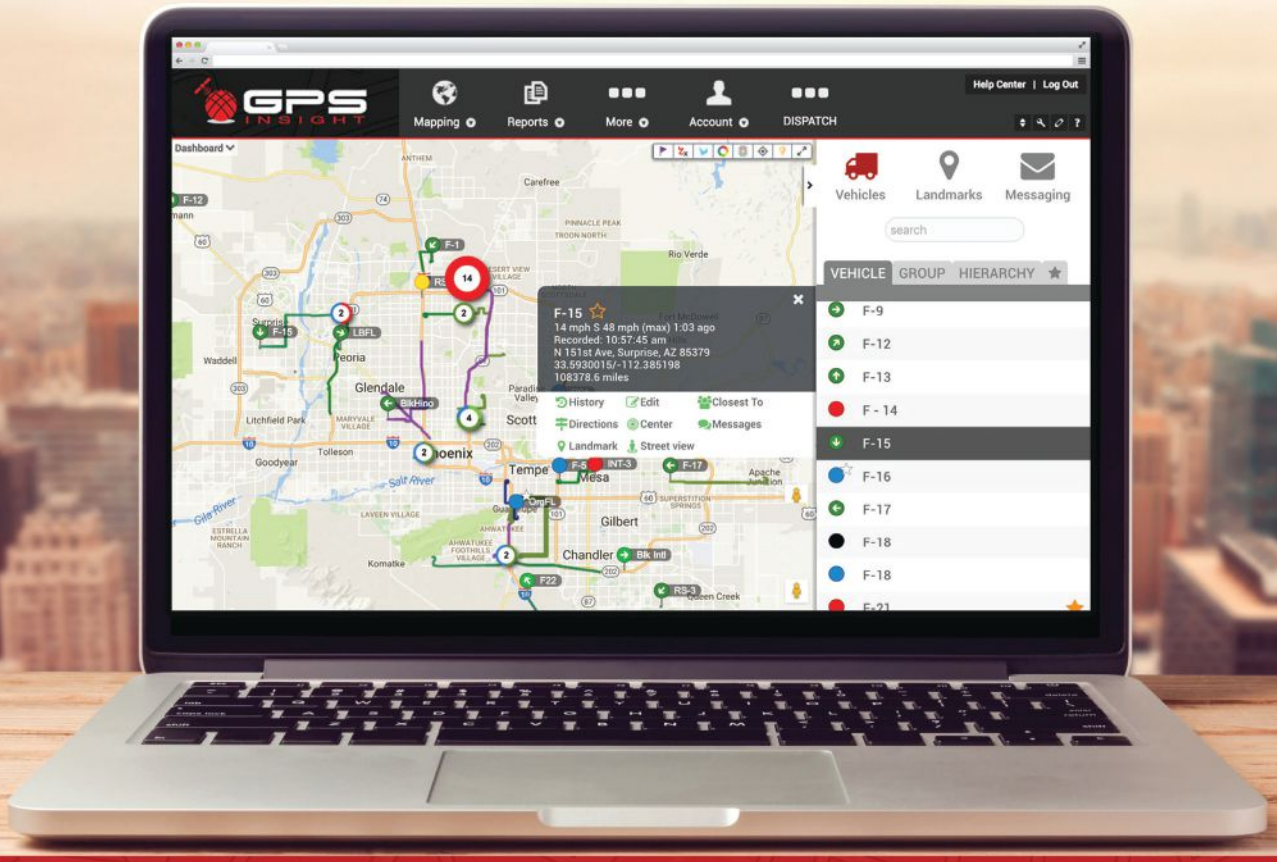
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Pettibone Announces Vice President & General Manager


Scott Raffaelli

Scott Raffaelli has been named the new vice president and general manager of Pettibone/Traverse Lift LLC. Raffaelli will oversee all company activities, including engineering, operations, sales and aftermarket. Raffaelli held several roles over the past 7 years, including vice president and director of manufacturing and continuous improvement, for the Pettibone Heavy Equipment Group, which includes Pettibone/Traverse Lift and two sister companies. Visit gopettibone.com.

Dynapac Road Construction Appoints President & Regional General Manager


Brian Bieller

Dynapac Road Construction has appointed Brian Bieller as president and regional general manager for North America to its new company structure. Bieller will be responsible for all road construction equipment operations within the United States, Canada, Mexico, Central America and Caribbean. His mission is to further develop the Dynapac business and serve its customers in the different regions, while establishing the new legal entities as operational units. Bieller will continue with his current mission and transition into the new role beginning in the second quarter of 2017. Bieller began his career in the construction rental industry and joined Dynapac USA in 1999. Bieller currently holds the position of vice president and business line manager for road construction equipment. Bieller has more than 20 years of experience within the construction equipment industry. Visit dynapac.com.

Autodesk Announces CEO Transition

Autodesk Inc. announced that Carl Bass has stepped down as president and chief executive officer. The company's board has instituted a CEO search to consider candidates inside and outside Autodesk and has formed an interim office of the chief executive to oversee the company's day-to-day operations. Bass will remain on staff as a special advisor to the company in support of the transition to a new CEO. He will continue to sit on the Autodesk board of directors and will be nominated for reelection at the 2017 annual meeting of shareholders. Crawford W. Beveridge will remain nonexecutive chairman of the board. The interim office of the chief executive will be headed by Amar Hanspal, senior vice president and chief product officer, and Andrew Anagnost, senior vice president and chief marketing officer, as interim co-chief executive officers. Visit autodesk.com.

Dexter + Chaney & Procore Announce Partnership

Dexter + Chaney announced that its bidirectional integration with Procore Technologies Inc. is now available to all users. The two companies began working together last year on the integration, with the goal of providing an integrated project management and accounting solution for the construction industry. That core integration is now complete and tested with client companies, meaning that users can now share relevant data between the two systems, while keeping specific processes and operations independent. Procore's cloud-based construction project management platform is an easy-to-use solution that automates project management tasks and creates a central hub for real time project information. Dexter + Chaney's Spectrum solution is a web-based ERP suite of applications for complete construction accounting. Visit dexterchaney.com.

Custom Equipment Appoints Director of Sales


Dan Schneider

Custom Equipment Inc. announced Dan Schneider as director of sales. Schneider focuses on continuing the growth and channel development of Hy-Brid Lifts, Custom Equipment's line of lightweight, low-level, aerial work platforms. Schneider comes to Hy-Brid Lifts with more than 25 years of manufacturing industry experience, which includes general management, sales and marketing management, business development, corporate planning and service distribution. Previously, he held vice president of sales and marketing as well as director of sales and business development positions with medium to large global manufacturing companies. Visit customequipmentlifts.com.

Bluebeam Names Interim CEO

Bluebeam Inc. announces the appointment of Chief Technical Officer (CTO) Don Jacob as interim chief executive officer. Jacob succeeds Richard Lee, who co-founded the company in 2002 and remained CEO following the company's acquisition by Nemetschek SE in 2014. After remaining at Bluebeam for the last 2 years to ensure the company's continued success, Lee has exited. Jacob provided technology leadership at Bluebeam from the company's inception, and has played a primary role in the evolution of the company's AEC-focused solutions from their first release, Push Button PDF, to the more recent introduction of the cloud-based collaboration subscription solution, Studio Prime. Jacob will retain his position as CTO during the transition period. Prior to joining Bluebeam, Jacob was director of software engineering at petsmart.com, and developed software at NASA Jet Propulsion Laboratory in support of the Mechanical Engineering Division and Deep Space Network initiative. The Bluebeam executive team will remain in place. Visit bluebeam.com.

Brokk Acquires Aquajet Systems AB

Brokk announced it has acquired Aquajet Systems AB, a manufacturer of hydrodemolition robots. The acquisition expands the application solutions offered by Brokk in the construction and demolition industry. Aquajet Systems specializes in concrete renovation by using high-pressure water jets to remove concrete without harming the underlying rebar or causing microfracturing. The innovative machines are ideal for a variety of selective demolition applications, including bridge and road repair. Both companies will maintain current management with the acquisition. Visit brokk.com.

Manitou Americas CEO Steps Down

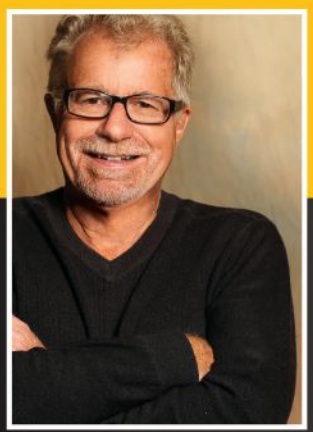
Manitou Group has announced that Daniel L. Miller, chief executive officer of Manitou Americas Inc. and president of the compact equipment product division, will step down. Miller will remain active to assist with the transition while the company conducts an external search and his successor is named. Miller has been the CEO of Manitou Americas Inc. since 2010. He joined Manitou Americas in 2001 as director of operations, eventually becoming vice president of operations. Manitou BF, SA acquired Gehl Company in October 2008. Miller has been active in several industry groups, most recently serving as a board member for AEM. Visit manitou-group.com.

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To submit a question, email Managing Editor Elizabeth Manning at emanning@cahabamedia.com.

Focus on a Safer Jobsite

What emerging technology should business owners invest in to improve jobsite safety?



STEPHEN JONES
Senior Director
Industry Insights Research
Dodge Data & Analytics



CHRIS MACHUT
Chief Technology Officer
Netarus LLC



ROCKY ROWLETT
Vice President of Safety
Faith Technologies

"One of the most overlooked technologies for improving safety is building information modeling (BIM). According to a study conducted by Dodge Data & Analytics in 2015, only about 38 percent of owners recognize that the use of BIM helps reduce reportable safety incidents on their projects. Certainly, BIM can be an effective tool for creating safety logistics plans. It also can be tied to electronics in personal protective equipment (PPE) to alert workers of their proximity to dangerous conditions that are identified in the model. However, its impact on safety can even exceed these direct uses. Owners and contractors alike in BIM studies conducted by Dodge Data & Analytics consistently recognize its importance to support a more collaborative, integrated approach to projects. The owner can be the most critical player to foster collaboration across the project team, through his/her choice of contracting methods and his/her own engagement with the project. In addition, owner engagement with BIM requirements from the start can create safety benefits far beyond the construction stage, through more effective engagement of facility managers as collaborators from early design. Owners can drive these benefits through clear BIM requirements that include tracking safety metrics on projects.

"In my realm of the industry, our focus is on situational awareness solutions for equipment operators and jobsite crews. Increasing situational awareness not only improves safety, but also the overall productivity of the team. Most of our solutions impact heavy equipment safety, such as telescopic cranes and boom cranes. One primary safety solution business owners should be implementing on their jobsites is visual aid technology, which includes camera systems, anti-collision systems, lasers and sensors—anything that gives the operator greater feedback about what is happening on the jobsite. By giving the operator more information about the jobsite, it enables him/her to make more informed decisions, which impacts everyone on the jobsite. The ability to quickly deploy these technologies in the ever-changing environment of a construction jobsite is paramount. The systems should be reliable and easily configurable. Visual aid technology should be durable, too, in order to stand up to the tough site conditions. Ease of use is also crucial—if the technology is difficult to deploy, it is not going to be used. In effect, this defeats the purpose of the technology and impedes the operator's ability to do the job right.

"Leveraging technology to improve jobsite safety can make a significant impact. At Faith Technologies, we have experienced this first hand. Safety is our top priority, and through our "leading with innovation" approach, we have identified opportunities to improve processes through tools, including BIM technology, Robotic Total Stations (RTS) and 3-D scanning technology. Through the utilization of these tools, our teams spend less time taking physical measurements at elevated heights. Within our prefabrication group, our employees also experience safer work practices as our virtual design and construction (VDC) detailers identify high-risk assemblies and workflow process improvements. For example, as our VDC detailers work with our operations personnel, they are able to identify prefabrication assemblies that could become safety risks to install on the jobsite. Once identified, our safety teams are then engaged to review the prefabrication assembly and identify ways to install it safely. We continue to explore opportunities to utilize technology for a safer workplace, ensuring each of our employees remains safe on the jobsite. Safety used in cohesion with technology continues to equal innovation and a happy, healthy workforce.



