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FROM THE EDITOR | Kathy Wells



CFMA Birmingham Chapter President Anne McCarley presents Associate Editor Elizabeth Manning with registration to CFMA's Southeastern Construction Regional Conference April 28-29 in Chattanooga, Tennessee.

As this issue went to press, the *CBO* team hit the trade show floor at World of Concrete in Las Vegas. The show was held Feb. 2-5 and provided attendees the opportunity to discover what's new and what's next in the commercial concrete and masonry industries. More than 55,000 attendees and 1,400 exhibitors converged at the Las Vegas Convention Center, offering information on the industry's latest trends and innovative solutions. The 4-day trade show hosted demos, competitions and show-floor activities, along with over 150 educational courses, experiential workshops and seminars to all segments of the construction industry. Look for exclusive post-show coverage in our March issue.

In the coming months, *CBO* is pleased to offer a number of free webinar opportunities spanning a variety of business management topics. This month, we've partnered with Viewpoint Construction Software to bring you Part II of "The Project Manager's MBA," on Feb. 17 at 1 p.m. EST. The webinar illustrates how project leaders can implement fundamental MBA concepts in a project setting and covers vital business topics, such as marketing, economics and operations management, based on the core curriculum of the nation's most prominent MBA programs. Join us to learn how to apply this knowledge to your business to create a sustaining organization and realize long-term goals. The live event will be presented by FMI consultant Gregg Schoppman. Registration is free at constructionbusinessowner.com/webinars.

In this issue, *CBO* delved into the software and technology branches of construction business operations to give you a glimpse into the future. The construction industry notoriously struggles to embrace technology, so we set out to share the latest with you in this month's cover series. On page 34, check out the newest developments in equipment automation and explore its potential application on your jobsite. On page 36, learn what your company might be missing as JBKnowledge shares insights about the tech workings of more than 2,000 construction professionals. On page 40, discover ways to leverage new software workflows to improve your company's long-term focus.

Visit us at Booth 142 at The Work Truck Show in Indianapolis, Indiana, March 1-4. If you can't make it to the show, keep up by following @CBOMagazine on Twitter for live trade show coverage, vital industry news and exclusives from the experts.

Take good care,

Kathy Wells



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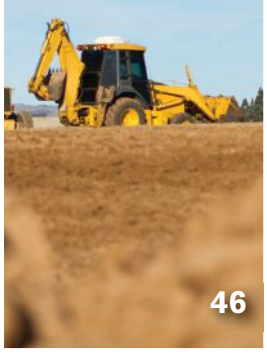











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Cavignac & Associates Names Commercial Lines Account Manager


Vy Ouk

Vy Ouk has joined Cavignac & Associates as a commercial lines account manager, A 9-year veteran of the insurance industry, Ouk will serve as the main contact person at the agency for her assigned customer accounts, identifying exposure to loss for these clients, educating them on compliance issues and advising them of appropriate insurance coverage. Visit cavignac.com.

Kobelco Construction Machinery & Kobelco Cranes Merge

Kobe Steel Ltd. and its wholly owned subsidiaries, Kobelco Construction Machinery Co. Ltd. and Kobelco Cranes Co. Ltd. have announced plans to merge the two businesses under Kobelco Construction Machinery Co. Ltd. The Kobe Steel Group decided to merge the companies to further strengthen its business foundation and accelerate global development. After the merger, Kobelco Construction Machinery Co. Ltd. will represent a combined sales of $3.15 billion, with over 7,600 employees. Visit kobelco-usa.com.

Los Angeles markets, as well as the greater Orange County area with eight mobile service trucks and 14 employees. Bridgestone HosePower now totals 38 branch locations in the United States and one location in Mexico. Darren McWilliams will remain the branch manager of the location. All Hose Pros employees have been offered and accepted positions with Bridgestone HosePower. Visit bridgestone.com.

APWA Appoints New Member to ISI Board of Directors


Patricia A. Hilderbrand

The American Public Works Association (APWA) recently announced that Patricia A. Hilderbrand, MPA, PE, division manager of coordination services for the Kansas City Public Works Department, has been appointed to the Institute for Sustainable Infrastructure (ISI) Board of Directors. Hilderbrand was appointed to the 11-member board by APWA President Brian Usher, PWLF. Within Hilderbrand's career in the Kansas City Public Works Department, her responsibilities have included project management of major flood mitigation projects with the United States Corps of Engineers; direction of the department's 5-year Capital Improvements Program; direction and implementation of a citywide, comprehensive Internet program and project management system; management of the city's transit contracts; and service as liaison to the city's primary Metropolitan Planning Organization, MoDOT, railroads, transit authority, counties and franchises. Visit apwa.net.

Mauldin Paving Products Names Vantage Equipment as New York Dealer

Vantage Equipment has been appointed a dealer for Mauldin Paving Products in New York. Vantage Equipment will serve the major metropolis regions of Buffalo, Rochester, Syracuse and Albany, along with New York's north country and Southern tier. "Both Vantage Equipment and Mauldin Paving Products believe that successful businesses are built around quality products and quality services," said John Hession, president of Vantage Equipment. Visit calderbrothers.com.

Construction Resources Inc. & Builder Specialties Inc. Merge

Construction Resources Inc. and Builder Specialties Inc. announced the two companies will merge. The merger is the result of a transaction with Monomoy Capital Partners II L.P., which has finalized the purchase of both companies. The combined entity, now known as Construction Resources, will become the leading provider and installer of building products in the Southeast. The combined company will continue all current lines of business, offering customers an unmatched line of products and specialty expertise for 55 top brands across nine product categories. Visit crhomeusa.com.

Aspire & RemodelForce Partner To Provide Solution for Industry Contractors

Remodel Force and The Aspire Institute Inc. announced that the companies have completed a definitive merger agreement. The Aspire Institute is a provider of business training, consulting and coaching to small businesses. David Lupberger, the president of Remodel Force, will become the general manager of Aspire Contractors. Visit theaspireinstitute.com.

Pella Announces Vice President of National Accounts


Davis Rowe

Davis Rowe has been named the vice president of national accounts for Pella Corporation, a manufacturer and designer of windows, doors, blinds and shades for homes and commercial buildings. Rowe succeeds Bob Kubacki, who will retire in March after 17 years with the team, which oversees Pella's partnerships with national home improvement retailers and building material suppliers. Rowe has gained extensive experience in marketing, sales and management during his 13-year career with Pella. This includes serving as marketing manager of national accounts, product manager of Pella Architect Series products and the general manager of the Minneapolis sales branch, where he was named Director of the Year in 2011. Visit pella.com.

100,000th

Sixteen years after its first telehandler, JLG delivered a commemorative 100,000th telehandler to Skyworks LLC of Buffalo, New York. Skyworks purchased JLG's 100,000th boom lift in 2006 and took delivery of the first JLG 1850SJ Ultra Boom lift. Visit jlg.com.

Bridgestone Acquires Hose Pros

Bridgestone HosePower, a subsidiary of Bridgestone Corporation, announced its expansion on the West Coast by acquiring The Hose Pros, a hydraulic hose sales and service company in San Diego, California. The Hose Pros operates in San Diego and

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Visit FLD at **Booth #5787** at the 2016 NTEA Work Truck Show Conference in Indianapolis March 1-4.

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

The ELD Mandate

How will the new electronic logging device (ELD) mandate affect construction fleet owners?



RYAN DRISCOLL
Marketing Director
GPS Insight

"The Federal Motor Carrier Safety Administration (FMSCA) published the final rule in December 2015, mandating fleets to install ELD in all vehicles that are currently required to keep record of duty status (RODS.) The mandate eliminates the need for paper logbooks to records of hours of service (HOS) compliance. Construction vehicles weighing 10,001 pounds or more are subject to the new ELD regulations.

Fleets with an integrated ELD solution will monitor and keep record of electronic logs to ensure hours of service (HOS) compliance and give managers and drivers the ability to provide proof upon DOT inspections. Construction fleet owners will receive electronic logs in real time to ensure HOS compliance is always up to date. ELD solutions will also help prevent citations that previously resulted from a driver's simple paperwork mistakes.

By providing proof that the fleet is HOS compliant, insurance rates and back-office administrative costs will decrease as a result of no longer purchasing and auditing paper logbooks. ELDs are required to record vehicle location, which means that many fleets will be in the market for logging devices with GPS tracking capabilities.

FMSCA FINAL RULE

The FMSCA Final Rule was set to establish minimum performance and design standards for hours of service (HOS) electronic logging devices (ELD); requirements for the mandatory use of these devices by drivers currently required to prepare HOS record of duty status (RODS); requirements concerning HOS supporting documents; and measure to address concerns about harassment resulting from the mandatory use of ELDs. The requirements for ELDs will improve compliance with the HOS rules.

EFFECTIVE DATE:
February 16, 2016

COMPLIANCE DATE:
December 18, 2017

To review the entire Federal Register document, visit 1.usa.gov/1OaZmeX.

Source: 78292 Federal Register Vol. 80, No. 241



ROB MCKINNEY
Consultant
JBKnowledge

"The pending ruling by the Federal Motor Carrier Safety Administration will have an impact on construction fleet owners immediately and will open up opportunities for technology providers. The days in which a truck driver could keep two sets of log books will be gone.

This new technology records a driver's record of duty status (RODS) to electronically document their hours of service (HOS). Company CEOs and fleet managers will not have to worry about proving how many hours a driver has completed in a shift or a work week. ELDs have several benefits for companies, including saving time for drivers in documenting their hours, allowing dispatchers to have a real-time overview on driver status and location and improving records by moving away from paper-based logs that can be easily lost or damaged.

It will be interesting to see how apps on smartphones play a part in this workflow evolution. While there are certain requirements developers must meet for apps (such as a hardwired connection to the engine), the efficiencies that could be created in how a driver generates and shares data with the dispatcher in real time seem well worth the challenge.



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Finding Your 5-Year Vision

Draft a successful, long-term blueprint for the future of your company



As a professional construction BIZCOACH and industry speaker, George Hedley helps contractors increase profits, grow and get their companies to work. He is the best-selling author of "Get Your Construction Business To Grow & Profit!," which is available online at hardhatpresentations.com. Email gh@hardhatpresentations.com to sign up for his free e-newsletter, join a peer mastermind BIZGROUP, implement the BIZ-BUILDER BLUEPRINT, or get a discount for online courses at hardhatbizschool.com.

ASK GEORGE

To submit a question for George Hedley, email Associate Editor Elizabeth Manning at emanning@cahabamedia.com.