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Your Company's Top 5 Values

Defining the company principles that matter most to you



George Hedley CSP CPBC is a professional construction BIZCOACH and industry speaker. He helps contractors grow, profit, 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 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 Managing Editor Elizabeth Manning at emanning@cahabamedia.com.

Have you ever had an employee with a bad attitude who constantly complained about your company and its managers? Have you been part of a crew with a person who didn't work as hard as the rest of the team? Have you worked for a company in which one old-timer is not required to follow the rules or learn new systems and technology?

These people bring down the entire team and make work life miserable. To grow a thriving garden, you have to cut the irregular branches and trim dead wood to help other plants to reach their full potential. Similarly, with a team or company, everyone has to work together, follow the same rules and maintain positive attitudes to achieve the best results.

Making this happen takes a clear understanding of your company rules, the basic principles you stand for, the kind of employees you want and how you expect them to work together and treat your customers, vendors and subcontractors.

DEFINE YOUR COMPANY'S VALUES

What basic business ethics, intrinsic values and internal principles does your company stand for? A very important component of building a great company is defining, knowing and monitoring your business principles or core values. Some examples include:

- Your basic core values, beliefs and standards
- What really matters to you long term
- Your fundamentals, principles and guidelines
- What you stand for, driving forces and qualities

It is important to decide early how you want to treat customers and other companies in the construction industry. These basic principles will act as guides to keep you on the right track for future decisions, choices, dilemmas, personnel issues and challenges you might face. Your business principles will act as a filter when addressing employees who do not match your values, or dealing with customers who do not have the same beliefs as you.

For example, if one of your core values is consistent teamwork, keeping the employee with a bad attitude who disrupts the flow of progress does not fit with your company's principles. If one of your core values is accountability for results, and a foreman continually makes excuses for not meeting his project schedule or production goals, he cannot continue to work at your company without major improvement in his attitude and results.

If one of your basic principles is attention to detail, and an experienced superintendent regularly turns in long punch lists after every project, he should be given the chance to improve, or shown to the door if there is resistance. If one of your basic values is continuous improvement and willingness to change, and a longtime manager



is good at running and completing jobs on time, but refuses to learn new software systems or do paperwork according to company standards, he shouldn't be allowed to continue to hinder the overall progress of your company.

Having clearly defined core values will help you make good decisions about how to manage your company, people, priorities and projects. Following company standards means all employees follow all of the rules, not just a certain few.

Taking ownership of your company's core values involves telling the truth about the schedule and then doing whatever it takes to achieve the agreed-upon deadlines, instead of just telling customers what they want to hear. Achieving winning results means knowing the production budget and working hard to achieve it without excuses.

Decide early how to treat customers & other companies. These basic principles will keep you on the right track for future decisions, dilemmas & challenges you might face.

DRAFT YOUR CORE VALUES

Bring together your leadership team and begin a conversation to determine your company's overall core values and principles. Give everyone the following list of values to consider and ask them to select their top five.

__ Integrity and honesty
__ Customer-first mindset
__ Quality and attention to detail
__ Strong leadership and planning
__ Professional and competent
__ Competitive and motivated
__ Proactive about problem-solving
__ Winning, positive attitude
__ Accountable and responsible
__ Efficient and effective
__ Focused on teamwork
__ Systemized and organized
__ Adaptable
__ Continuous improvement
__ Decisive, disciplined and strategic
__ Dependable and loyal
__ Driven by results
__ Cares about jobsite safety
__ Fair and respectable
__ Innovative and creative

After your management team selects their top choices, tally them and then discuss which principles work for everyone and represent the real values of your company. Limit your principles to five or less to maintain focus on those priorities.

The following are two examples of companies that worked with their management teams to develop strong principles.

ACME CONSTRUCTION COMPANY'S CORE VALUES

1. *Integrity and honesty*—We do what we say we will do.
2. *Accountable and responsible*—We achieve results.
3. *Motivated and professional*—We are problem solvers.
4. *Safety and quality*—We are constantly focused on production.
5. *Continuous learning*—We are committed to achieve excellence.

EXCEL CONTRACTOR'S CORE VALUES

1. *Honesty and integrity*—We will be respectful and fair to all of our clients.
2. *Take ownership*—We will act to find a solution.
3. *Team players*—We have positive attitudes and we follow company standards and systems.
4. *Commitment to success*—We endeavor to exceed customer expectations.
5. *Character*—Above all else, we believe in being an ethical, dependable company that focuses on quality.

Now, it's your turn to develop your core values. Use them to make decisions on how you do business, treat others, act, operate, hire and manage your team. You can also add them to your employee review process and rate each employee to determine if they act within your values or need improvement. **CBO**

Gaining Direction with Data

How KPIs will drive organizational performance



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

The words "data driven" trigger a certain cringe factor. From the transparent e-commerce site that matches your favorite authors with new authors you might like to the businesses that capture your clicks, businesses are continuing to mine the available treasure trove of data to further their strategic aims. Consider the midlevel construction organization—what are they measuring?

Most likely, they measure profitability, safety statistics and collections. Is that enough in today's world? Do organizations need to up their game and follow their peers across the myriad of industries? Many firms lament the idea of connecting their vision or desired state with how they are currently structured and operating.

For instance, a firm might have a vision or mission such as, "We desire to be the leading specialty contractor in the New England marketplace." No one can argue that this hits all of the major bullets for a textbook vision. However, visions and missions often die on the vine when they lack the right objectives or key performance indicators (KPIs) to drive them further. Leading, superior or best-in-class are all outstanding superlatives to drive performance, but they lack specificity. Does "leading" define market share, productivity, profitability, customer service and a strong team? All of these may be correct.

In some cases, firms use their core values to supply stronger connective tissue to the goals. However, without objectives or KPIs, firms will often suffer like a team without a scoreboard. Ultimately, how does the team know if they are winning?

DEFINING THE VISION

Visions can be ambiguous. In the end, there has to be some series of metrics to help define success. It is important to not fixate on one metric or KPI. Think of it like a health panel screening. Weight, cholesterol, body mass index (BMI), blood pressure and sugars are all health KPIs that define a healthy lifestyle. You can have great blood pressure and also have a BMI that is out of sync. A firm must look across several parameters to define success.

CONNECTING THE DOTS

A firm may have objectives and KPIs, but how do those cascade through business units and to the individual? The key word is alignment. For instance, it would be naive to expect a firm that solely compensates its associates based on project profitability to live out a vision that espouses customer service, integrity and team orientation. While there are plenty of altruistic individuals that can do both, the vast majority of employees will maximize personal gain at the expense of the organization, leading to a misalignment. More importantly, the organization will struggle with credibility and image. There must be connective tissue to link each piece of an organization. The firm



is focused on overall efficiency. As a self-performing, labor-intensive contractor, this should be easy to measure. However, the firm is looking at the major heading of "efficiency." Within the business unit, they are focused on an element of efficiency, perhaps "prefabrication for their Commercial HVAC Business Unit." Lastly, the individual project manager or superintendent is tasked with measuring, tracking and adhering to the tenets of productivity through all direct labor on his/her project.

UPSTREAM & DOWNSTREAM

KPIs are multidimensional. For instance, the main problem with measuring safety and profitability is that they are often snapshots in time. For one firm, there were two lost-time incidents and the project spent $30,000 last month. KPIs must measure the upstream and the downstream. The same principles apply in the previous health example. Stepping on the scale every week is the equivalent of looking at the financial statements at the end of the month. It is important to study a firm's financials, but isn't it more important to drive the behaviors that influence a project or firm's performance? Rather than just stepping on the scale, it is equally as important to measure diet or exercise. The same can be said for a firm. Measure the processes that drive the vision. Examples of upstream KPIs include:

- Employee satisfaction
- Employee attrition
- Safety inspections/training
- Employee training hours
- Promotions
- Internal networking events
- Succession targets
- Productivity targets
- Punch list

Examples of downstream KPIs include:

- Safety Incidents
- Customer satisfaction rating
- Repeat business
- New business
- Market penetration
- Relationship matrices
- External networking events
- Contract delivery blends
- Profitability
- Collections

MODIFYING BEHAVIORS

A famous management guru that once said, "To manage something, you must measure it." Striving to become the leading contractor is an empty target without something to make it tangible. One of the great visions from the last 30 to 40 years was Nike's slogan, "Crush Adidas."

While there are not too many examples of contractors publicly trolling their competition, this visualization was magnificent. It also worked well in light of the market to which Nike was selling. Consider your team. How do you motivate them to light up the scoreboard and achieve their individual and corporate goals? How often do they see the scoreboard? How often is the data updated? Is the team seeing a stale version of the scorecard or live results? Consider broadcasting the score at corporate meetings, corporate bulletins or on live feeds on televisions throughout an office. There is no single recipe that works for every firm. The only inalienable truths are transparency of data, the frequency of the data received and the relevancy of the data. **CBO**

	Sales/ Marketing	Operations	Financial Benchmarking	Growth
Firm	Brand image Customer feedback	Organizational efficiency Process compliance	Collections Net profit	Annual growth New business
Business Unit	Sector image Customer feedback	Prefabrication efficiency Sector productivity	Collections Market sector profitability	Market sector penetration New customer acquisition rate
Long	Personal performance Marketplace image	Project productivity Quality control	Collections Gross profitability	Personal development Internal promotion

Figure 1. Vision: To become the leading contractor in the southern United States

5 Reasons to Increase Collaboration

Improve your bottom line with mass communication software

BY BRETT ANDREW

Successfully operating your construction business means keeping a keen eye on every aspect of your operations, especially the way you and your team communicate around critical events. A strong communication plan, coupled with the right collaboration technology, can improve four major areas of your business: worker safety, scheduling, job management and emergency response.



ENHANCE WORKER SAFETY THROUGH REAL-TIME COMMUNICATIONS

All companies must provide a safe working environment for every employee. The Federal Occupational Safety and Health Administration (OSHA) sets forth regulations that companies must follow to keep employees safe. These regulations should also extend to your remote or traveling employees as they move from jobsite to jobsite. While your team can control many of the potential hazards common to your business, there will be incidents that require immediate, clear communication to preserve the safety of your team. Take the example of a ready-mix concrete business owner who uses a software platform that combines multichannel messaging and monitoring to keep employees safe and informed. Cloud-based mass communications technology enables organizations to seamlessly send and receive notifications, using any device and any channel.

"There are group text message services available, but what is unique about the system we use is our ability to communicate across multiple platforms—voice call, text message and social media, for example. I can create common events and reuse them so I don't have to start over every time I need to send a message," said Logan Owens, CEO of Tex-Mix Concrete, a Texas-based company that supplies ready-mix concrete for residential, commercial, industrial and government projects. Tex-Mix employs nearly 200 people, and uses its communications platform to push information to all of its drivers and employees.

SCHEDULE CREWS WITH THE PUSH OF A BUTTON

Traditionally, construction companies have struggled to coordinate their crews and vendors. With needs and resources scattered across various jobsites, there is a real challenge to keep to a schedule, particularly with unforeseen weather, material delays or permitting holdups.

"The schedule changes constantly, and if it rains, the schedule changes even more," said Owens when describing how his company delivers concrete to a job. "On my way home, I might receive a call changing our entire night schedule. Using the mobile app, I can pull over and notify 65 people across three divisions within minutes of

getting that call, without ever opening up my laptop."

MANAGE JOBS EASILY

You must be able to readily reach and interact with each location and specific people at each jobsite. It is not enough to reach just one person and expect that person to relay an important message accordingly. That is inefficient, and your business cannot afford the lost time. Alternatively, a message might not be intended for everyone, so a bulk message to the entire team will contribute to the noise, not to the solution.