When you started your company, you probably had a dream of where you wanted the business to go and what the business would become over the next few years. Nothing is different today. Owners still have a vision of what they want the business to become. But most owners have stopped pursuing their dreams and settle for what they're used to with customers, competition, people, margins and opportunities. After several years building their companies, most owners eventually reach the level I call the "uncomfortable zone"—a period in which they are uncomfortable and reach maximum levels of pain, stress, energy and effort. They begin to realize they have fallen short of their vision of an organized business that makes money and gives them exactly what they want in terms of time, satisfaction, finances and freedom.

As a business coach, I regularly receive calls from frustrated business owners who have reached their limits and need help. The typical question is: "What do I need to do to change my business and get it to work the way it should?" The typical scenario is a business with no written plan, no handle on the numbers, no accountable managers and not enough money for their efforts. To build a better business, you need to first decide what you want to accomplish over the next 5 years. You are not in business to work hard and struggle, only to be frustrated and not make enough profit for the risks you take. You are in business to earn a good return on your investment of time, energy and money. As the owner, you must have a vision of what the business will become and the return it will generate with good people, systems, production and customers. Only then can you draft a written plan to go out and see the vision become a reality.

DECIDE WHERE YOU WANT TO GO

When business owners call for help, I ask them to email me their business plan, and I normally receive a blank sheet of paper. Without a written vision and detailed plan, how can you ever expect to get where you want to go? The first step of drafting your blueprint is to decide where you want your business to go in the next 5 years. What's your vision for owning a perfect company? Identify how you will do business, the perfect size of your company, the type of customers, where you'll do business, the number of employees, how you'll generate revenue, what your company will be known for, how much money you want to generate, the assets you want to acquire and what your role as owner will be.

DRAFT YOUR 5-YEAR VISION

Start by completing the 5-Year Vision Worksheet on page 11. If you want to make $1 million per year in net income or have a net worth of $10 million in 5 years, write it down. Perhaps you want to be the leading specialty construction company in your market, or have 10 loyal customers who give you all their work. Maybe you want your company to be run by



THE 5-YEAR VISION WORKSHEET

1. Describe your ideal business in 5 years.
2. What do you want the business to become in that time?
   a. Characteristics, description and direction
   b. What you do, how you do business and how you lead
   c. Specialties, expertise, niches, divisions or departments
   d. Where you do business (geographic area or locations)
   e. Size, revenue and growth
   f. Profits, dividends, finances, equity, wealth and investments
   g. Customers, markets, projects, contract types and services
   h. Strategic partners, opportunities and joint ventures
   i. Organizational structure, leadership and management team
   j. People, employees and training
   k. Project management, estimating, administration, supervision and field
   l. Accounting and financial management
   m. Productivity, tracking, job cost and technology
   n. Equipment, revenue, profitability and management
   o. Ownership's role
3. In 5 years, what would make you excited about your business?
   a. What results or improvements have you made?
   b. What challenges, problems or issues have been fixed?
   c. How would the business operate?
   d. What would it do and how big would it be?
   e. How much money would it make?
   f. What type of projects would make it better known?
   g. What type of customers would it target?
   h. How would it be organized, systemized and in control?
   i. What would it do for the owners?
4. In 5 years, what ongoing results do you want the business to achieve?
   a. Profits
   b. Sales
   c. Equity
   d. Growth
   e. Projects
   f. Customers
   g. People
   h. Wealth and investments
   i. Personal and freedom
5. In 5 years, what has to happen in your business to be happy with your role and results?

a general manager who handles the day-to-day operations, allowing you to work on your investment portfolio 3 days a week. Or perhaps you love working with customers and want to continue to be the chief salesperson and have someone else run your construction and field operations. Below is an example of a 5-year vision plan, complete with targets and timeframes. How does your plan compare?

1. Grow 15 percent per year with 6 percent minimum net profit and $1 million working capital
2. Accountable, organized and systemized management-team-run company
3. Project types—Office, industrial, manufacturing and warehouse buildings
4. Project size—$6 million
5. Contract types—Negotiate 80 percent of contracts
6. Sales plan—Maintain a bid-hit ratio of 33 percent or better
7. Expertise—Difficult projects requiring high performance evaluations and strict qualification standards
8. Employees—Satisfied, productive, loyal team that achieves expected results
9. Safety—Excellent safety program, rating and culture
10. Equipment—Well-maintained, highly profitable equipment division
11. Owner's role—Provide leadership, direction and motivation; set targets and goals; keep employees focused on achieving results; seek new business opportunities; and stay active in the community
12. Investments—Own investments that produce over $200,000 net income per year

What challenges, issues or problems do you need to fix over the next 5 years to make your business work for you? Write out what you want your company to become in the next 5 years, including specific targets and goals you want to accomplish and achieve. CBO

Where Is My Trophy?

Examining a world where everyone is a winner & how to make this work in your firm



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.

It appears to be all the rage—we live in a world where everyone wins, as long as everyone is 10 or younger. Arguments abound regarding the pros and cons of celebrating a world of winners. On one hand, it helps create an environment of positive reinforcement and grows young minds to think more about team collaboration, sportsmanship and enjoyment. Contrarians argue that it positions young people to have unrealistic expectations about the world and instills a sense of entitlement.

One of the greatest examples of the dystopian world of non-winners is, in fact, the world of construction. Ask any estimator or business developer about their awards for second place on bid day and you might be greeted with a slew of four-letter words. At best, you will receive a barrage of laughter.

The same cynicism pervades just about every aspect of a firm's culture, and it often becomes hard to find any winners at all. Consider bid day—even when a firm wins, the first comment made is, "What did we forget?" That's hardly the ticker tape celebration one would expect on the heels of a successful project.

So, does this mean that contractors should maintain a sizable stock of participation trophies for their bid team? No, but moving the needle from the netherworld of negativity would be a stark improvement. Simply put, when was the last time someone in the firm was caught doing something right? There is never any shortage of setbacks, challenges, issues, mistakes or accidents in the world of construction. "Bad news" is a term heard all too often on the jobsite.

However, it is as important as ever for contractors to identify and reward the right behaviors and incentivize the firm's associates to do the right thing. In an industry where skilled labor is short and employee retention is on the minds of every business owner, rewarding good work can go a long way. Set yourself apart from the competition by seeking out opportunities to appreciate and acknowledge your employees.

FIRST PLACE: BEGIN WITH CORE VALUES

With so many things happening day to day in any firm, what should a firm emphasize? The best areas to focus on are the core values that serve as a firm's DNA. Safety, quality, customer service, innovation and integrity are just a few of the most common values that many firms use as basic tenets.

However, all too often, core values are relegated to some poster or business card and are rarely exemplified in daily business activities. This does not mean a firm that has the aforementioned values acts hypocritically—in fact, some of these values are so deeply ingrained that leaders do this naturally. However, what better way is there to illustrate practical applications of core values to newer and younger associates than by rewarding the right behaviors?



Every Friday need not be "gold star day," but rewarding talent should occur more frequently than Halley's Comet. A great deal of good can come from a CEO acknowleding the positive contribution of team members.

For many employees, incentive compensation provides the connective tissue to profitability. By rewarding an individual that demonstrates superior customer service, a firm can reference specific instances of firm-first behavior.

SECOND PLACE:
REWARD COLLABORATION

Rarely does a firm's success rely on the efforts of a single individual. For instance, a project requires the efforts and sweat equity of many team members, internally and externally.

So often, firms dwell on the projects that seem to drain so many of the firm's resources. Consider rewarding a project team with some sort of firm-wide acknowledgement for the team's contribution to a finished, successful project.

Whether it is a commendation, such as a plaque or certificate, or even some sort of "trade contractor thank you," it sends a message of positivity. These same team members probably receive their fair share of bad news frequently on the jobsite.

This is hardly a "Best Project of the Year Award," and additional great projects can also be celebrated, to be sure. Ultimately, the aim is to recognize the contribution of the team toward the greater good and acknowledge the efforts of team members outside of the firm.

THIRD PLACE:
REWARD THE LITTLE THINGS

This is not to say a firm should provide trophies for walking, but it is readily apparent that firms seem to only celebrate the grand slams or mega-successes. Each day a firm wins by hitting singles, doubles and triples, but those moments are discounted and relegated to daily operating procedures. Every Friday need not be "gold star day," but rewarding the talent of the firm should occur more frequently than Halley's Comet. A great deal of good can come from a CEO or president acknowledging the positive contribution of its team members.

Whether that is a passing reference in a newsletter, blog, company address or even on an impromptu site visit, the immeasurable good will only provide a jolt of momentum to the project team.

PARTICIPATION

There are many pundits who will argue against celebrating wins and positively acknowledging team members because it will only alienate the team members that are not acknowledged. If a firm only provides a small number of positive messages, doled out like rations during a famine, it is easy to see how a positive tool could be perceived as a negative one.

However, firms that celebrate at the correct frequency and acknowledge the correct behaviors should never worry about the minority that feels slighted. Consider the alternative: because a few people may feel wrongly disenfranchised, the whole firm will now shy away from rewarding anything positive. In some cases, it is not the message of positivity that they are against, but some deep-rooted angst, possibly stemming from a past, perceived wrongdoing by the firm. Begin working to change employees' views about how much they are valued within your organization.

Rewarding good work is a relatively easy task that can speak multitudes across a firm. A culture that focuses on its greatest asset—its people—is one that succeeds. Leadership can put the trophies down and become cheerleaders, celebrating its winning team. **CBO**

Clearing Communication Smog

3 categories of business pollutants & solutions to save your company

MARK A. VICKERS

What would you do if a pollutant in your firm was killing $5,000 of profit? What would you do if every employee created that much pollution each year? Ineffective communication in your organization causes smog that prevents clear communication and kills profits. Low-level communication smog causes an average loss of 40 minutes of time for every employee, every day, every year. As the pollutant builds, it can cause significant damage to your organization.



CATEGORY 1

Most companies operate in a continual state of Category 1 communication smog, with the typical employee losing 167 hours of productive time each year. At the 2015 average United States salary, benefits and tax levels, that equates to $5,200, per employee, per year. Most people don't realize the amount of time lost daily due to issues, such as seeking clarification; asking a question multiple times; resolving conflicts; never-ending email threads; crisis management; and rework.

Companies often do not recognize the importance of these issues because the impact of each issue is too small to be noticed as a financial impact. While these pollutants could be considered insignificant at the individual issue level, over the course of a year, a company with 20 employees could lose over $100,000 of productive time. At this level, a good breeze of coaching can clear the air, regain productive time and prevent further pollution.

CATEGORY 2

At this level, ineffective communication pollution continues to thicken the smog covering your organization. In addition to all of the Category 1 impacts, in Category 2, you begin to experience:

- Lost sales and customers
- Increased marketing, customer acquisition and customer service costs
- Increased staff turnover
- Decreased operational continuity

With Category 2 communication smog, the following symptoms appear regularly:

- Sarcastic, negative comments emerge
- Employees resistant to raise issues
- All levels of staff operate in a "cover your assets" mode
- Lack of faith in the organization

At a Category 2 level of dysfunction, the cost, time, resources and organization discomfort required to correct the issue is exponentially greater than Category 1.

CATEGORY 3

When communication problems evolve to Category 3, the smog becomes so thick

that issues gain a high financial impact. You will observe:

- Prevalent sarcasm and negativity
- Inappropriate comments about customers and management
- Conflicting objectives
- Complete communication breakdown
- High employee turnover
- Legal costs skyrocketing
- Large-scale customer defections
- Loss of reputation

Category 3 smog requires hurricane force winds to clear the air. Success will be difficult without a wholesale cultural change. Ineffective communication is a slippery slope that, unattended, can grow silently until you lose valued customers.

CLEARING THE AIR

To clear the air, employ acknowledgement, identification and remediation. For any plan to be successful, all levels of management must agree that communication is important and that everyone has room to improve. Once there is acknowledgement that communication needs to be addressed, you can move to the next step. To maximize the results from any remediation plan, it is critical that communication problems with the highest impact be addressed first. To assign priority, an assessment should be done evaluating communication based on:

- Job title or position
- Duration of service with the company
- General categories of communication
- Common communication issues

Your remediation plan should focus on the processes and skills required to create an environment for clear communications. By launching initial elements of the remediation plan on high target areas, you can quickly gain momentum and create a ripple effect that will be required to flush the pollution from your environment. A common sequence of learning priorities is:

- Establish a clear intention
- Maintain a focus on others' needs
- Deliver messages with clarity
- Enhance your message with improved presentation skills
- Formulate and ask powerful questions

Take an intentional approach to communication in your company, and you will create an environment where communication flows freely and effectively. CBO

Mark A. Vickers is a communications consultant, a certified professional coach and speaking coach who focuses on improving overall performance through communication and speaking skills. Visit speakingisselling.com.



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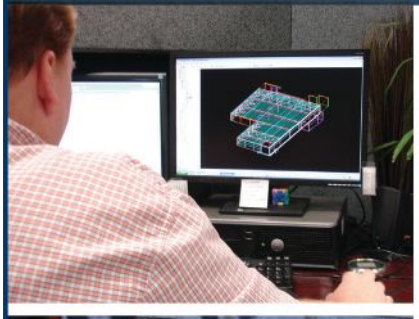



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5 Ways to Combat Seasonal Lows

How construction business owners can manage cash flow year-round

BY EYAL SHINAR

In many parts of the country, a number of construction businesses experience seasonal lows during the winter months. Destructive weather conditions, such as ice and snow, can strain business functions and hinder the progress of most construction projects. An extended harsh winter or a natural disaster might even render a project's completion impossible, losing your business's crucial funds.

While business slows down during these months, there are fixed expenses that business owners must account for year-round, such as rent, operational costs, payroll and health care.

Finding a way to balance this inconsistent influx of on-hand funds is difficult for many construction businesses. However, there are relatively easy ways to prepare for and overcome this challenge. Positive cash flow is essential to the success of any business, and maybe even more so for seasonal operations that experience significant shifts in income based on the time of the year.

The following are five key tips that construction business owners can implement to avoid the pitfalls of seasonal lows. These tips help ensure that a business owner is never caught scrambling to figure out how to pay bills during those months when it is difficult to complete projects and weather conditions are unpredictable.



1. FORMULATE NEW REVENUE STREAMS

Now is a great time to harness your creativity and brainstorm new ways to generate additional revenue. For example, if you manage a mid-size construction company that primarily operates in Maine, you could try to expand your scope to also include servicing clients in warmer climates during the upcoming winter months. Research different state licensing requirements and consider applying where it would be the most economical for your company. Whether it is offering new construction services or creating new project teams, trying something new can help solve your cash flow problems.

2. NEGOTIATE MORE FAVORABLE PAYMENT TERMS WITH YOUR SUPPLIERS

Let's say you run a construction company primarily operating in Michigan, where snowy winters are inevitable. It might be worth it to ask your suppliers whether you can pay larger portions of your contracts during your company's busier times of the year—when you have more cash on hand. Creating this arrangement can make it easier for your balance sheet to survive the slimmer numbers that are inevitable during harsher seasons.

3. MASTER YOUR INVENTORY MANAGEMENT

At the end of the season, consider selling any of your company's remaining building materials at a discount. In doing so, you will generate an immediate portion of extra revenue during the slower months, while eliminating the costs associated with carrying inventory or paying for storage to house leftovers—a win-win scenario.

4. USE AN INVOICE CLEARING SERVICE

As is a common occurrence throughout the construction industry, if your clients are routinely late on paying their bills—leaving you unable to pay your own—you might consider looking into using a service or cash flow management tool to advance payments on outstanding invoices. Any small payment can help you overcome these cash flow gaps and solidly carry your business into another year.

5. BE PROACTIVE

Rather than waiting for cash flow problems to occur, before figuring out how to respond to them, you are better off planning ahead to reduce the likelihood that you will face them in the first place. Be sure to regularly forecast your cash flow on both a near-future and long-term basis. That way, you won't be caught completely off guard, should funds begin to dry up.

Expertly managing cash flow can be difficult for any business owner. And it is perhaps even more challenging for those construction companies that generate a majority of their revenues during a particularly harsh season in their area(s) of operation. The options listed above are good opportunities for construction business owners to maintain positive cash flow year-round.

By understanding the importance of cash flow management, your business will have access to the funds it needs to thrive and grow—no matter the season or the current state of your projects. CBO

Eyal Shinar is the CEO and founder of Fundbox and an expert in financial services and technology management. Prior to his current position, he served as a vice president at Battery Ventures, where he led projects and investments in the areas of finance, machine learning, SMBs and SaaS. Visit fundbox.com.





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Find the Educational Tools Your Team Needs

Technical college & training company partner to alleviate labor strain facing Georgia contractors

BY TRACY BENNETT

West Georgia Technical College (WGTC) recently partnered with Crane Industry Services LLC (CIS) to offer crane operator and rigging training and certification through its economic development division. According to an August 2015 United States Construction Forecast Report released by Oldcastle Business Intelligence, construction is expected to grow 8 percent in 2016, with the Southeast experiencing as much as 13 percent growth. Georgia is one of four states predicted to show the strongest growth in the nation, at 18 percent gains.

However, according to research conducted by Construction Labor Market Analyzer (CLMA), demand for all nonresidential construction activity in the Southeast is nearly half of all the projected activity in the U.S. (see Table 1 on page 20). That translates into fierce competition for labor, which leads to higher labor costs. Furthermore, within the Southeast, a significant portion of the headcount demand over the next 2 to 3 years is industrial, which includes crane operators. Because of the demand for workers in the Gulf Coast region, Alabama, Georgia and Tennessee are at risk of seeing workers travel there for wage and per diem incentives.

Serving seven counties in northwest Georgia and nearby Alabama (9 percent predicted growth) and Tennessee (11 percent predicted growth), WGTC is in the center of this skilled labor crisis. Crane and rigging operations are highly skilled activities, and yet there are few places, outside of on-the-job training, for workers in construction and other industries to acquire the skills needed to enter this field. Because the demand is so high, WGTC made the move of partnering with professional training and accredited certification provider Crane Industry Services (CIS), to open a new Centered on Safety training center



CIS staff demonstrates how to turn a load, presenting concepts of load center of gravity and proper rigging techniques.

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David Tulkin
Tulkin is a senior business development manager with Fundbox and focuses on developing partnerships that create value for his clients. Fundbox is a solution that helps small business owners get paid instantly on outstanding invoices with no application or paperwork required.

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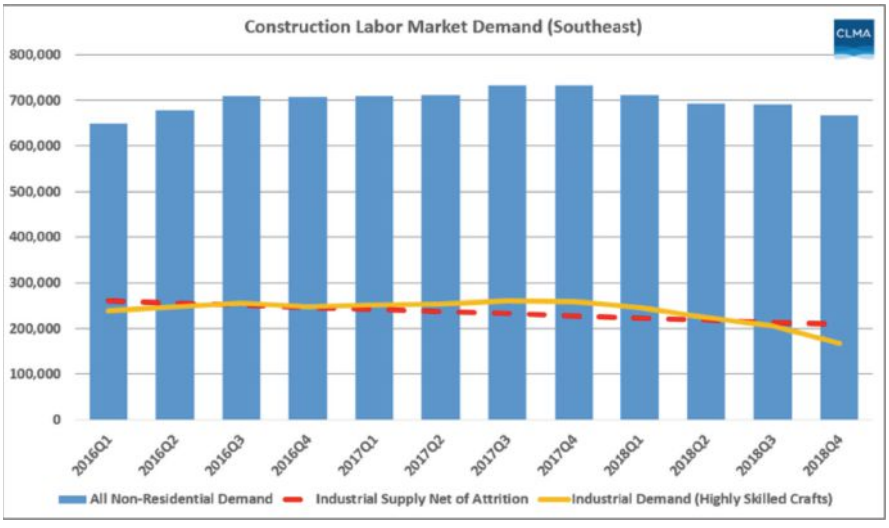
on the college's Murphy Campus in Waco, Georgia. CIS employs National Center for Construction Education and Research (NCCER) certified master trainers, instructors and examiners who deliver validated and accredited training and certifications.

"The Economic Development Division fills the gap with courses that are industry- and task-specific," said Laura Gammage, vice president of economic development for WGTC. These are courses that fall outside the realm of the college's traditional credit coursework. WGTC and CIS held a program showcase ribbon cutting at the new Centered on Safety training center in December 2015. The event included crane operation and rigging demonstrations. Aubrey Silvey provided the cranes and loads for the demonstration.



Graph 1. Construction Labor Market Analyzer research shows Southeast demand

LABOR PIPELINE FOR CONSTRUCTION MANAGERS

In an effort to help young people identify career path options, R.K. Redding, a Georgia-based general contractor, and Paulding County School District recently co-sponsored an initiative to allow more than 2,000 high-school juniors in the district to take a YouScience Profile, which provides a personalized assessment of students' natural abilities and specific interests and pairs that with career opportunities. Meanwhile, CIS CEO Debbie Dickinson volunteers at local schools to offer students insights to working in the industry. With the opening of the Centered on Safety center, students now have a resource for getting the specialized training they need when their YouScience profile steers them toward the industry.