IMPROVE EMERGENCY RESPONSE WITH TWO-WAY COMMUNICATIONS

Disruptions in business can lead to major costs, which only increase with the time it takes for the business to communicate in an emergency. A strong communication structure will help your business decrease downtime during an emergency because you will have the ability to spread the word and react more quickly. In turn, a quick response helps your organization mitigate loss during an event, while reducing the cost to restore business continuity. You can amplify communication effectiveness by giving your employees a voice. Don't just broadcast notifications—have a conversation with your people, take advantage of their proximity to an incident and learn from their frontline perspective.

"If there's an accident, I can easily find the closest manager to the scene. It is an easy way for the managers to communicate and confirm who can go to the scene and what is going on when they get there," said Owens. "The app allows us to send those employees a text and voicemail with the appropriate information, and employees can acknowledge they received it."

BUILD A TRANSPARENT BUSINESS WITH ENGAGED EMPLOYEES

While mass notification software does not solve all problems for a construction company, it can be combined with a communication plan to provide measurable value. A Towers Watson study found that companies with strong internal communication practices "enjoy 47-percent higher total returns to shareholders compared with the firms that are less effective at communicating." Give your business an advantage by effectively communicating with your jobsite crews, no matter where they are. CBO

Brett Andrew is vice president of sales and marketing for AlertMedia, a mass communications provider offering a software platform that combines multichannel messaging and monitoring to keep people safe, informed and connected. Contact Andrew at brett.andrew@alertmedia.com or 800-826-0777. Visit alertmedia.com.





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The New Age of Employee Supervision

3 industry innovations that allow for more effective workforce management

BY BOB DRAINVILLE

Unlike employees in other industries, who increasingly can do their job from any place with an internet connection, construction workers still need to be in a certain place at a certain time to complete their work. In that way, the industry is still largely the same as it always has been. And yet, in other ways, technology is allowing employers in the building trades to dramatically change the way they manage their mobile workers. Technology can play a key role in helping builders confront one of the greatest issues facing the industry: the persistent labor shortage. The small pool of skilled workers in the field has led to employers who struggle to staff jobsites and have to dig deep into their pockets to recruit and retain top talent. The emergence of several solutions in recent years has created boundless opportunities for companies to minimize costs, reduce time and money spent on paperwork and effectively manage their jobsites.



DRONES

Builders are beginning to deploy unmanned aerial vehicles (UAVs or drones) both as a substitute for and a supplement to skilled employees. The use of drones in the industry is still in its infancy, but there are already signs of the efficiencies drones will bring as they become cheaper and more widely used. By flying over a construction site, a drone can quickly gather valuable data much faster and with much greater precision than a human surveyor, allowing builders to more accurately forecast the project timeline and any issues they might encounter. Drones can also be immensely helpful in reducing the high rate of injuries and fatalities in the construction industry by allowing workers to forgo tasks that put them in harm's way. The savings drones may soon represent for the industry are enormous. In a 2016 report, PricewaterhouseCoopers (PwC) estimated that the drone industry would be worth $5 billion by 2020 and estimated the value of the labor and services that drones will replace at $127.3 billion.

TIME TRACKING & GEOFENCING

The benefits of time-tracking apps are well known and highly regarded. Gone are the days of hardwired time clocks or sign-in sheets at various locations. Supervisors are now immediately notified through the app if everyone is at work, on break or working overtime hours. In an industry as variable as construction, time-tracking applications are most useful if they are coupled with GPS-enabled, geofencing technology. Increasingly, employers are able to easily set up a geofence around a jobsite, which notifies the company when a worker enters or leaves the site. The result is effective prevention against erroneous or fraudulent

timesheets. Rather than spending countless hours calculating payroll based on a mountain of timesheets or paying dearly for a bookkeeper to do the same, an employer has an accurate, real-time flow of information from the employee-tracking application that lets him/her assess the productivity of different jobsites, as well as foresee and prevent unnecessary overtime costs.

Employers must be sensitive about how their employees will regard new technology, particularly any new tools that are aimed at more closely monitoring them. Mobile apps that track worker locations constantly are a smartphone battery drain and an invasion of privacy. The only information the app needs to have is the location and time of when someone punches in and out of a shift. Geofences are not just about monitoring people. They are also an effective means of surveilling the millions of dollars of equipment that many construction employers oversee on the jobsite. Geofences can be activated as soon as valuable machinery leaves the jobsite, immediately informing you and your site supervisors.

PROJECT MANAGEMENT

With employees working across multiple jobsites, making sure that everyone is on the same page is paramount. To make sure that your teams have what they need to get things done efficiently, project management tools can help share live project information by keeping daily logs and records of various activities and documents. Project management software is typically available on desktop and via a mobile app, so that everything is in one place, reducing the need for back-and-forth emails and phone calls. The current increase in the volume of construction projects means that these tools are a necessity to manage both your employees and your workflow.

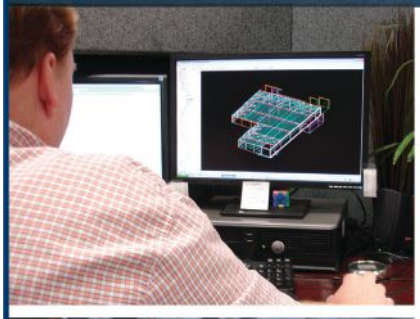
Technological advancements are not only impacting how construction firms manage their on-site workforce, but also the way in which their many office employees work. Now that employees can be connected to their colleagues 24/7, construction leaders can rely more on the latest innovations to communicate effectively with teams. Managing workers in the construction industry is certainly no easy feat. But there are also plenty of reasons to be excited about transformative changes on the horizon, thanks to the latest and greatest technology available. **CBO**

Bob Drainville is the president of Timesheet Mobile, a GPS-enabled time tracking and scheduling company that helps businesses manage their mobile workforce. Timesheet Mobile's solutions are used by thousands of people worldwide, in industries as diverse as construction, transportation, healthcare and many others. Visit timesheetmobile.com.



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An Atmosphere for Invention

Autodesk BUILD space offers industry startups an environment for innovation

BY ELIZABETH MANNING

Every business owner knows that to be successful, you must always be on the hunt for advances in technology and innovations that help you run a better business.

However, an idea is no good without the resources necessary to bring that idea to fruition as a real, usable solution. The team at Autodesk is helping provide those resources by offering a tangible space and the tools needed to create new solutions for the architecture, engineering and construction (AEC) space.

CBO caught up with Rick Rundell, senior director, technology and innovation strategist at Autodesk, to learn more about Autodesk's BUILD space in Boston, Massachusetts. Rundell, a LEED-accredited professional and registered architect, joined Autodesk in 2002 as the director of product marketing.

Over the years, his roles have included launching and evangelizing building information modeling (BIM), introducing conceptual design and environmental analysis tools, driving cloud and mobile solutions for construction and developing a collaboration and data management portfolio. Read his insights below.

CBO: WHAT IS THE BUILD SPACE?

The Autodesk BUILD Space (Building, Innovation, Learning and Design) is the first of its kind: a 34,000-square-foot research and development workshop committed to exploration and innovation around "making" in the building and infrastructure industries—fabrication and construction. We host partners in academia, industry and practice. It is a research and development workshop for digital fabrication, design robotics and industrialization in the construction industry. One year ago, Autodesk moved its flagship East Coast office to Boston's Seaport Innovation District to be in the heart of one of the country's most innovative entrepreneurial cities, with a vibrant startup community, the world's best universities and colleges, a large talent pool and a facility robust enough to house the new BUILD space. Importantly, Autodesk was searching for a space with a unique





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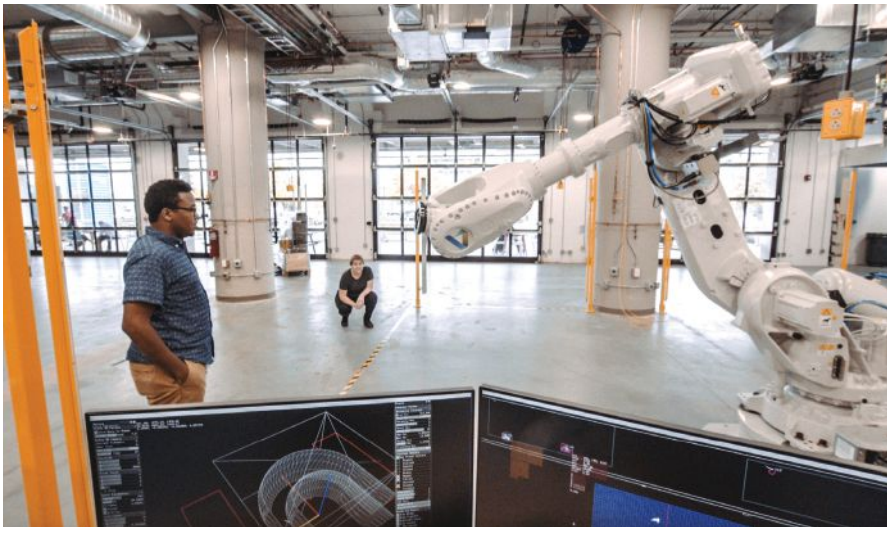
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FRED ODE
CEO/Founder



Through conversations with customers, we came to realize that there was no space dedicated to fostering a collaborative environment that expedited innovation for makers.

industrial environment, the ability to physically support heavy equipment and material used in construction, a creative community of innovative tenants and proximity to other companies, collaborators and resources. The BUILD Space provides its "BUILDers in Residence (BIRs)" a community of experience and resources to support their ideas. Additionally, teams do not pay an entry fee to use the space, while receiving access to advanced equipment and training, and access to Autodesk personnel and industry leaders and peers.



CBO: HOW DID THE IDEA FOR THE BUILD SPACE COME ABOUT?

As a company focused on making, we recognized the need for a place that would advance our industry. Through conversations with customers, we came to realize that there was no space dedicated to fostering a collaborative environment that expedited innovation for makers. The BUILD Space is the AEC industry's place to do that by connecting industry practitioners, entrepreneurs and academics with the materials and machinery necessary to make their ideas and solutions a reality.

CBO: EXPLAIN THE IDEA OF A 'COMMUNITY OF INNOVATORS.'

The two floors of the BUILD Space support research and project teams, as well as startups. It provides space for large project work and workbench areas, access to advanced fabrication machinery and augment reality (AR) and virtual reality (VR) equipment and access to expertise and training. We provide space for teams to collaborate, experiment and build for the days, weeks or months it might take to complete research or a project. Teams have access to 11 dedicated workshops—wood, metal fabrication, composites, 3-D printing, laser cutting and even a 5-ton bridge crane for large fabrication projects and moving equipment. The BUILD Space houses 60 pieces of large-format equipment, including six industrial robots, a CNC router and a waterjet. Most teams from academia, industry and startups don't have access to this type of equipment and training.

CBO: CAN YOU DESCRIBE A FEW PROJECTS OR INDUSTRY SOLUTIONS THAT HAVE COME OUT OF THE BUILD SPACE THUS FAR?

1. As one of the first startups to join the BUILD Space, Pillar Tech's (pillar.tech) on-site sensors monitor construction sites for destructive environmental conditions, such as fire outbreaks, high humidity exposure and mold growth. By preventing these damages, general contractors and insurance companies cut costs significantly.
2. Elkus Manfredi Architects (elkusmanfredi.com) is a full-service design firm providing architecture, master planning, urban design, interior architecture, space planning and interior design. They currently use the BUILD Space to prototype historical preservation details and processes for local development projects.

CBO: HOW CAN BUSINESS OWNERS AND MANUFACTURERS GET INVOLVED?

We review and accept applications from research and project teams and startups in the building industry on a rolling basis. Those interested in applying to our BUILDers in Residence program should apply through the Autodesk BUILD Space website, autodeskbuildspace.com. We invite anyone to stop by for a tour of the BUILD Space. We offer regular, weekly tours of the facility. We are also happy to provide more customized tours on a limited basis. **CBO**

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



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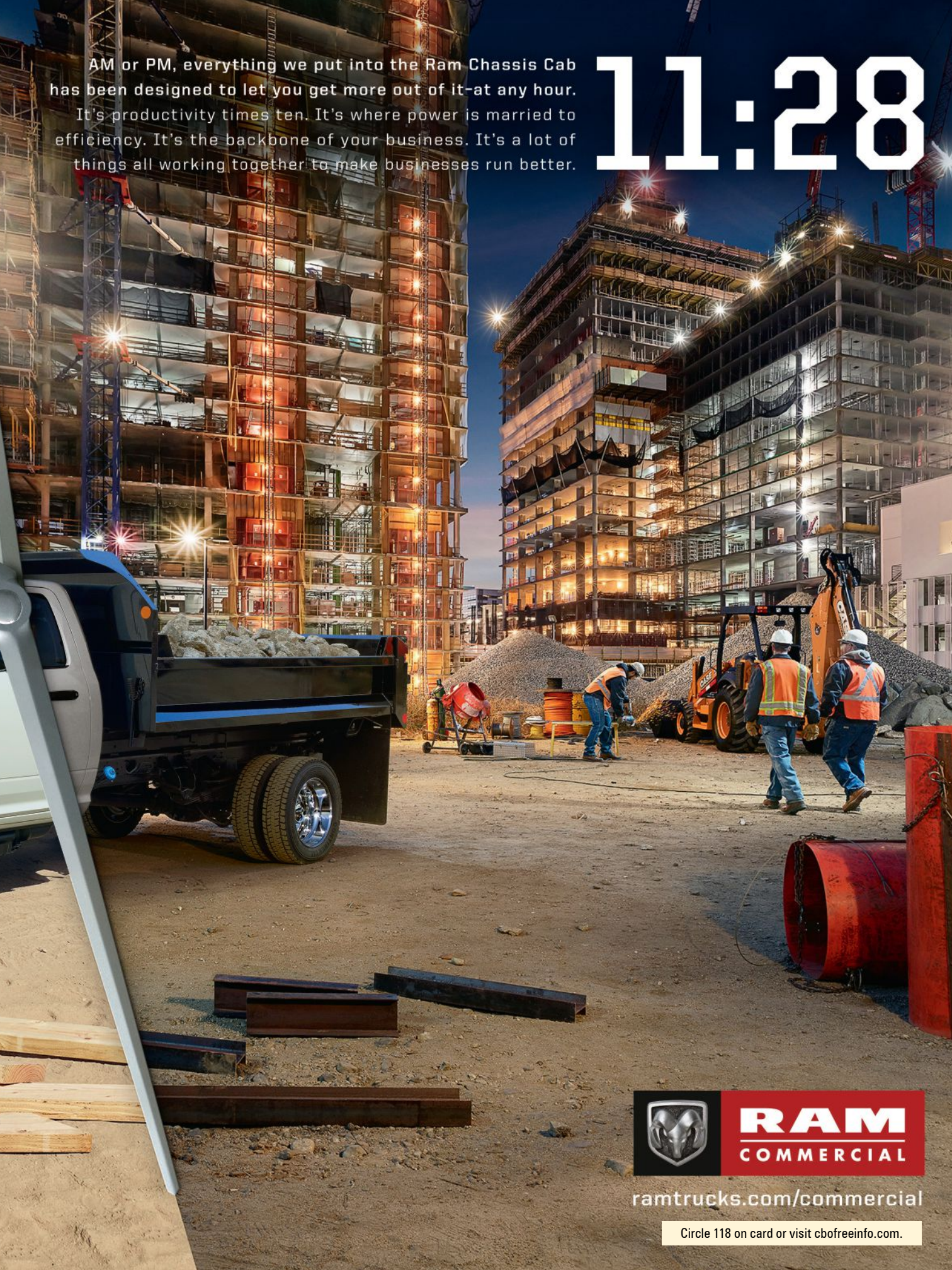
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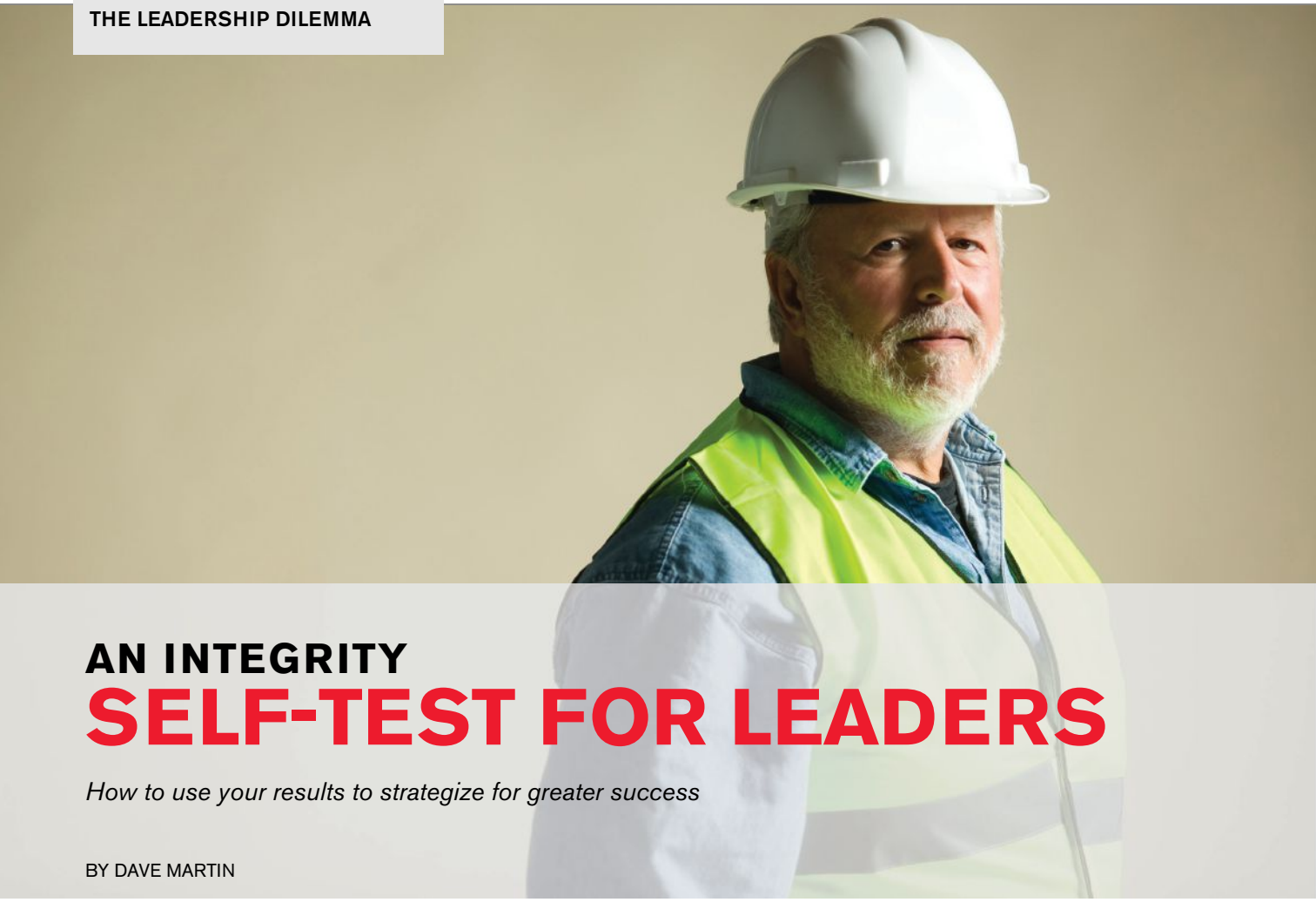
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AN INTEGRITY SELF-TEST FOR LEADERS

How to use your results to strategize for greater success

BY DAVE MARTIN

It is essential for every leader.
It cannot be bought.
It cannot be delegated.
It is recognized across all cultures, races and eras.
It is wholly unassociated with economic status.
It is the ultimate measure of a leader.

Although many people struggle to define integrity, most everyone can recognize it. You know someone you trust completely. You know someone whose word is their bond. You know someone who would tell the truth, would stand by their promises and would keep their agreements, even when it hurt them. Integrity is doing the right thing. The question we all ask ourselves is, "Am I that someone that other people think of when asked to name a person of integrity?" The following test has five questions to ask yourself. The answers are for you alone, and the only way the test will work is for you to answer the questions honestly and transparently. As you read the following questions, if you begin to think that your initial personal integrity evaluation was a bit too optimistic, do not despair. Integrity is built over a lifetime of doing the right thing. Appreciate that your attention has been drawn to these areas, and let it make your future decisions more intentional. How would you react in the following scenarios?

1. You have just heard a compromising, but unfounded, piece of information about an employee in your office who has the position you desire. Should he move on, there is a strong possibility of you being promoted to his current position. This move would almost double your current salary. Furthermore, you have never liked the guy. Do you casually share the gossip?

The supreme quality for leadership is unquestionably integrity. Without it, no real success is possible, no matter whether it is on a section gang, a football field, in an army or in an office.

Dwight D. Eisenhower

2. You were delayed at the office, and then you were stuck in traffic for an extra 45 minutes. You have a pressing dinner engagement. As you walk in the door, the phone rings and your child says, "It's for you. It's that insurance guy that talks forever!" You say, "Just tell him I was delayed, and I am not home yet." Yes or no?

3. You have a small team of direct reports, and you are responsible for their reviews, salary raises and bonus amounts. Last year, you told an employee on your sales team that if she doubled her sales in the next year, you would double her bonus. To your surprise, she showed up at today's review with a documented increase in sales of twice her number from the previous year. Although you clearly have not kept up with her monthly sales, you do know that the bonus amount you were allocated is not enough to cover her increase without decreasing your own. Do you explain that you are delighted with her work, promise great things in her future and give her a moderate increase? Or do you keep your word and double her bonus, even though you are personally left with a fraction of what you had anticipated?

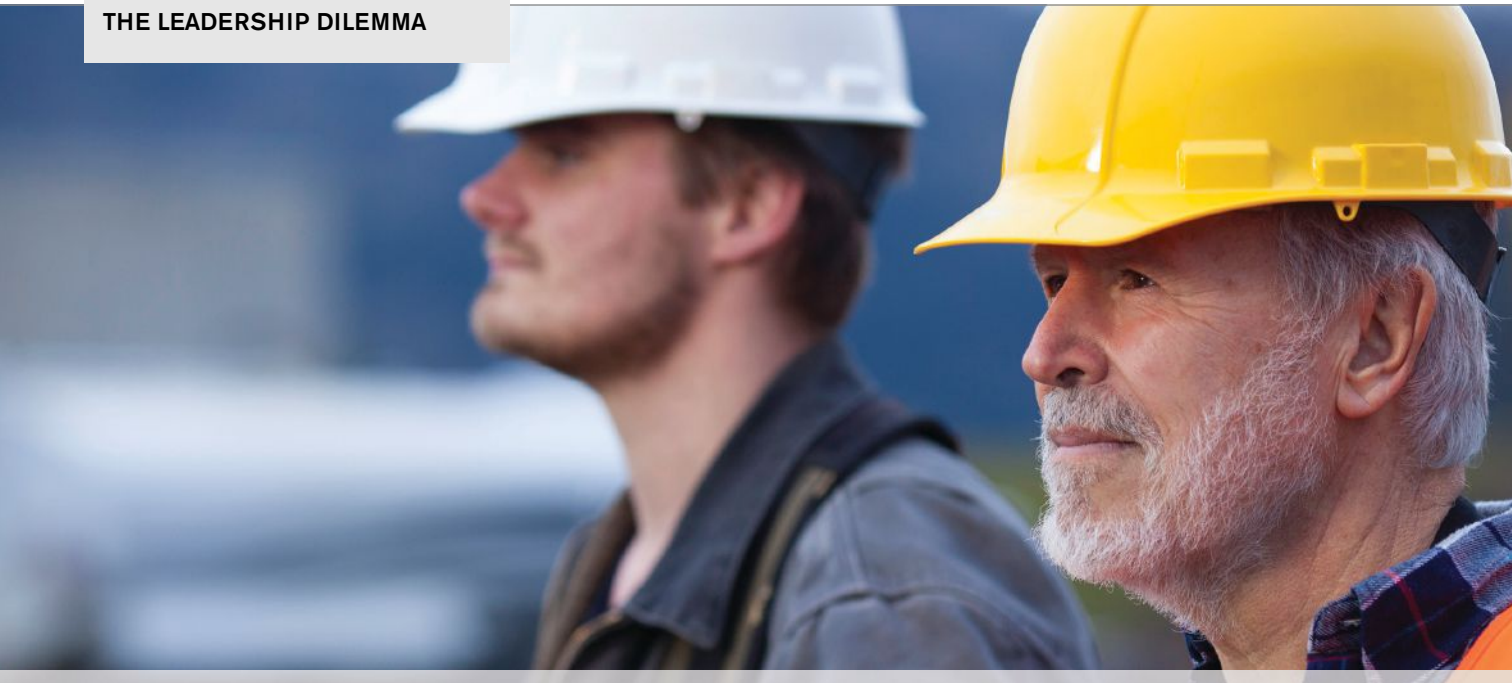
4. On your way back to the office from an early meeting, you stop for coffee. The line is long, and by the time you get your latte, you sincerely wish you had opted for the drive-through. You hand the barista $20, and she gives you the change. As you are leaving, you realize that instead of giving you $10 and change, she mistakenly gave you $20 and change. Do you go back to return the extra $10, or do you consider it your lucky day?