According to Casey Pollard, vice president of strategic planning and development for R.K. Redding Construction, the center is important because of its location. "Often, you have to travel out of state to find this type of specialty training. Rigging courses are essential because all construction trades conduct some kind of rigging activities," said Pollard. Using a tool such as the Construction Labor Market Analyzer (CLMA), contractors can better predict the available skilled labor sources and more effectively estimate and plan training and labor needs. "Our mission is to help industry stakeholders like owners and contractors effectively understand craft and professional labor supply and demand and compensation risk," said Daniel Groves, CEO of Construction Industry Resources which owns and manages the CLMA. Dickinson added that this might mean cross-training existing employees to become proficient at new tasks or developing green employees with specific desired skill sets.

"After years of watching industries grapple with compliance issues, we saw that contractors were seeking training that goes beyond the basics. Test prep courses have minimal value when training is not relevant to the knowledge and skill employees need for day-to-day work. An overemphasis on compliance can be a tragic mistake. Skills and safety development are a means for achieving organizational excellence, productivity and efficiency. Maintaining compliance is part of the process, not the ultimate goal," Dickinson said.

Courses delivered by CIS's certified instructors with on-the-job experience initially will include Basic and Advanced Rigging; Rigging Inspector; Crane Operator training, certification and qualification for mobile, overhead and tower cranes; Crane Inspector; Crane Site Safety Management and Power Line Safety for Utility Workers. Additional courses are in development.

Advanced courses prepare employees for crane safety management and increase credentials of existing crew members, transition military personnel to civilian employment and provide career development for skilled professionals. "After you've sold the concept of construction as an attractive career, communities have got to have the tools in place to help people get the education they need," said Dickinson. **CBO**

Tracy Bennett operates Mighty Mo Media Partners, a marketing consulting firm located in Parkville, Missouri, that specializes in technical writing, content marketing, public relations and branding strategy for the construction industry. Bennett produces the Connector eNewsletter for the Steel Erectors Association of America, and is a member of the Specialized Carriers & Rigging Association and the Construction Marketing Association. Contact Bennett at tbennett@mightymomedia.com.



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Contractual Clause & Effect

The importance of reading indemnity provisions in contract negotiations

BY JOSHUA W. BALLANCE

In the typical construction contract, the least understood provisions are often those that require the contractor to indemnify the owner for losses or damages arising under the contract. Indemnity provisions are a powerful risk-shifting tool that often go overlooked during contract negotiations. These provisions are complicated by the fact that even minor word changes can have a dramatic effect on the obligation assumed by the contractor. By examining a relatively simple indemnity provision like the one below, involved parties can identify what each part of the provision means and the risk assumed under the provision.



To the fullest extent permitted by law the Contractor shall indemnify, defend and hold harmless the Owner, Architect, Architect's consultants and agents and employees of any of them from and against any claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work whether caused in whole or in part by the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable.

Starting with the opening clause, notice that the provision is applicable "to the fullest extent permitted by law." This language is relatively innocuous, and is generally included to save the provision from being thrown out if it is unenforceable. This typically happens because a jurisdiction's anti-indemnity statute places a limit on the extent that one party may agree to indemnify another. Often, this limitation will prohibit one party from indemnifying another party for the first party's sole negligence. The language will tell the court to enforce the provision to the fullest extent the law allows, rather than throwing it out.

Moving on to the next clause, the contractor is required to "indemnify, defend and hold harmless" the "owner, architect, architect's consultants and agents and employees of any of them." First, consider what it means to indemnify, defend and hold someone harmless. Indemnify means that you will compensate someone for a loss. Defend is somewhat self-explanatory, but, as used here, is a somewhat nuanced term. In general, it means that if one of the indemnified parties is sued, you (the indemnifying party) will provide a legal defense for the claim by retaining attorneys and defending the claim in court or by another dispute resolution procedure. It can be argued that, without the word "defend," you do not have an obligation to provide for the defense of the claim. However, some

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It is vital for contractors to always review an indemnity provision with their legal and insurance counsel, who can advise them whether it violates any applicable statuses and whether they have adequate insurance in place to cover the obligation.

jurisdictions will hold that a duty to defend is implied by the indemnity obligation or a defense may be required by statute. "Hold harmless" is a similar term to indemnify and means to relieve someone from liability for a loss. Essentially, what all of this means is that the party with the indemnity obligation will assume full responsibility for some loss or damage, even before an adjudication of fault has been made.

You might then ask to whom you owe this obligation. Under the provision above, you owe this obligation to "the owner, architect, architect's consultants and agents and employees of any of them." For example, if a pedestrian walking by the jobsite tripped and fell on a piece of construction debris, he or she might sue the owner. The owner would then ask the contractor, under the provision above, to indemnify, defend and hold it harmless. The contractor's obligation to indemnify the owner usually is not the problem; the contractor has a contract with the owner, after all. The architect is also identifiable and a likely party to be sued in the event an injury occurs on the jobsite. However, the architect's consultants and the agents of any of these parties can make it very difficult for the contractor to determine just who it is obligated to indemnify. It may be necessary, then, to place some limitations on to whom the contractor owes this obligation.

Having determined the obligation under this provision and to whom it is owed, the question then becomes: when does the obligation arise? Under the provision above, it arises when there are "any claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the work." While this language is broad, the problem doesn't arise with the "any claims, damages, losses and expenses, including but not limited to attorneys' fees" language, although perhaps attorneys' fees should be reasonable. This language clarifies that the responsibility to indemnify and hold harmless really does mean that the indemnified party will be made whole. The language is broad because it applies to any claims "arising out of or resulting from performance of the work." This language opens the door for any number of claims because it does not require a causal link to the contractor's negligence or its operations at the site. What if the project violates a third party's air rights or infringes on an adjacent property owner's rights in some way?

These claims may be completely out of the contractor's control, but could become an obligation that the contractor is responsible for under the indemnity provision. Furthermore, indemnity provisions are generally intended to protect the indemnified parties from third party claims, for example, claims by individuals or entities other than the indemnified parties.

By stating that the provision is applicable to "any claims," the provision could arguably apply to claims the indemnified party has against the contractor. As just one example, this could make the contractor liable to the owner for attorney's fees it would not be responsible for under the owner's typical contractual remedies.

The last section of the provision, "whether caused in whole or in part by the contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable," goes even further to illustrate the extent of the indemnity obligation. The three words "or in part" add a wrinkle to the provision that has the potential of making the contractor liable to the owner for far more than its share of the damage. Typically, this language would mean that if the contractor caused the loss in any way, even if the loss is mostly or entirely the owner's fault, the contractor is still responsible to indemnify the owner for the entirety of the loss. Note that your state may have enacted an anti-indemnity statute that may nullify a contractual obligation to indemnify another party for the other party's negligence.

As this example illustrates, indemnity provisions can pack a lot of liability into very few words, and the addition or omission of a few words can dramatically change the provision's impact.

As such, it is vital for contractors to always review an indemnity provision with their legal and insurance counsel, who can advise them on what the provision means, whether it violates any applicable statutes and whether they have adequate insurance in place to cover the obligation. **CBO**

Joshua W. Ballance, Esq., is senior manager and counsel on the AIA Contract Documents team at the American Institute of Architects, Washington, D.C. Ballance works actively in the creation and revision of AIA Contract Documents and provides assistance to users of AIA documents. Ballance is also a member of the Florida Bar and American Bar Association.





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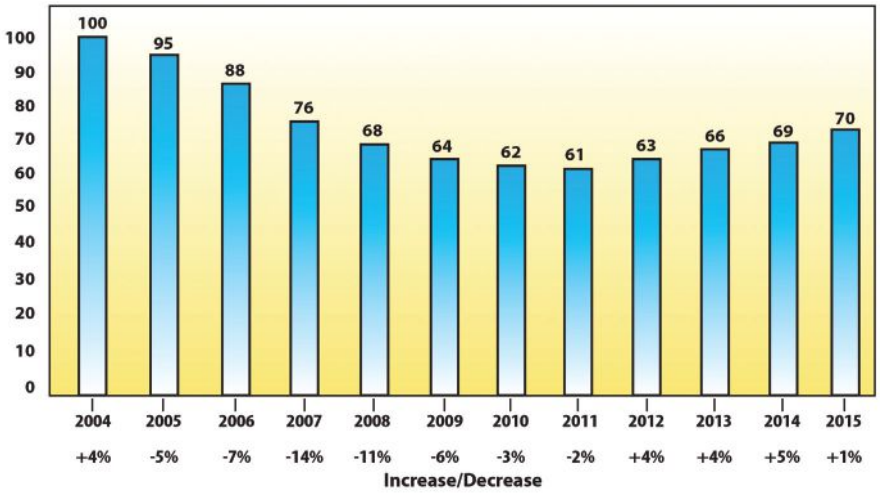
2016 Insurance Market Forecast

With the exception of health insurance, it's a good time to be a buyer

BY JEFF CAVIGNAC, JAMES P. SCHABARUM II & PATRICK CASINELLI

Like many businesses, the insurance industry is cyclical in nature. The insurance cycle is important to business owners because it directly impacts insurance premiums. As for insurance pricing today, Table 1 provides a historical picture of insurance industry rates calculated by MarketScout, with 2004 as the base year. The industry had been fairly profitable and surplus was strong, so rates started to come down. From 2004 to 2011, rates actually dropped about 40 percent. When prices went down, combined ratios and profits began to deteriorate. Rates started to increase, and since 2011, average rates have gone up about 15 percent. Still, they remain 30 percent below what was charged in 2004, and the rate increases have begun to taper off.

Today, underwriters want more rates, but the high surplus is keeping the industry competitive. Although rates have increased, on average, about 1 percent through July 2015, that is anticipated to change by 2016, and a modest rate decrease is predicted. In short, the industry is flat. However, this will differ by account and policy type. Preferred risks in desirable industries with profitable loss histories may see rate decreases of 5 percent to 10 percent or more, while challenging accounts in high-hazard classes with poor loss records can still see substantial rate increases.



Graph 1. Historical picture of insurance industry rates 2004 to 2015

ALLIED LINES

Allied lines refer to general lines of insurance that most companies need to purchase. This includes general liability, property, inland marine, auto, workers' compensation and umbrella coverages. Workers' compensation is addressed separately, but in general, allied lines will track with the comments made above. If you are an average risk in a decent class, your rates should be flat.