5. Your child desperately wants to play in the city soccer league, and the teams are based on your geographic location. The team roster for your area is full, but the team where your sister lives has one remaining opening. Do you put her address on the application so your child can play soccer this year?

Integrity is a quality of being—not of doing—but the great paradox is that it is completely based on what one does. It has been said that unless a leader has integrity, he/she is simply a manager. This statement may be viewed through many lenses, but the true determination of a leader is in the loyalty of his followers. Integrity is an essential part in engendering that willingness to follow. Having integrity means doing the right thing, every time. Great leaders have integrity. This means they will do exactly what they say they will do. Circumstances may change and new situations may arise. Nevertheless, the best-in-class leader will keep his word. He/she will not compromise his/her principles for convenience or advantage. So, are you a leader of integrity? CBO

Dave Martin is a speaker and the international, best-selling author of "12 Traits of the Greats" and "Another Shot." For over 25 years, Martin has been a mentor, inspirational speaker, coach and business leader. Using these experiences, Martin shares timeless truths, teaching people how to pursue and possess a life of success. Visit davemartin.org.





EASY TRANSITIONS FOR YOUR COMPANY'S NEXT OWNER

Why your business might be worth more without you

BY JOHN HAMEL

Usually, business owners start their companies on their own or in a partnership. The foundation of the business lies in the ingenuity and creativity of the owners. The value that the owner brings to his/her business eventually fades, but it's not always for the reasons you might think.

A few years ago, while working with a client, I was surprised to hear that the owner was facing liquidation after being unable to sell the business over a 2-year period. There had been a significant number of available buyers, but certain internal issues were forcing liquidation. After investigating the various issues in which a company's value is decreased, I have found one prevalent problem that often discourages potential buyers: the company's overdependence on the owner.

For example, one midsize company (about $40 million and approximately 40 employees) was facing stress and getting close to burnout. The owner said he wanted to scale up his business and increase the capability for decision-making to happen lower in the company. His perception was that he didn't have talent that was capable of greater autonomy. What he needed was a way to hire and develop people to scale the company's functions and increase its value. This dependence on an owner and his/her inability to transfer leadership abilities within the company can lead to a number of significant problems. One such issue is a discount in sale price, or the ability to finance the sale with a buyer, which could require that the owner stay on for a period of time after the sale and a promissory note, with the remaining price contingent on the future success of the business.

In another example, a small company (about $3 million and seven employees) was dependent on the owner for almost every major decision. Because buyers often require company-dependent owners to stay on to transfer his/her skills to the new ownership, a promissory note was required to close the deal. The promissory note required that the owner stay with the new company for a period of 4 years after the sale date. Additionally, 65 percent of the sale price would be paid in a lump sum in year four, but was contingent on how many customers continued doing business with the new company and on revenue targets achieved over the following 4 years. As is often the case, because the new owner was less experienced than the previous owner, this

arrangement set up a number of struggles between the new owner and previous owner.

Almost 1 year after the sale of the company, the new owner became impatient with the status quo and started making changes that he felt would make the deal fit his own purchase agenda. However, the previous owner was reluctant to change his old methods because he didn't want to risk his balloon payment on a new idea from a less experienced owner, especially with 3 years still remaining in the deal. This caused a verbal tug-of-war between loyal employees to the previous owner and the new ownership, who now paid their checks.

Throughout this chaos, three valuable employees were lured away by competitors, all within a 6-month time frame. By then, a number of customers heard about the issues and decided they also did not want to be involved with the new company, and signed on with competitors.

While an owner is an asset in the early to later years, buyers require that when the owner sells the company, the value of him/her has to remain with the company in some way. Buyers do not want to buy an asset that disappears, whether it's an owner on which the company is too dependent, or it's a situation in which the employees cannot identify who the boss is during the transition to the new owner.

If a current owner wishes to maximize the value of his/her company, he/she should decide to continue working for the new owner, according to an agreement, or the current owner should spend time prior to his/her exit from the company to transition his knowledge to a key employee or employees. If the owner decides on the latter, then the owner must work himself/herself out of his/her role, so that the business is valuable without him/her. If the owner avoids being required to stay on as an employee of the new company after the sale, then many of problems mentioned above can also be avoided.

When the owner can hand off a well-run company and step back from day-to-day operations, he/she will enjoy more of a work/life balance and present a potential buyer with a more confident picture of a high-value company.

For more insight on this issue, read books like "Exit Signs" by Dr. Pamela Dennis or "Finish Big" by Bo Burlingham. Both books are great resources to help you plan for the endgame. Most resources and experts in the construction industry suggest that current owners should start preparing 5 to 7 years before they are ready to move out of their current role. CBO

John Hamel is the managing member of Austec Business Transitions LLC. Hamel has owned two microbusinesses, worked in corporations, such as GE, and worked in privately held businesses with roles from janitor to executive. Visit austecbt.com.



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PERFECTING THE IMPERFECTIONS

When to build on a candidate's positive attributes & when to let them go

BY TAMMARA SUTTON

Perfection is the absence of flaws and defects. Perfection has no gaps. Perfection needs no renovation. But perfection also lacks stability because it assumes that someone or something was always free of errors. It fails to recount the point at which that someone or something became perfect. And if it became perfect, was it really ever perfect at all? The fact of the matter is that perfection is nonexistent in the construction industry.

The nature of constructing and deconstructing until an object reaches the point of improvement from its original state is exactly why buildings keep going up and buildings keep coming down—it is cyclical. Frankly, construction proves Newton's Third Law of motion: For every action, there is an equal and opposite reaction. Imperfection drives construction, and without it, this industry wouldn't be lucrative.

As construction business owners and employees, our goal should be finding a way to make things better because we recognize that there is strength in growth. This notion is what drives construction talent acquisition and serves as the foundation for finding and building successful construction leaders.

The construction of talent is an ideology that transformed the way I view talent acquisition. Many times, I have found a candidate that was almost right for the position. For example, one project manager had 2 years of experience, was eager to learn, was a go-getter and was passionate about construction. She was an exceptional communicator, great at project scheduling and had reasonable salary requirements that matched what the company was willing to pay. There was one problem, though. She was weak in processing certain financial orders and needed guidance throughout the financial review process.

A project manager who doesn't know how to manage finances is frequently given quick directions to the exit, without so much as a second glance. This is where today's operational dilemma comes into play. Hiring managers think, "It costs time and money to train this person; we could find a project manager who has all of these attributes and skills and not have to train them," or, "If we pay the money for her and she is lacking in x, y and z areas, then we should hire someone lower-level, train him/her and cut overhead by paying him/her less than what she would be offered."

When businesses are driven toward achieving their vision & are relentless in the pursuit, they look for people who also share the same passion & drive. That passion & drive is what started the business & it is what will continue to move the business toward pursuing a higher purpose.

You can play the comparison game all day, but it all depends on where your company decides to place its value. If you place value on training and development, then eight times out of 10, you will be okay with developing this project manager because you know that one day soon, she will be great.

After all, she has the passion and drive, which is something that many people are missing. But if your company decides to spend more money on the seemingly perfect candidate who checks all the boxes and whom you won't have to spend much effort training, then that's great. However, let's see if that person can actually perform.

I have nothing against the perfect candidate. Just remember that searching for perfection in a person is not sustainable or realistic. You may win a couple of times, but eventually, that well begins to run dry. In the candidate pool, every person is working on themselves, both personally and professionally. People have gaps that they are trying to fill, and organizations are no different.

Organizations aren't just this systematic ambiguity of services, processes and money. Organizations are comprised of people who are working on the company itself and attempting to fill the gaps. Candidates are trying to find the right position, at the right time, that will help them grow and improve themselves. Inversely, organizations are trying to find the right person that will help them grow and improve the organization overall. Simply put, organizations and candidates just live on opposite sides of the mirror. When these parallels collide and you focus on growing talent, your organization just found another appreciable employee.

Times are changing, though. Now, hiring managers are transforming their perspectives and starting to view candidates as having the potential for greatness. Second glances are being given to deserving candidates. After all, great leaders are made, not born, right? Aside from believing in a candidate and giving him/her a chance, there is another key to utilizing this notion of constructing talent.

To achieve success, there must be a partnership between the executive team and the talent acquisition team. Many business leaders may question, "What does human resources know about whom I should hire?" If you have a strong talent acquisition team, they know the business, understand the workflow and follow the company's strategic direction, know budgetary information necessary to create financially-savvy staffing plans and recruiting strategies and regularly conduct a needs and skills gap analysis to know how many new staff are needed, what skills the current staff possesses and what new talent is needed in order to help the business improve long term.

Human resources (HR) also knows what other companies are competitively offering their employees, which is something that business leaders are often blind to because they are seated so firmly within the organization. HR partners with the business in order to provide strategic value. What does HR know about the business? HR knows that people drive the bottom line. They are investments.

As Renee West of Luxor and Excalibur Hotel said, "You can have the best strategy and the best building in the world, but if you don't have the hearts and minds of the people who work with you, none of it comes to life." People are human capital, and their knowledge has the most lasting value to your company. When HR and business leaders work together, they can build talent in the vision of where they are steering the company.

When businesses are driven toward achieving their vision and are relentless in the pursuit, they look for people who also share the same passion and drive. That passion and drive is what started the business, and it is what will continue to move the business toward pursuing a higher purpose. When you have employees who value excellence in everything they do, then building them to be great will prove to be of tremendous value for your organization.

Talented people are not perfect, but they are convicted and dedicated to a future goal. Talented people have an unrelenting desire to be better, and when they merge with an organization that is not afraid to build them according to this greater purpose, the organization begins to see the true significance of constructing talent long term and improving on any imperfections. **CBO**

Tammara Sutton is a talent acquisition and development specialist at Donohoe Construction Company in Bethesda, Maryland, with 3 years in the human resources and recruiting fields. Sutton graduated from Georgetown University with a master's in human resources management: diversity and inclusion. Visit donohoe.com



Educating Equipment Operators

7 critical jobsite safety considerations for compact equipment

BY JASON ARCHBOLD

Although recent technological advancements make it easier to operate compact equipment, that does not mean these technologies can replace proper equipment training for your operators. Educating your employees is an important first step to ensuring everyone stays safe on the jobsite, while also maintaining efficiency and machine integrity. Before your operators use compact equipment, make sure they follow these seven proper operation and maintenance tips.