EXECUTIVE RISK

Executive risk refers to directors and officers liability, employment practices liability and fiduciary coverage. This can also include crime, kidnap and ransom and cyber. Executive risk is more volatile than the allied lines. Current pricing is being affected by the last economic downturn. The poor results experienced by many businesses and the layoffs and reductions in force (RIFs) have increased loss ratios. Insurance companies tend to be reactive in their pricing, and these poor results are now manifesting themselves in higher premiums. While it is difficult to provide an average rate increase (10 to 25 percent is not uncommon), it is also misleading. Every account is different and individually underwritten. You should start early on these renewals and go into

detail on why your firm is, in fact, a good risk and should be credited accordingly.

PROFESSIONAL LIABILITY

In general, professional liability lines are flat like the industry at large, but once again, this can vary by profession, specialty and account. Architects and engineers currently have more options than they have ever had. Every one of these policies is different and coverages can vary greatly. In addition, the claims handling and risk control services offered also vary.

Some insurers simply offer a policy (often a lousy one) with a subbed-out claims department. Others provide broad coverage, in-house specialized claims expertise and sophisticated risk management. Accountants, attorneys and other professionals also have a wide range of suitors, but, similar to the design profession, coverage, claims and risk control are all over the board. This underscores the importance of dealing with a broker who specializes in your industry and knows the differences in coverage and the pros and cons of each insurance company.

WORKERS' COMPENSATION

Compensation is trending positively after 6 years of rate increases. Table 2 shows the average rate charged per $100 of payroll in California. Rates peaked in 2003 at $6.29. The reason for the higher rates is attributable to the lousy underwriting results from 1999 to 2002 (see Table 3 on page 28). As rates went up, results measurably improved and, from 2003 to 2009, rates fell off 67 percent, to an average of $2.10.

While this was good news for insurance buyers, it was bad for the insurance industry, and rates started to go back up to combat the poor combined ratios. Since then, rates have increased over 40 percent, but it is important to remember that they are still less than half of what they were in 2003. While rates continued to increase modestly through 2014 and 2015, it is anticipated that rates will be flat in 2016. Note that this is an average. Every classification (there are over 250) is affected by the experience of that class. Some will go down fairly substantially, but others could go up.

SURETY OUTLOOK 2016: DO MORE WITH LESS

There has been a slow and steady improvement in the surety industry in recent years, which has been mirrored in the United States economy and other related financial markets. The surety outlook for 2016 will remain positive, but will be challenged by factors that influence the construction and commercial business markets.

Astute contractors have not abandoned the lessons learned in the post-recession recovery. Construction firms today are leaner and meaner with a focus on bottom line results. An overall acceptable profit margin for efforts expended is mandatory. However, owners' expectations are still in a buyers' market mode, interest

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rates are artificially low, fuel and material prices are cheap, technology applications are ever improving and there is a growing worker shortage. Going forward, successful firms will cautiously continue to grow their operations with an eye on doing more with less.

HEALTH INSURANCE

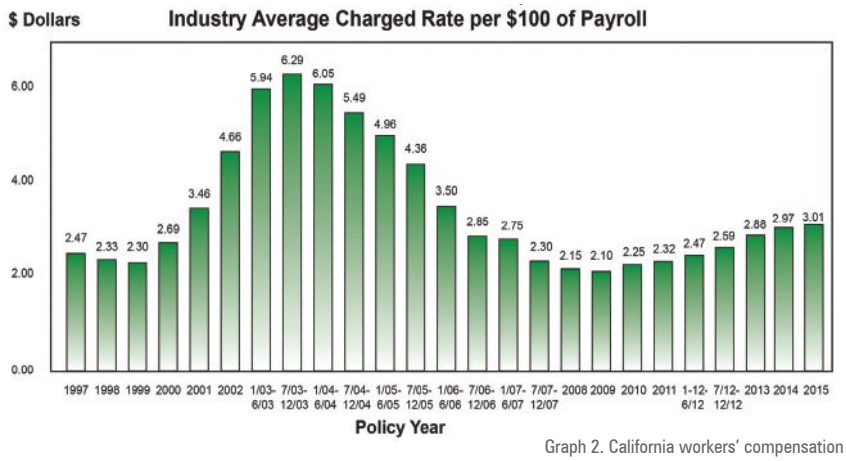
Medical insurance costs in 2015 increased between 20 to 40 percent, due to the changes in the Affordable Care Act (ACA). The early renewal strategy in 2013 helped employers delay the effects of the law, and "grandmothering" helped in 2014. The 2015 medical renewals for companies with 2 to 50 employees realized all the impacts of the law.

In 2016, companies with 51 to 100 employees will be considered small groups in California, and the ACA changes and increases will be taking effect. Although the federal government is giving states the opportunity to define small and large groups, California will likely set the dividing number at 100 employees.

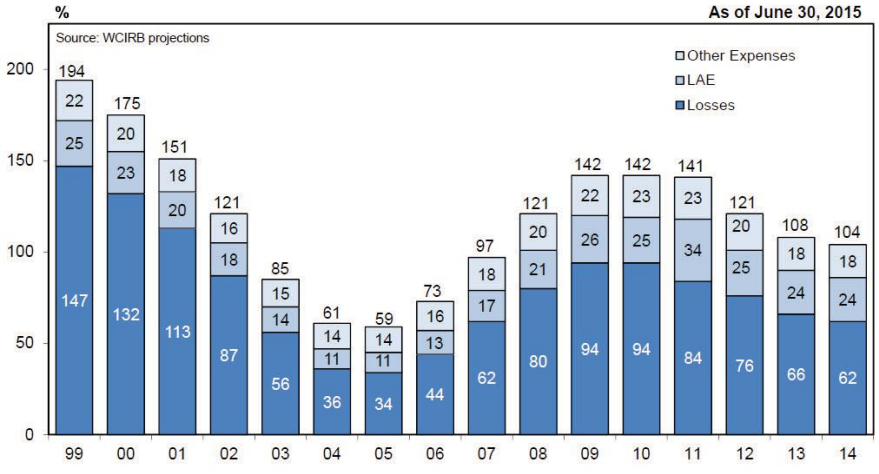
Rates are currently determined by the employee and their dependent's individual ages, plan design and location of the company. A family of five will pay for each family member based on each individual's age and the plan they select. Some younger employees or families with only one child may realize lower premiums. All of the small group plans have changed to conform to the law, and most have higher deductibles and copays. Therefore, employees will have to pay more when they use the services.

In 2016, the insurance carriers will be trying to figure out how to survive after implementing all of the ACA requirements. Rates will continue to increase as the plan's taxes and fees continue to rise.

Employers should budget a 10 to 15 percent increase, and depending on plan change options, rates could settle in at +5 to 10 percent. Dental, life, vision, disability and jobsite products continue to remain extremely popular benefits for employees.



Graph 2. California workers' compensation



Graph 3. Combined loss and expense ratios 2015

BOTTOM LINE

It is a pretty good time to be an insurance buyer, with the exception of health insurance. The industry has abundant surplus and decent results. Most businesses will be able to negotiate flat rates and some businesses may even see rate reductions. However, insurance premiums need to be kept in perspective.

They are only one component in the cost of risk. Time spent managing risk, training employees to be safe, dealing with claims, funding uncovered claims and a number of other costs all factor in as well. For many large companies, insurance premiums can be less than half the total cost of risk.

While you should understand the economics of the insurance industry and how they can affect your business, there is nothing you can do to positively affect it. However, you can positively affect your risk profile. In the long run, the only way to reduce the cost of risk is to reduce the frequency and severity of claims that drive the cost. An effective risk control program and a partnership with the right broker are key to lowering your costs. CBO

Jeff Cavignac, CPCU, RPLU, ARM; James P. Schabarum II, CPCU, AFSB; and Patrick Casinelli, RHU, REBC, CHRS, are principals of Cavignac & Associates, a risk management and commercial insurance brokerage firm providing a broad range of insurance and expertise to design and construction firms, law firms, manufacturing companies and more. The firm employs a staff of 45 at offices located in San Diego, California. Visit cavignac.com.

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Bucking Houston's Teardown Trend

109-year-old Sunset Coffee Building gets an industrial rehabilitation

BY JOHN BARNES & KEVIN KAZDA

In Houston, Texas, a city known for its teardown mentality, the long-vacant Sunset Coffee Building situated on the banks of the Buffalo Bayou would have typically met the wrecking ball long ago. Despite its location in a 100-year-old flood plain, where new construction is usually out of the question, the Buffalo Bayou Partnership (BBP) purchased the 19th-century industrial building in 2003 as part of its master plan to transform a 10-mile stretch of neglected waterway into a thriving recreational area.

A variety of financing sources, including a $500,000 federal grant, nearly $1 million from the downtown Tax Increment Reinvestment Zone, an investment from a public-private partnership and private donations raised by BBP were combined to revive the 12,700-square-foot former coffee-roasting facility into a cultural center. The center features a rooftop terrace for events, an outdoor plaza, a canoe and kayak rental facility and an office space.

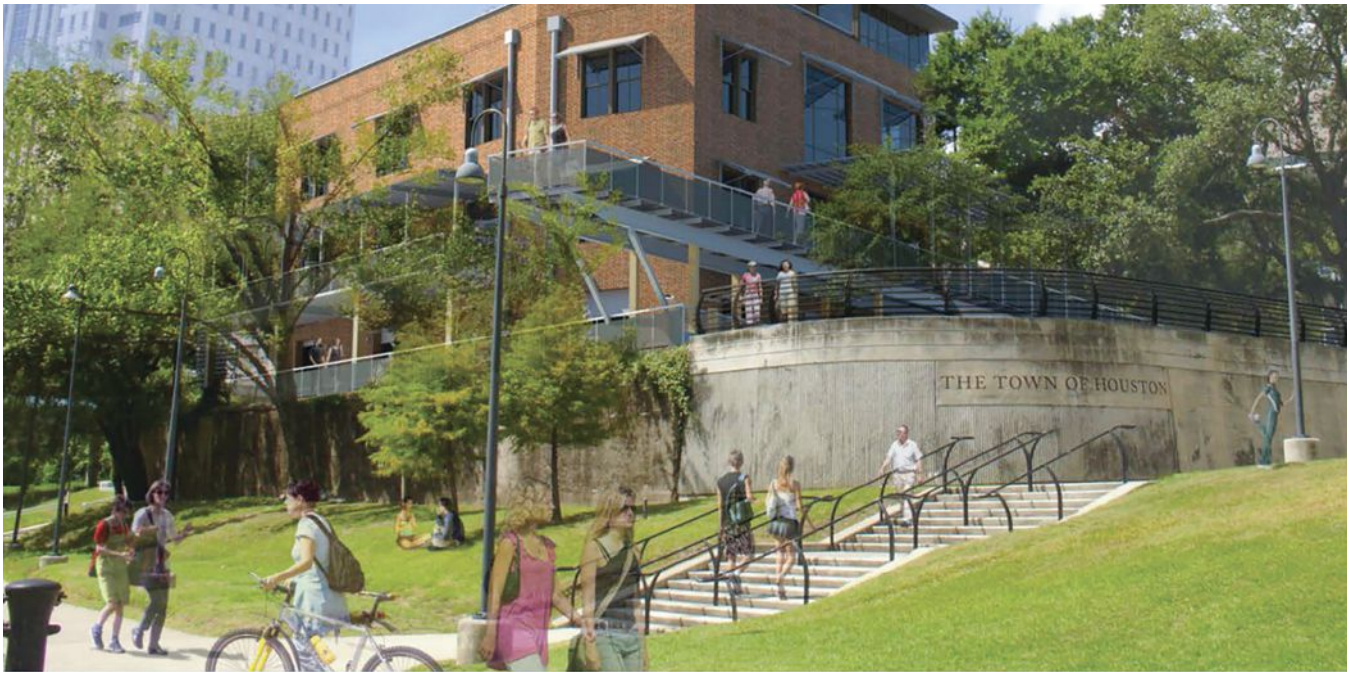
As with most historical structures undergoing adaptive reuse, multiple creative solutions were developed by the project team to address unforeseen conditions discovered during construction. When the century-old brick façade was removed, mortar turned to dust and most of the original structural clay tile backup wall



showed extensive damage. Tiles that could be salvaged were repaired and reinforced with concrete and non-shrink grout. The original concrete structure of the three-story building remained unaltered, but was extensively reinforced with new structural steel. The existing ground floor slab was intended to be reused, but voids were discovered beneath the slab that required a completely new concrete floor be installed.

To make the project even more complex, the building's location—an area notorious for annual flooding—required a reinforced foundation capable of withstanding a flood surge of up to 8 feet. After initial construction began, the drilled pier foundation design in the construction documents proved unachievable. Over time, the natural profile of Buffalo Bayou was built up with debris consisting of poor soil, pieces of discarded concrete and brick. Consequently, the existing embankment provided poor soil conditions and a challenging structural design problem, all during construction. Ultimately, a third-party engineer was engaged to design a foundation system consisting of deep concrete spread footings 2 ½-feet thick that ties into the existing retaining walls, which were substantially reinforced.

The building's ground floor, expected to house canoe and kayak rentals, was constructed with several flood protection measures in mind. Eight-inch, grouted concrete



masonry units provide strength, and rollup doors with perforated slats allow water to pass freely through the lower level of the building. Whenever possible, infrastructure, such as electrical wiring, power outlets and switches, was installed above "flood level," or 4 feet from the floor.

During construction in May 2015, torrential rain provided the reinforced steel structure with its first test when the bayou's waters pushed beyond its banks flooding the ground level with 4 feet of water and debris. The structure endured, as it has many times over the past 109 years, and the weather event caused no significant damage, except for the need to pressure wash to clear away mud and sediment.

To keep the project moving forward, in spite of the unforeseen conditions and weather delays, constant interaction between the design team was paramount. General contractor Linbeck Group implemented a Last Planner System, consisting of 2-week-look-ahead schedules, daily huddle meetings and pull schedule meetings to confirm dates with vendors and identify constraints and areas for improvement. Most important in this cycle of planning, project superintendents and project managers can track results and adjust when appropriate to create reliable workflow.

In terms of design, a major focus was maintaining the industrial character and essence of the original building. While many elements of the coffee-roasting facility were beyond repair, some pieces were salvaged, including original windows with the glass still intact. The new rooftop, complete with a garden deck for events, features a parapet wall designed using a combination of existing 100-year-old terra-cotta caps blended with matching replacement pieces. The building's original concrete columns and beams and a portion of structural clay tiles were left exposed as interior finishes. Replica windows and custom exterior face brick were matched to existing materials for authenticity.

While some argued the building was too ordinary and not worth the expense of rehabilitating, its location in the former bustling wharf area and the original site where the Allen brothers founded the town of Houston makes the project a historic win for the city.

"The important thing is that we've protected it from any other kind of development," said Anne Olson, BBP president. "Whoever purchased that building would have torn it down in a second."

When merchant W.D. Cleveland built the Sunset Coffee Building, his coffee roasting operation was located at the site of Houston's first port and thriving commercial hub. Despite unforeseen conditions, the Sunset Coffee Building's $5.5-million transformation stands as a reminder to future generations of the city's entrepreneurial spirit.

Linbeck Group is working with Fretz Construction on the restoration and construction project, scheduled to be completed this month. Architecture firms Lake Flato, BNIM and SWA Group designed the building and landscape renovations. **CBO**

John Barnes, LEED AP, senior vice president, is an expert in the planning, organization and management of construction projects in multiple market sectors. Kevin Kazda served as project engineer on the Sunset Coffee Building rehabilitation project. Visit linbeck.com.


John Barnes


Kevin Kazda

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Source: dot.gov

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Source: history.com

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HELPS PREVENT BUBBLES WITHIN OIL FOR SUSTAINED WEAR PROTECTION

FUEL ECONOMY

$2.5 MILLION PER DAY*

HOW MUCH MONEY NORTH AMERICAN TRANSPORT COULD SAVE WITH A 1% IMPROVEMENT IN FUEL ECONOMY

*Assuming Diesel at $2.50/gal

4 MILLION TONS OF CO_2 SAVED/YEAR WITH 1% FUEL ECONOMY IMPROVEMENT

ENOUGH TO FILL ABOUT 79 FOOTBALL STADIUMS

Source: architecture.about.com

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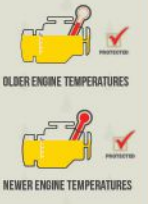

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AUTOMATING THE CONSTRUCTION INDUSTRY

Robotic technology transforms the construction industry by enhancing safer operating environments

BY DAVID BRUEMMER

The construction industry historically represents a large chunk of the United States gross domestic product (GDP), and companies have started investing in automation and robotic technology to gain an advantage over the competition. This is welcome news, given that the construction industry is growing. Dodge Data & Analytics' 2016 Construction Outlook report predicted 6 percent growth, with the value of construction starts reaching an estimated $712 billion. The demand for technology to facilitate efficiency and grow profits across jobsites is more present than ever, and solutions are increasingly more accessible.

Many of the challenges faced by the industry stem from the working environment, which is often unstructured and faces unpredictable and uncontrollable elements. The combination of handling heavy objects, low levels of equipment standardization and varied safety issues have created a need for innovation in this space. Typically, other industries surpass construction in terms of technological adoption. However, technologies from other sectors, like the military, have provided a good foundation that can be adapted to the construction sector.

Heavy construction equipment is expensive to manufacture and expensive to purchase. Therefore, one of the main aims for companies is ensuring maximum uptime and long life for each piece of equipment. While some equipment is starting to be built with future technology in mind, they are still not widely available.

For the forklifts and diggers currently being used, there are practical autonomous and robotic technology solutions available, which can be retrofitted into existing fleets, no matter the type, age or size of the vehicle. A simple and economical installation can turn any vehicle into an automated robot. Robotics allows building operators to take advantage of the latest automation technology at a fraction of the cost, making it a win-win option for you and your project team.

On top of the solutions becoming easier to install and more cost-effective, the technology has evolved in such a way that integration is both quick and customizable. Some of the most recent technology allows site operators to easily create and modify autonomous paths throughout a facility or outdoor worksite. With this technology, managers can have vehicles autonomously driving across sites,

Automation technology can ensure projects are completed in a timely manner, as production is kept moving despite uncontrollable factors that might hinder completion under other conditions.

delivering much needed materials to the team constantly. As well as creating and modifying paths, operators can remotely direct the vehicles with ease. With so many options becoming readily available, robotic technology is becoming much more flexible and providing more options to operators.

For business owners considering implementing autonomous driving technology on their sites, it is crucial to understand the needs of projects and project crews. For example, some factors to consider are: uncontrollable elements such as weather or unexpected people and objects and vehicles coming onto the site, which may impact vehicle paths. Additionally, factors like environment and location need to be considered when identifying the right solution. Not all technology is equipped to smoothly navigate both indoors and outdoors. Therefore, choosing the best solution that fits a typical project scope requires careful planning.

Accurate positioning and navigation of heavy vehicles on a building site is significant, not only from an efficiency perspective, but also for worker safety. According to the U.S. Department of Labor, out of the 4,251 worker fatalities in private industry in 2014, 1 in 5 worker deaths were in construction. This statistic really brings to light the dangers of building sites and the pressing need for innovative ways to increase safety at all levels of operation. Enabling autonomous, technology-run operations can help reduce the risk for worker accidents and fatalities in the field.

Improvements have been made with the help of ultra-wide-band (UWB) technology, which helps self-driving vehicles more accurately position themselves within their environments. UWB eliminates the pitfalls of systems relying solely on GPS and lasers, which can become unreliable during inclement weather. In fact, UWB is often used by the military for land-mine detection vehicles, as it works well in crowded areas. The technology even works in dust, fog or snow, allowing crew managers to keep operations running smoothly while ensuring increased safety for workers.

With UWB, machines can be set up to follow people or preset paths and stop or change course when it senses a person or an obstacle in its path. These advancements can help avoid collisions and other dangerous accidents that lead to injuries and fatalities on jobsites, providing powerful potential for transforming the industry.



The pace at which construction technology is advancing is staggering. We can already find drones hovering above building sites and 3-D printed buildings being assembled. One of the best parts about the advancements of robotics in this industry is that it is becoming easier and more enjoyable to use. The way humans interact with robots is key to implementing a successful solution on any site. Robots and the technology behind them are becoming a valuable extension of construction teams by tackling some of the toughest challenges faced by the industry.

Business owners can reduce costs and improve safety while the project team benefits from increased productivity by allowing robotics to take over high-risk tasks. Automation technology can also ensure projects are completed in a timely manner, as production is kept moving despite uncontrollable factors that might hinder completion time under other operating conditions. **CBO**

David Bruemmer is CEO and co-founder of 5-D Robotics, where he works to develop innovations that can impact the future of robotics and enable more intelligent transportation. He has authored journal articles on intelligent robotics and has spoken at various industry conferences. Before co-founding 5-D, he led large-scale robotics research programs for the military and the Department of Energy.