1. LEARN BASIC OPERATING PROCEDURES

All equipment operators learn differently, so it is important to have various means of training and resources available. Whether it is classroom or hands-on training, all compact equipment operators need proper education and a general understanding of basic operating procedures before using a machine. Reviewing the manufacturers' operation and maintenance manual is an important first step. The manual serves as a primary guide for proper compact equipment operation and maintenance. Trained and authorized operators should follow all safety rules, regulations and instructions when operating equipment. If you have misplaced your manual, contact your local equipment dealer and ask for a duplicate copy. Digital copies may be available for easy access. Additionally, safety and instructional decals should be reviewed prior to operation and maintenance. These decals are strategically placed on the interior and exterior of compact equipment for quick reference. Any decals that become worn, damaged or missing should be replaced by your local compact equipment dealership. Operators can also refer to the Association of Equipment Manufacturers (AEM) safety manuals, which are available in print or digital formats and serve as complementary references on proper operating practices. Some compact equipment manufacturers provide additional resources, such as training and service safety training course kits. Kits help educate operators on how to efficiently and safely operate equipment. Most kits also include a DVD with videos for individual or classroom instruction.

2. UNDERSTAND THE BASIC SAFETY GUIDELINES

Safety manuals educate operators on universal safety guidelines that can keep them safe on active jobsites. Wearing protective clothing and personal safety devices are two ways to keep your operators safe. Personal protection equipment (PPE) for operators may include:

- Hard hat
- Reflective clothing (vests)
- Safety shoes

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- Safety glasses
- Heavy gloves
- Hearing protection

Note that jobsite requirements for PPE vary. Operators should be aware of PPE requirements before they begin working at a jobsite. Other recommended guidelines include wearing a seat belt, using the grab handles and steps that are provided for a three-point contact when entering and exiting the machine and wearing tight-fitting clothing that cannot get caught on working components or on the machine.

3. ASSESS THE JOBSITE

After your operators are comfortable operating equipment and using the controls safely under all possible conditions of the work area, they should assess the jobsite conditions. Getting a feel for the work area and looking for potential dangers, such as underground or overhead utility lines, narrow roadways, sharp curves and soft ground conditions, is important. Operators should look around the jobsite to make sure there are no bystanders and use barrier tape, traffic cones or gates to keep other individuals and equipment out of the work area. All underground utilities should be clearly marked before excavating. If they are not identified, operators should call 811 to schedule a trained professional to identify the underground utilities.

4. PERFORM A VISUAL CHECK

All operators should take a few minutes to walk around their machine to look for potential problems before entering the equipment. Operators should complete the following during a visual inspection:

- Check for broken, missing or damaged parts and make necessary repairs
- Replace damaged or missing safety or instructional decals
- Check tires for cuts, tearing or over-inflation
- Check wheels for damaged rims and missing or loose wheel nuts or bolts
- Review tracks for broken or damaged pins, bushings or other track parts
- Replace worn or damaged tires or tracks
- Check fluids, oils and filters
- Repair any leaks
- Fill fluid to proper level
- Remove flammable debris from the engine compartment and the battery box, around exhaust components, under the machine and around rotating parts
- Inspect lights and cab glass for damage
- Clean and inspect all walking surfaces, steps and grab handles
- Assess that the roll over protective structure (ROPS) and falling object protective structure (FOPS) are in good condition

5. PRACTICE SAFE STARTING PROCEDURES

After entering a piece of compact equipment, operators should inspect the seat belt and buckle for wear and proper function. They should also adjust the seat to operate the controls properly and familiarize themselves with warning devices, gauges and operating controls. Operators should make sure the parking brake is engaged (if applicable) and put all controls in the neutral/park position prior to starting the machine. Other personnel who may be working in the area should be warned by sounding the horn. While the transmission is in neutral, the engine speed control and equipment control levers should be tested to make sure all functions are running correctly. Shift controls should also be examined to ensure correct operation in forward, neutral and reverse positions. Parking, service and swing brakes (if applicable) should also be evaluated at this time.

6. CHOOSE THE RIGHT ATTACHMENT FOR THE JOB

Owners should work closely with their dealership to determine the necessary attachment for their machine to fit the application. Being able to comfortably see the attachment out front, with good top-down and peripheral sight of the tires or tracks, and having an unobstructed view of the machine's rear are critical to safe machine operation. Attachments should be paired with a machine that has the proper auxiliary hydraulic flow and pressure requirements.

7. MAINTAIN THE MACHINE

Before performing routine maintenance on any piece of compact equipment, operators should be educated on maintenance procedures and possess the necessary skills and tools to complete the job correctly. Proper maintenance tips include:

- Check lubrication charts
- Examine all instructional messages on the machine
- Use wheel chocks to keep the machine from moving during service
- Use parts and service techniques recommended by the manufacturer
- Attach a "Do Not Operate" tag or similar warning tags to the starter switch or steering wheel before maintenance
- Remove the key from the machine
- Install all appropriate lock devices or support devices, such as lift arm supports and cab supports
- Do not operate the engine in a closed area

Safety features are only effective when equipment operators know about them. That is why all compact equipment owners and operators should consult the operation and maintenance manual, the operator handbook, operator training courses and service training courses before operating any equipment on the jobsite. **CBO**

Jason Archbold is the marketing manager for Bobcat Company, a Doosan Company. Archbold has nearly 20 years of marketing and analytics experience in several industries, including construction, engineering and electrical and industrial supply. Visit bobcat.com.



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SPEAKERS



KRISTOPHER LENGIEZA
Director of Virtual Design & Construction
Stiles Corporation

Kristopher M. Lengieza, director of VDC at Stiles Corporation in Fort Lauderdale, Florida, has been instrumental in the integration of VDC, LEAN and LEED principles at several companies. Lengieza has been nationally recognized as one of the top 40 construction professionals under 40 by ENR and BD&C. He has been a speaker for national conferences, including Autodesk University, BIMForum, Ecobuild, SPAR and many other regional events. He has taught for numerous organizations, including AGC and AIA.



NATHAN WOOD
Founder & Chief Enabling Officer
SpectrumAEC

As SpectrumAEC's founder and chief enabling officer, Nathan Wood leverages his international experience with BIM, lean and integrated project delivery (IPD) to support the development and implementation of flexible standards that balance the needs of people, process and technology. Wood supports industry progression through conference presentations, academic papers and leadership in organizations, such as the Construction PDF Coalition (cpcoalition.com) and Virtual Builders Inc. (virtualbuilders.com).

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When the Workplace Becomes Violent: Part 2

Protecting employees & your jobsite from the threat of an active shooter

BY BO MITCHELL

In Part 1 of this series in *CBO's* March issue, the scenario involving your employee, Jennifer, took place inside your office, threatening your other employees. However, what are your responsibilities to your employees when they are outside of your office and at one of your jobsites or another employer's jobsite?

The regulations currently in place make the jobsite's employer or owner the responsible party for jobsite safety. Thus, the senior manager at the jobsite is responsible for each employee's safety for any emergency involving an active shooter.

That being said, though, if your employee is injured or killed at that jobsite, his/her family and the authorities won't hesitate to point a finger at you. They will say you knew or should have known that active shooters present a clear and present danger, and that they have quadrupled in number over the last 4 years.

So how can you best prepare your employees to respond to an active shooter on jobsites remote from your office? First, make part of your contract due diligence to ensure owners of remote jobsites have emergency action plans (EAPs) and have trained their employees on an active shooter response plan. When properly trained, jobsite owners will respond on behalf of your people just the way you would respond to visitors on your premises.



Secondly, you should work with the remote jobsite manager to ensure your employees are informed regarding response at the tactical level, both at their initial hire and frequently thereafter. Third, police this yourself by regularly visiting the jobsite. All emergency response planning and training should be site specific—meaning it should be customized and accurate to current conditions. The site visit is only one way to ensure that everyone's best efforts work to reduce potential damage.

RETURN ON INVESTMENT

These safety efforts at your offices and at remote jobsites are an incremental investment in your time and money. What is the return on your investment? If you are never struck by an emergency, your return on investment (ROI) is zero. If you are struck, then you are protecting your people, and you are protecting your brand reputation, which is arguably your most important asset. You are also protecting your bank account from the risk of a lawsuit. Most importantly, your

Your active shooter training will bond employees to your safety culture & increase their ownership in safety awareness & responsibility.

people will appreciate your concern about their safety, which is their most significant issue at work. Your active shooter training will bond employees to your safety culture and increase their ownership in safety awareness and responsibility.

DENIAL

What is the biggest obstacle in training your workforce? Denial. The six phases of denial regarding emergency preparedness are listed below.

1. It won't happen to me.
2. It won't happen here.
3. It won't happen now.
4. If it does happen, it won't be that bad.
5. If it is that bad, my insurance will pay for it.
6. Why didn't I plan for this?

Denial will stop you in your tracks. The scariest word in your organization is not "cost," "price," "budget" or "headcount." The scariest word in any organization—yours included—is "change." Change is painful, complicated, time-consuming and expensive. Change often comes from outside, blunt-force trauma, not from internal, inspired leadership. It often seems that we only have the capacity for change when a scary, lethal incident occurs nearby or to another construction company.

THE 'JAWS' MOMENT

You remember the 1975 movie "Jaws." It was a cultural earthquake. Every American saw this movie within 75 days that summer, and it scared everyone. This film's metaphor was as follows: until you see the shark, you don't respond. Shark unseen, you don't believe the danger or the risk is present. Remember the mayor? He was in denial that there was a problem, so he denied closing beaches. That costs revenue for the town. He denied hiring more lifeguards because that would cost too much. Often, it is only when we see the shark circling our boat that we respond. When, an hour into the movie, we first see the shark, the movie's hero informs the boat's captain, "You're going to need a bigger boat." This is your "Jaws" moment. You have seen the shark, and you're going to need a bigger boat.

TRAINING IS EVERYTHING

Great plans are a smart thing; training is everything. OSHA requires training of all employees in a classroom, annually, at hire and by a trainer qualified by experience or training. On-screen training can supplement, but never substitute, annual and at-hire classroom training. You can see the repeated need for training for instant and ongoing response.

Careful and detailed training of all employees is critical to saving lives, as well as complying with the law. You won't scare employees; you will enlighten them with the solutions needed when your workplace is struck. Emergency training is never boring. It is all about your employees. Senior management should strictly police training attendance. It is required by law, and it's also the only way employees will be safe when emergencies strike. Training is not complicated if it is structured correctly and delivered professionally.

WHERE TO START

Start with a threat assessment of your organization's jobsite. Every national safety standard mandates an assessment at the start of your active shooter plan. Treat this assessment like a financial audit. Employ an outside, independent expert. When you conduct a financial audit, you employ outside, independent experts not because you believe your accounting folks are incompetent or don't know the regulations, but because that is the best practice and it's the law. Is safety as important to you as your company's financial strength? Then, create and train your EAP to embrace your duty of care in order to keep everyone safe on your premises and remote jobsites. This should be an all-hazards plan. EAPs are required to better anticipate all foreseeable circumstances. You must plan for tornados, bomb threats, chemical spills, medical emergencies, lightning, workplace violence, active shooters and more.

You have a duty of care to keep your employees safe. All of your employees will need to know how to respond in a split second, without your advice. Your employees will embrace training and appreciate you more for doing the right thing for them. You have seen the shark circling your boat, so let's get started. **CBO**

Bo Mitchell, CEM, CPP, CHS-V, CBCP, CSI-ML, HSEEP, CNTA, IAC, MOAB, CHSP, CHEP, CSHM, CESCO, CHCM, CFC, CIPS, CSSM, CSC, CAS, TFCT3, CERT, CHSEMR, CMC, is president of 911 Consulting. Mitchell was police commissioner of Wilton, Connecticut, for 16 years. He retired in 2001 to found 911 Consulting. Mitchell has earned 23 certifications in homeland security, emergency management, disaster recovery, business continuity, safety and security. He also serves as an expert in landmark court cases nationally. Visit 911consulting.net.



Not Just What, but Why

Harness the power of video telematics for improved fleet management

BY JIM RICE

As a business owner, you are sending jobsite vehicles on the road every day, and each time they leave your parking lot, they face unforeseen risk. If there is a collision, there is risk of injuries to the driver or others, damage to your vehicles and the possibility of a diminished reputation. A 2014 report by the Federal Motor Carrier Safety Administration (FMCSA) stated that collisions involving injuries cost almost $200,000 per incident, not including the bent metal damage or the loss of jobsite productivity. At a small company, just one incident carrying that cost can sink the business.

Taking into account driver behavior and environmental factors, a study by Lytx showed that 54 percent of collisions in the construction industry could have been prevented, compared to 46 percent of incidents in other industries. Whether a collision occurs at a jobsite or on the road, this disparity is cause for concern. With so much at stake, it is important to assess what can be done to prevent such accidents.



TELEMATICS ALONE ONLY TELLS PART OF THE STORY

In recent years, business owners and fleet managers have turned to technology, especially telematics solutions, to extract risk from their organizations. Telematics is the part of information technology that transmits data about patterns and driving events using sensors embedded in equipment. It can provide business owners and fleet managers with data on vehicle operation and insights on driving events, painting a picture of how a particular driver or vehicle is performing. But while telematics can be helpful in certain situations, it doesn't always tell the whole story.

In contrast, video telematics answers why a collision occurred, giving a more complete explanation of the circumstances and the driver's performance. By integrating and analyzing data from both the telematics sensors and from video, video telematics delivers effective insights that can be used to coach drivers, providing a more powerful and precise solution for driver safety and

efficiency. In today's technology landscape, telematics solutions are not state-of-the-art without the integration of video and video-related data.

Knowing why a driving event happened is an essential component of preventing future collision risks. Video telematics answers the question "Why," and is delivered with data-backed insights to drive more effective and efficient coaching. Video can add additional insight to tasks like fleet tracking, giving managers the confidence of knowing where specific trouble spots are on routes and why they are trouble spots in the first place.

CONSTRUCTION HAS 3 TIMES MORE COSTLY COLLISIONS THAN OTHER INDUSTRIES

Thanks to insights from video telematics, we know that distracted driving, such as cell phone use, is the most commonly observed behavior among drivers in preventable collisions in the construction industry. In more severe collisions—those with the highest potential insurance claims dollars—poor awareness behaviors, such as maintaining a safe following distance, not checking mirrors and not looking far enough ahead, have been identified most often. A study from Lytx that compared driving events in different industries showed that construction and concrete drivers are in three times more serious, costly collisions involving driver distraction.

Two Texas-based companies are prime examples of the positive impact that video telematics can make on the safety culture of a construction company. Houston-based United States Concrete and Dallas-based TXI were each faced with considerable problems regarding the number of collisions and the cost of claims they were dealing with on a yearly basis. For U.S. Concrete, the company was challenged by a rate of 172 collisions per year at a significant cost per claim, without an explanation of why these numbers were so high. At TXI, management knew the business was failing to stay up to date on the latest technology, leading to missed opportunities in improving the fleet's safety.

In order to address their respective issues, both companies made the transition from traditional telematics solutions to a video telematics program. The results were as follows:

- In just 1 year, U.S. Concrete was able to reduce vehicle collisions by 30 percent, while seeing a 65-percent reduction in related claims costs.
- Over the course of 2 years, TXI saw a reduction in vehicle incidents by greater than 90 percent, along with reduced claims costs.

As part of the reduction in claims, both businesses used video to exonerate drivers who were falsely accused in collisions. The companies each implemented stronger driver coaching programs, which strengthened the safety cultures and facilitated more efficient driving behaviors throughout both of their fleets.

Technology is continually changing, and fleet managers have no shortage of options from which to choose. A critical factor to consider is the focus on reducing risk, and the best way to reduce risk is by preventing collisions in the first place. Video telematics, now an essential tool in the construction business owner's toolkit, helps answer the integral question of why, allowing fleets to address and mitigate the root causes of unsafe driver behavior. **CBO**

Jim Rice, CTP, is director of midmarket sales for Lytx, where he oversees market development for midsize concrete, construction, waste and distribution companies. Rice joined Lytx in 2015, and has been in the commercial transportation industry since 2001. Visit lytx.com.





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Optimizing Fleet Life Cycle Strategies

Factors to consider when making buying & maintenance decisions

BY BRAD JACOBS

Maximizing uptime and reducing costs are fundamental drivers of construction fleet management decisions, but a firm's diverse range of equipment can make life cycle optimization challenging. An optimized life cycle strategy based on specific operational needs and an understanding of maintenance requirements, historical data analysis and potential resale value takes the guesswork out of the equation and saves money long term.



OPERATIONAL NEEDS

When equipment is central to job profit, it is important to calculate the breakeven between revenue generation and operating cost investment. If the upfront cost of the vehicle included expenses such as chassis customization or job-specific upfit, the tendency is to run that equipment longer to get the most from that investment. But there is a tipping point at which keeping those types of vehicles running becomes too costly in both maintenance requirements and loss of revenue due to downtime. The most effective way to develop a life cycle strategy for both customized and standard equipment is to evaluate fleet data and use predictive analytics that draws from both the firm's historical information and from industry figures. Preparing for the electronic logging mandate is another important consideration when evaluating your operational needs. The clock is ticking on the federal mandate requiring electronic logging devices (ELDs) to be in use by December.

LONG VERSUS SHORT LEASING STRUCTURES

Leasing assets help companies better manage cash flow with a constant cost structure that reduces large capital outflows. The question of which is better depends on vehicle application and utilization. Traditional, shorter-term leases provide more predictability in fleet operating costs and optimize vehicles for maximum resale value. They may also result in increased vehicle discounts and lower overall acquisition costs, as firms replacing vehicles every few years are in a stronger position to get a good price when negotiating with manufacturers. On the flip side, squeezing each vehicle for its maximum useful life can lead to a lower cost of ownership due to the lack of lease payments after the vehicle has been amortized. This approach makes better economic sense with heavy-duty assets that have extensive upfit and a longer, useful work cycle. The trade-off is increased maintenance costs and lower

fuel efficiency over time. Actual utilization and run rates can identify which cycle is optimal for which pieces of equipment.

MAINTENANCE SPEND IMPACTS

Focusing on predictive, preventative maintenance and preferred parts pricing is key to maximizing uptime and reducing life cycle costs. Reliability and durability are hallmarks of construction vehicles, but so are expensive repair costs that may take a long time to complete. For fleets operating on shorter cycles, maintenance management can be less of a burden, and downtime less of a concern. Those running on longer cycles benefit greatly from a data-driven approach to maintenance management. They also benefit from identifying the tipping point when increased maintenance costs and revenue lost from unavailable equipment negatively impacts the total cost of ownership.

GETTING THE MOST AT RESALE

Depreciation is typically the firm's largest fleet cost, which makes resale and depreciation management a critical factor in life cycle strategy. Because construction and utility vehicles are often highly specialized, it is usually worth working with a partner who has the expertise and volume base to get the most resale value. Timing can also have an impact. Reduction in fuel prices and increased demand has greatly improved the resale market for trucks overall, so they are holding their value longer.

SCORECARDS TELL THE STORY

Aggregating data and utilizing a fleet scorecard is a smart way to track the true cost of ownership and drive future decision-making processes. A knowledgeable partner, coupled with a fleet management system that can capture lease payments, maintenance costs, insurance outlays and fuel spend, as well as calculate actual cost per mile, is key to driving change. They can also support longer life cycles by providing maintenance alerts and flagging driver behavior that may impact vehicle efficiency and increase wear and tear.

There is no one-size-fits-all answer to deciding on a fleet life cycle strategy. Evaluating operations, and then combining that information with the organization's historical fleet and market data, will show how key factors impact your total cost of ownership and inform an optimal approach. CBO

Brad Jacobs is director of strategic consulting at Merchants Fleet Management. He has more than 10 years of fleet management experience working with clients to identify long- and short-term cost savings and policy opportunities through analysis, technology and benchmarking. Visit merchantsfleetmanagement.com.



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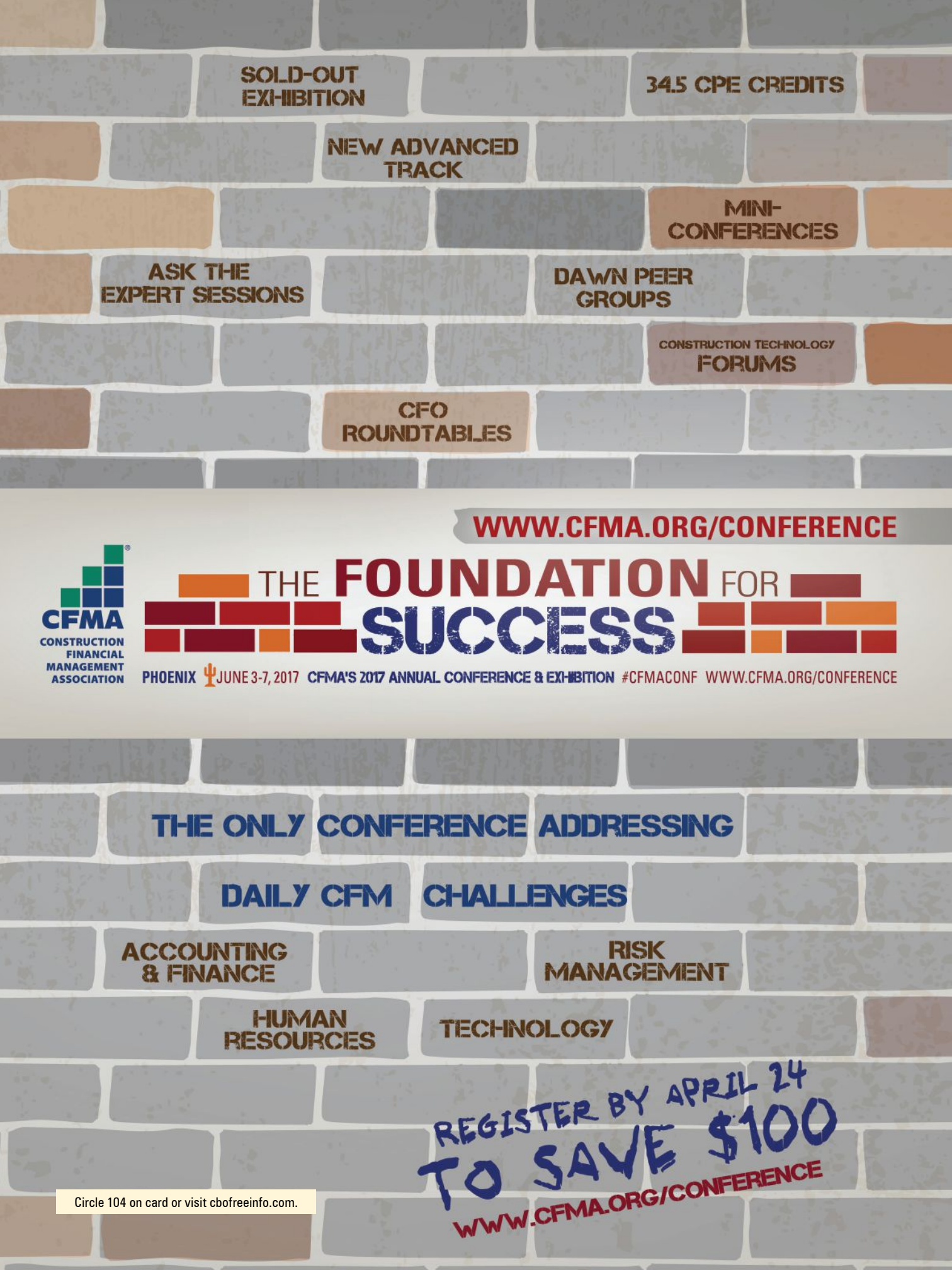
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The health and safety of your workforce is of the utmost importance to completing a successful project and to the overall success of your company. In a world where jobsite safety once placed second to getting the job done, our changing construction landscape has put an industrywide emphasis on protection from jobsite hazards and workplace injuries and illnesses.