SOFTWARE SOUND OFF

Technology report studies the software use of over 2,000 construction professionals

BY JAMES BENHAM

Which software solutions are builders depending on throughout the construction process? How do they stack up against the software you use daily? A recent construction technology survey conducted by JBKnowledge provides insight into the technology solutions of over 2,000 construction professionals. The results of the survey, published in the 2015 Construction Technology Report, highlight the specific solutions builders employ for the following areas of a construction project: accounting, prequalification, estimating, invitation to bid, project scheduling and management, Building Information Modeling (BIM), field data collection, Client Relationship Management (CRM), file storage and collaboration and conferencing and communications.

According to the report, there weren't many big newcomers in the construction software provider space last year. In addition, adoption of new software has been stagnant at best, as builders are struggling to streamline and integrate existing technology instead of researching new technology. This becomes evident in the number of builders using spreadsheets, as shown below.

ACCOUNTING SOFTWARE

While only 5.2 percent of builders are still using spreadsheets or a manual process for accounting, any percentage is too many. Any accountant should be terrified of company financials stored in a static, unencrypted spreadsheet. In Graph 1, you can see the accounting software providers that industry professionals are utilizing most often.

PREQUALIFICATION SOFTWARE

According to the report, the number of builders using manual (some form of email and PDF process) increased to 49.03 percent in 2015, as fewer builders are using custom solutions (19.6 percent), spreadsheets (10.5 percent) and prequalification software (8.4 percent) to filter out subcontractors that meet project requirements. Prequalifying subcontractors is like buying renter's insurance; you don't see its importance until you need it. Unfortunately, 14 percent of respondents are still not prequalifying subcontractors or suppliers. According to the report, some of the top prequalification software products currently in use are: CMiC, iSqFt, Procore, SmartBidNet, Textura and Viewpoint, as

shown in Graph 1. As owners, developers, agencies, banks and insurance firms are increasing the requirements for prequalification, many prime contractors are now struggling to provide documented processes for prequalification practices. However, builders are struggling to identify integrated solutions that will streamline the process while ensuring constancy and accuracy. As one of the survey participants commented: "Prequalification is not pre-disqualification and it's not post-qualification. Prequalification is about understanding potential risks and understanding how you can best work with someone."

ESTIMATING SOFTWARE

Estimating and takeoff software, the report shows, has the most offerings of any software category and the highest number of write-ins, next to accounting. The report notes that OnScreen Takeoff and HeavyBid are the most popular estimating solutions. The estimating department also follows accounting in its dependence on spreadsheets at nearly 20 percent of companies. The only thing worse than company financials in a static, unencrypted spreadsheet are the quantities and costs of every estimated detail of your project.

Estimating is still poised for fundamental change, with companies who have fully adopted BIM saying that estimators have gone from spending 75 percent of their time counting and measuring plans to spending 10 percent of their time doing the same processes. This leaves them with time to really focus on value-added functions like value engineering, problem solving, customer relations and bidding on more work overall.

INVITATION TO BID SOFTWARE

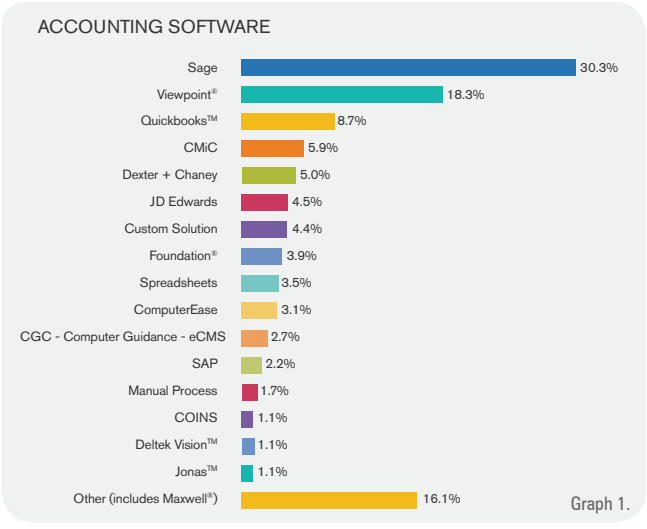
Surprisingly, the number of respondents using a manual process for invitation to bid grew since 2014. This is most likely due to the proliferation of file storage solutions like Dropbox, which builders use in combination with email and FTP. Like spreadsheets, this still provides a very static view of the bid process compared to the software solutions available in the market.

Luckily, this trend has pushed dedicated ITB software to integrate with cloud storage solutions like ShareFile and Box to show builders that ITB should be an integrated process.

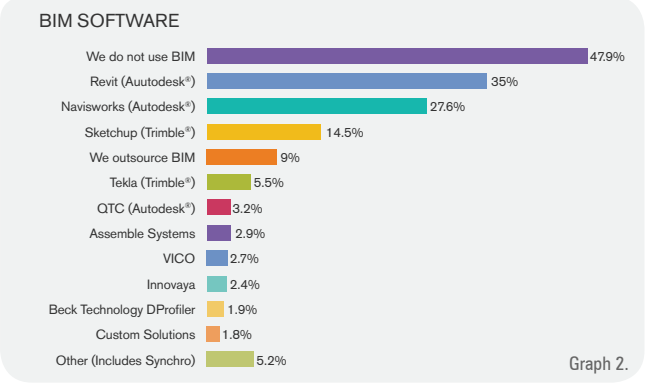
PROJECT MANAGEMENT & SCHEDULING

Microsoft Projects and Primavera P6 strongly lead usage in the project scheduling, and builders have much fewer alternatives than in other software categories. It is interesting to note that Microsoft has not made headway in any other categories of software, nor have other tech providers made headway into project scheduling. This may be due to the number of internal and external parties that must tie into a project schedule, making an industry-neutral software a better solution.

Project management is a heavily manual and spreadsheet-ridden process, with Viewpoint and HCSS HeavyJob leading the way for those using a software solution. No solution seems to dominate in this space,



Graph 1.



Graph 2.

according to the report, which is interesting, considering that it tends to be one of the first software solutions companies buy.

BUILDING INFORMATION MODELING (BIM)

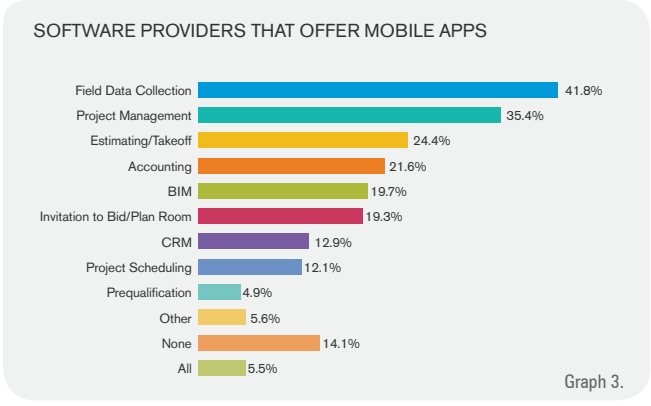
As Graph 2 exhibits, nearly 50 percent of builders are still not using BIM, so it's hard to see where the next generation of 4-D, 5-D and 6-D solutions will fall into place within the industry. Do the largest builders consume enough BIM to continue innovation and drive the cost down among technology providers? Will smaller companies take advantage of BIM once they learn cloud-based BIM makes it as accessible and intuitive as an estimating software? BIM, combined with estimating, has the potential to bring live, dynamic costing to project plans.

FIELD DATA COLLECTION

Only 26.8 percent of the 2,000 construction professionals surveyed are using a field data collection solution. Most are using manual processes (45.3 percent) and spreadsheets (36.6 percent). The mobile applications are out there, but maybe the budget for devices and connectivity is not. The technology learning curve and resources needed to train all workers on site may also be an obstacle. The top field data collection software products in use were Autodesk BIM 360, B2W Software, HCSS Construction Software, Procore and Viewpoint.

TOP APPS

In 2015, most construction professionals considered mobile capabilities important, but not very important, when purchasing software. Field data collection and project management solutions are the most likely to have full mobile capabilities with native applications, while project scheduling and prequalification are the least likely.



Graph 3.

Between 2013 and 2014, the annual report saw a big shift in the importance of mobile capabilities that did not occur again between 2014 and 2015. Would survey participants' responses change if asked the importance of mobile for each category of software? If builders' expectations of their software's mobile capabilities are not high, it's because technology providers may be setting them too low. In consumer technology today, consumers expect every new technology they adopt to come with a mobile component. The same expectation has not made its way into all business technology, especially not construction. Participants in JBKnowledge's recent survey commented:

- "It depends on the software. If we expect it to be used in the field, it must have mobile capabilities. If it is for back-office staff, it doesn't require mobile capabilities."
- "Our ERP vendor would say they have mobile tools, but I disagree. A few slices of the application can be available if it would ever work... which it doesn't."

The report shows that among the 2,000 construction professionals surveyed, the top 20 construction mobile apps currently in use range from augmented reality to document management solutions. For the second year in a row, Autodesk led the pack with three apps in the top 20. Other top apps in use include AboutTime, HCSS, Sage Construction, SmartBidNet and NoteVault, among others.

CLIENT RELATIONSHIP MANAGEMENT SOFTWARE

Client relationship management (CRM) software is still not a focus for most construction companies. This may be because there are few construction-specific solutions available, or perhaps because companies consider invitation to bid and project management software their contact database management. But, are companies missing a major opportunity to prospect, nurture, close and maintain client relationships? Business development is critical to any company, but especially to project-driven companies always looking for their next job. CRM software like Salesforce and Cosential allow for companies to accurately manage their inbound pipeline of work.

OTHER DESKTOP SOFTWARE

As far as file storage and collaboration solutions go, Dropbox was the clear favorite among those surveyed for the report. Many builders commented that they also use it for personal reasons, and sometimes use their personal Dropbox at work if their company does not have an account. The report also revealed that over half of construction professionals surveyed find conferencing and communications important enough to pay for the Citrix GoToMeeting product, as opposed to a free product like Google Hangouts or Skype.

Even with adoption of all of the above solutions and an average of three software solutions used daily, the number of builders still using manual and spreadsheet processes shows technology providers are not providing the integrated, streamlined solutions builders need to rely solely on their software solutions. Spreadsheet and manual data is still a necessary evil to communicate data across departments and processes. The industry should make a collective decision to improve the construction software offerings of 2016 to focus on integration and interoperability, so that maybe by 2017, it will be ready for the next generation of technologies already knocking at the door.