According to Occupational Safety and Health Administration (OSHA) regulations, personal protective equipment (PPE) "should be safely designed and constructed, and should be maintained in a clean and reliable fashion. It should fit comfortably, encouraging worker use. PPE that does not fit properly can make the difference between being safely covered or dangerously exposed." While PPE regulations are a priority by law, these same guidelines set forth by OSHA can have a similar impact on general worker productivity on a project.

The need for workwear products that improve performance continues to drive innovation in construction apparel. Concerns such as durability, reliability, comfort, performance and price will always shape the selection for buyers. As the industry continues to improve, it's important to look at new workwear considerations that have recently made their way to market. The following pages share a glimpse into the construction apparel marketplace and some of the industry's newest innovations in workwear that could have a significant impact on the productivity levels on your next project. CBO



Bosch

When the job must get done, but the weather isn't ideal, consider a heated jacket. Bosch's PSJ120 12V MAX is a rain- and wind-resistant work jacket powered by a battery holster and a Bosch 12V MAX battery. Users can not only power the jacket, but also power most USB-port-compatible personal electronics, such as cell phones, at the same time. "Users are looking for power to serve personal electronic devices. By incorporating power into clothing, manufacturers are helping users meet their need for power, as well as providing warm, functional clothing on the jobsite," said Charlie Chiappetta, product manager. The jacket features large, zippered hand-warmer pockets on each side, a large inside mesh pocket for gloves and three push-button heat settings (high, medium and low), which start warming in seconds.



Cat Footwear

In August, Cat Footwear will launch four new work boots in its GroundFlex4 Series (pictured here: Struts). The "4" describes key features in every boot that help get the job done: flexible, comfortable, durable and waterproof. "We create boots for the next generation of workers. We even started an Industrial Task Force, where a small team of experts meet to discuss upcoming trends, do focus groups with earthmovers and complete wear testing and extensive research to make sure the boots we are providing are meeting the needs of our workers," said Courtney Frank, marketing manager. Cat is constantly looking for new abrasion resistant materials, leathers and EVA systems for comfort, flexible technology, to prevent fatigue and to keep workers safe on the job. "Our customer's No. 1 pain point is comfort. At the end of the day, our earthmovers want to be comfortable. We have taken that seriously, developing new comfort technologies such as the Ease comfort system, to ensure our workers have fresh feet at the day's end."

Tradesmen desire the ability to stay out in the elements longer & work more efficiently. In our jobsite research, it became very clear just how much inappropriate clothing can negatively impact productivity.

- PATRICK LUECK, PRODUCT MANAGER, MILWAUKEE TOOL

KEEN Utility

New this spring, KEEN Utility introduced the men's Davenport. Completely metal-free, the Davenport industrial hiker features nylon eyelets and hardware together with roomy, asymmetrical composite safety toes that satisfy ASTM compression, impact and an outsole that passes EH safety standards. The wider toe-box delivers comfort, allowing for increased movement and flexion in the toes, while reducing common safety footwear complaints, such as pinched feet or too-tight boots. "We understand that work isn't the only thing that defines our customers—they are little league coaches, community volunteers, rock climbers, fishermen/women and much more. Our outdoor and athletic-inspired designs resonate with customers looking for safety footwear that can transition from work to the weekend. In the market today, we're seeing a trend in the desire for lighter, more athletic safety footwear at more accessible price points," said Chris Heffernan, general manager.



Helping new workers understand the use limitations of PPE & maintaining compliance with complex industry standards is critical to worker safety.

- ANNE OSBOURN, INDUSTRIAL & UTILITIES MARKETING MANAGER, MSA



MSA - The Safety Company

According to 100-year-old construction industry veteran MSA, technology has affected the PPE market through product design by increasing the overall comfort of the wearer. In self-retracting devices, products that are smaller, lighter and more compact prove to be increasingly significant. "Individual buyers see value in this trend, as increased comfort supports a workers willingness to wear this type of PPE and maintain compliance," said Anne Osbourn, industrial and utilities marketing manager. MSA's Workman Mini Personal Fall Limiter supports the reality of many construction applications, which require a worker to tie off above and below the D-ring throughout the job. Extensive testing conducted on the product's internal pawl-lock design provides flexibility, allowing for lower level tie-off in many applications on a jobsite where the work environment is constantly changing.

Milwaukee Tools

This spring, Milwaukee Tools will expand its WORKSKIN Performance Base Layer program to include a Light Weight performance shirt designed to help users stay cool and comfortable in hot summer conditions. Utilizing CoolCore Fabric Technology, the Light Weight shirts regulate sweat evaporation to provide a cooling effect in addition to moving moisture away from the body. Extended, fast-dry sweat zones under the arms and across the back accelerate wicking in key areas and help prevent the shirt from becoming saturated and uncomfortable. All WORKSKIN Performance Base Layer products are designed specifically for the work patterns of tradesmen, and feature seamless shoulders, a drop-tail, extended back and materials that increase product life by providing enhanced resistance to pilling and abrasion. New material technologies have allowed manufacturers to introduce innovation that has been previously reserved for athletes, but with a focus on addressing challenges on the jobsite, construction apparel can survive better and deliver greater comfort. "Every year, we spend hundreds of hours on the jobsite working with our users to understand their needs and frustrations. This results in real innovation," said Patrick Lueck, product manager.





Red Wing Shoes

Available this fall, the new King Toe ADC work boot is made with Nano composite safety toe technology. Nano toe technology is an extremely thin, lightweight, nonmetallic composite material. These toe caps are asymmetrical to match the unique shape of the left and right foot, providing 44-percent more toe room than standard safety toe caps. Red Wing provides head-to-toe PPE offerings to give industrial workers total body protection from both ordinary and extraordinary hazards. "We're always exploring new ways to collaborate with skilled laborers on this critical issue. Ultimately, our work footwear is about ensuring that people go home safe at the end of the day," said Shawn Sweeney, vice president of North American sales and operations.

New & Innovative Products

Selected by the *Construction Business Owner* editors



1

1 PAN SERIES TRAILERS

Felling Trailers Inc. announced enhancements to its Pan Series model line of trailers. The Pan Series trailers offer one of the lowest load angles for a ramp trailer in the industry. The following features are standard in the updated line: an increased ramp width from 14 to 16 inches, standard, dual tail lights and EZ Lube hubs.

felling.com

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2

2 SELF-RETRACTING FALL PROTECTION DEVICE

FallTech has announced the launch of a new family of DuraTech self-retracting devices with a side cable payout; a new generation of SRD. The SRD is designed with a smoother extension and retraction of the cable that assists in reducing nuisance lock-up. The DuraTech SRD offers an internal braking system that provides fast-acting braking in the event of a fall for maximum stopping power. A dependable, 3/16-inch galvanized wire cable is the lifeline that includes a load-indicating, locking swivel carabiner for a safe and secure connection to the worker's harness. FallTech DuraTech SRD is offered in lengths of 15 feet, 20 feet, 25 feet, 30 feet, 40 feet, 50 feet and 60 feet, and complies with all applicable ANSI and OSHA standards.

falltech.com

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3

3 HORIZONTAL DIRECTIONAL DRILL

Ditch Witch has added the JT40 horizontal directional drill (HDD) to its fleet of drills. The new unit is equipped with two 7-inch LED displays for a direct, transparent view into critical machine functions and diagnostics. In addition to the digital displays, the machine's real-time carriage-position indicator tells the operator the exact carriage location, for increase productivity and more intuitive operation. A multifunctional, radial operator control is highlighted on the display for better control efficiency, including mud flow, rotation and more. New to the JT40, tracker information is integrated into the advanced displays for enhanced visibility into all jobsite functions beyond drill operation. The machine's raw power—provided by a 160-gross-hp, Tier 4 Cummins diesel engine—gives operators 14 percent more hp in a smaller package than competitive models in its class. The JT40 offers an innovative, two-speed, rotational drive system that produces 5,500 feet per pounds of torque. The machine minimizes pipe-entry distance, giving operators increased drill pipe support. It holds up to 600 feet of drill pipe onboard, allowing for longer bores and increased ROI.

ditchwitch.com

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4

4 COMPREHENSIVE ELD FLEET MANAGEMENT SOLUTION

GPS Insight announced the launch of their new electronic logging device (ELD) solution. The GPS Insight Hours of Service Solution comes to the market with a unique feature set that will streamline fleet management and ensure FMCSA compliance. The ELD solution bundles an Android tablet hardwired to a GPS tracking device. The ruggedized ELD tablet features an intuitive user interface to ensure ease of use for all drivers. The management portal is web-based, secure and accessible via PC, tablet and smartphone. Drivers and dispatch can now message each other between the tablet and the web-based interface. This capability will reduce the number of phone calls made and streamline communication with individual drivers or the entire fleet. Navigation is built into the ELD tablet. Management can dispatch audible and visual directions to drivers using designated truck-specific routes.

gpsinsight.com

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5

5 75G & 85G EXCAVATORS

The updated **John Deere** 75G and 85G excavators boast new, customer-inspired features, including hand-controlled proportional auxiliary hydraulics and the ability to be equipped with a hydraulic coupler that allows the machines to use backhoe buckets. The 75G and 85G boast a 57-hp, Final Tier 4 diesel engine outfitted with a diesel particulate filter (DPF) that cleans automatically, without impacting the machines' productivity. The 75G and 85G include an unsurpassed operation environment with spacious, comfortable cabs and easy-to-use, enhanced LCD monitors. The cab includes a comfortable, fabric-covered adjustable suspension seat with ample legroom. The wide expanse of front and side glass, narrow front cab posts, large tinted overhead hatch and numerous mirrors provide all-around visibility.

johndeere.com

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Annual Value of Construction Put in Place

2015/2016/January 2017 Annual Rate Comparison

This chart compares the two previous years' total value of construction put in place to an annual forecast based on January 2017 figures. (Millions of dollars. Totals may not add up perfectly due to rounding.)

	2015	2016	Jan 17
Total Private Construction	**827,345**	**896,992**	**911,644**
Residential	433,108	466,938	476,395
Nonresidential	394,237	430,053	435,250
Total Public Construction	**296,153**	**284,531**	**268,689**
Residential	5,909	6,341	5,497
Nonresidential	290,244	278,191	263,192
TOTAL Construction	**1,123,497**	**1,181,523**	**1,180,333**

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

$1,180,333

JANUARY 2017 TOTAL ANNUAL VALUE OF CONSTRUCTION PUT IN PLACE

"This **small decrease in activity**, taking into consideration strong readings in project inquiries & new design contracts, **isn't exactly a cause for concern**," said AIA Chief Economist Kermit Baker, Hon. AIA, Ph.D.

AIA Architectural Billings Index (ABI)

	National		*Regional - Billings				*Sectors - Billings			
Month	Billings	Inquiries	Northeast	Midwest	South	West	Multifamily Residential	Commercial/ Industrial	Institutional	Mixed
Aug-16	49.7	61.8	44.9	52.8	55.2	49.0	50.9	50.8	50.7	51.8
Sep-16	48.4	59.4	44.0	50.1	53.4	49.5	48.8	50.4	49.0	49.8
Oct-16	50.8	55.4	47.3	46.8	53.7	49.7	51.2	49.8	49.1	49.5
Nov-16	50.6	59.5	50.8	50.9	51.3	48.6	51.7	50.4	49.5	51.3
Dec-16	55.6	57.6	54.0	54.4	53.8	48.8	50.6	54.3	53.3	51.9
Jan-17	49.5	60.0	53.0	52.4	54.2	48.8	48.1	53.4	54.6	48.1

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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