As the owner of a technology company and lifelong technologist, every year I'm tempted to focus the survey for our JBKnowledge report on emerging technology, but the reality is that our industry still isn't doing enough with existing technology or with technology budgets. Visit JBKnowledge.com to download the full report, published in partnership with the Construction Financial Management Association (CFMA), Texas A&M University's Construction Science Department and HCSS Construction Software. CBO

James Benham is the CEO of JBKnowledge, a company that develops cloud, mobile and wearable technology solutions for construction and insurance. JBKnowledge is also the maker of SmartBidNet, SmartReality, and SmartInsight and SmartCompliance. Benham consults and speaks across North America on business enterprise solutions, strategy and emerging technology. Learn more at jamesbenham.com.



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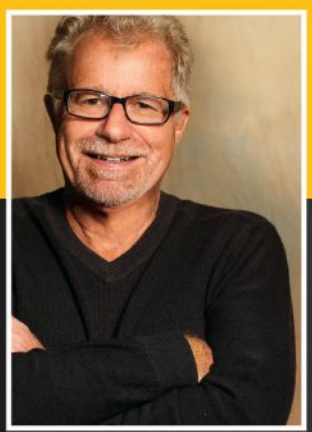

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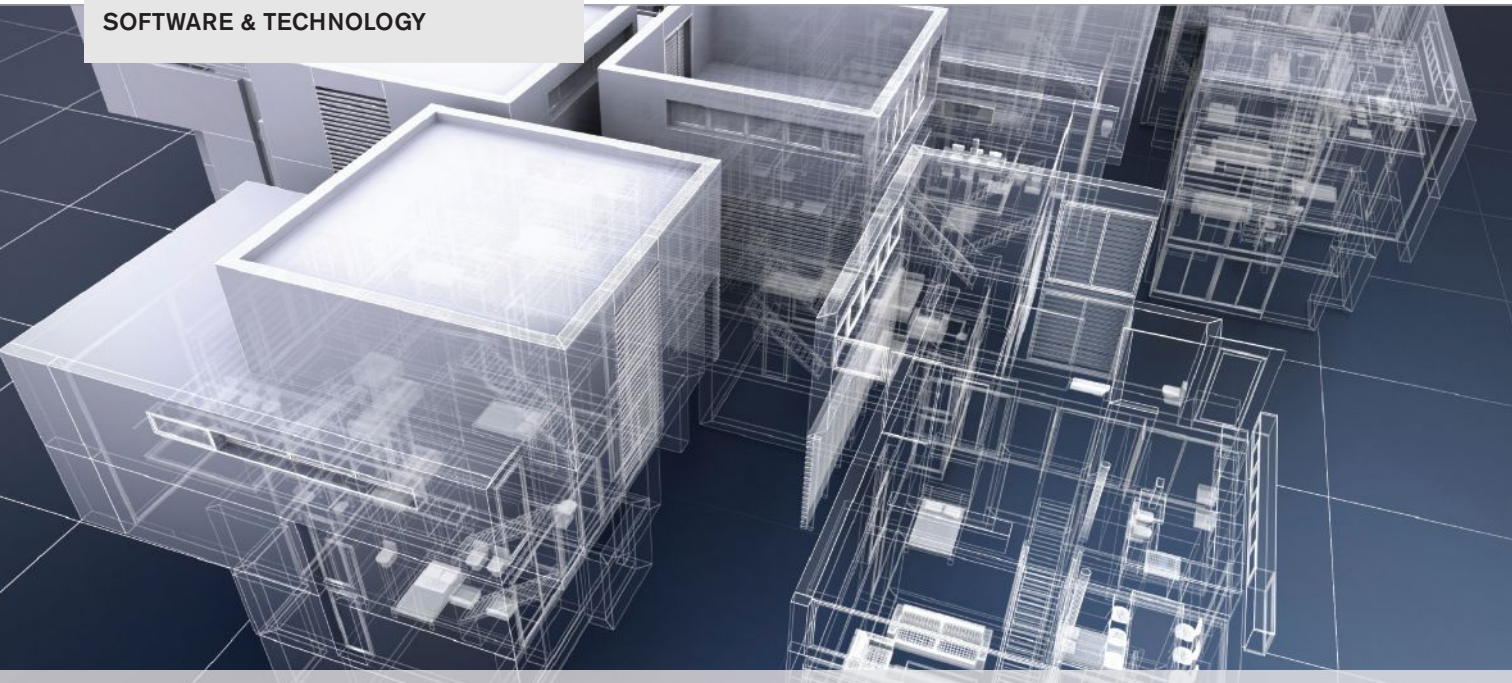

PAVING THE WAY FOR PRECONSTRUCTION TECHNOLOGY

Embrace change and leverage new workflows to drive your company's long-term focus

BY STEWART CARROLL

Walk into any contractor's office in the United States and you can see immediately that it is definitely not your father's construction business. On a recent trip to see a customer in Florida, the lobby had total stations, laser scanners, 3-D printers, drones and a hodgepodge of other "toys" greeting guests. The days of manually laying out a project or starting a project with 30-year-old drawings is becoming a distant memory. Unquestionably, our tools and processes are changing.

However, the architecture, engineering and construction (AEC) industry is late to the technology table. The way other industries align design and scope with budget and production is by collaborating from the very beginning of the project. Our industry's contractual models and business models have historically kept the disciplines apart. However, we have recently seen the contractual models requiring more collaboration, more give and take and more insight into the impact of a change on the scope, schedule and budget before the change in question is actually implemented. Projects are complex, and the logistics of collaboration can be overwhelming. However, the advancements in construction technology have led to innovative solutions. As the value of project insight earlier in the process has become more valuable to project owners, and as design and construction firms react, the role of preconstruction has increased.

Despite often being brilliant at conceptualizing and providing insight into the cost and schedule of a project, estimators are not generally known as an outgoing, gregarious breed. Both the personality traits of the estimator and the technology being used to prepare and communicate estimates for the project owner and the project team are in the process of changing.

Where once a delay in the answer to the customer's question could be delivered in a week, sophisticated firms realize that this is a real-time world and having an individual with enough experience to answer the question immediately and clearly communicate the ramifications of the answer adds value to how their firm is perceived.

The preconstruction technology landscape is fairly old, with many of the vendors' products dating to the 1960s and 1970s. Other than assisting in assembling a cost estimate, the technology does not align

with what many in the preconstruction world are faced with today: communicating assumptions behind the estimate; communicating what changed between design iterations; what the ramifications on the constructability, scope, schedule and budget of changes are; and being able to determine all of this in real time.

More millennials are entering and impacting the AEC workforce. This new generation of professionals, unlike Generation X and Generation Y, are looking for the shortest path between two points and are not willing to use antiquated technology when they know there is a better way. Companies embracing the changing world, innovation and technology are benefitting and attracting the brightest and best talent available in the industry.

Technology will continue to be the enabler for collaboration and innovation. Changes in the industry cause changes in technology, which foster industry growth. In other words, they are symbiotic. Technology to support contractors engaging and adding value at the very beginning of the life of a project is here. Benchmarking and historical comparisons, virtual project planning with integrated estimating, scheduling and analysis are no longer futuristic wants.

Today's preconstruction technology is less about quantity takeoff and more about carrying a complete project cost based on assumptions that can be communicated and changed so that the impact on the project can be understood by all stakeholders. And this type of technology has been driven by the target value design process.

Again, this circles back to collaboration across the AEC industry. Once upon a time, there were tools for different aspects of preconstruction. Copying and pasting from one technology to another was considered the norm, but this is becoming a thing of the past. Technology will continue to integrate the various point solutions into an integrated preconstruction solution.

Change is never easy and will always take time. For the AEC industry to see true progress, firms should not focus on the shiny, new technology toy. Rather, firm leadership should focus on what business challenges the company is trying to change. That long-term focus will drive the company's technology. The following are more helpful tips on how to implement process and technology changes.

- *Others are going through the same/similar changes*—Talk to peers about what their business challenges are and what they are doing to address them.
- *Look for success stories*—Don't be on the bleeding edge. Someone has to be the first, but not everyone has to keep making the same mistakes.
- *Implementing technology is not dissimilar to building a construction project*—Develop a plan, identify who is responsible for implementing the change and empower them to make it happen. Agree on achievable milestones and metrics for measuring success.
- *Evaluate the vendor based on their ability to collaborate*—The way that every company works is unique to them and, as such, just because a product works for one company, it does not guarantee it will work for all. Vendors are your partners and should be willing and able to work with you to configure, customize and enhance their products to meet your needs.

Like it or not, change is here. The winners in the future will be those who embrace change and leverage new workflows and technologies to defeat their own business problems. **CBO**

Stewart Carroll is chief operating officer of Beck Technology, developers of DESTINI Profiler and DESTINI Estimator, based in Dallas, Texas. For over two decades, Carroll has been a lead AEC technologist and continually speaks on the integration of cost and scoping technologies to owners and developers. For more information, call 214-303-6200 or email stewartcarroll@beck-technology.com.





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Excavate More Efficiently

6 advancements that increase productivity & profitability

BY TOM CONNOR

Confined or tight work spaces are not a new challenge in the construction industry, and neither is finding qualified employees to perform the work. The good news is that today's excavators are much more sophisticated and attractive to employees, which can help you hire new workers and retain current staff. When compact excavators were first introduced to the North American market nearly 30 years ago, they were mechanically operated machines equipped with few features. Today, compact equipment manufacturers are designing highly productive machines and adding more sophisticated features.



1. DISPLAY PROVIDES MORE DETAILS

Instrumentation panels in compact excavators enhance a machine's functionality to provide critical information to the operator. A forward-mount instrument panel typically aligns with existing cab components and workgroup structures, allowing operators to maintain visibility of the attachment and the display panel. Operators can observe fuel levels, coolant temperature, engine rpm, hydraulic flow and onboard diagnostics from the display panel. Many excavators are equipped with an integrated keyless start system to help minimize the risk of theft and eliminate the need for keys.

2. DESIRED DIG DEPTH

It can be time consuming to manually check the grade or dig depth with a tape measure or stick receiver. New excavator technologies can accurately track depth and grade, reducing the need for manual labor. Operators can set a desired dig depth and work against that benchmark using multiple onboard sensors that can easily detect the exact position of the bucket's teeth. An integrated panel continually references the current and desired depths, while audible and visual alerts indicate whether the operator is approaching the target, at the target or beyond the target. These guidance systems help prevent under-digging and over-digging, and help minimize the cost and time associated with manual labor to finalize depth or grade.

3. SMART DIAGNOSTICS

Engine monitoring functions can make all the difference to protect your investment. Many compact excavators offer a standard automatic shutdown that monitors engine coolant temperature, engine oil pressure, hydraulic oil temperature and other essential machine functions. The system helps prevent catastrophic engine failure and shuts the machine down, reducing the chance of damaging the engine. By having this diagnostic tool, operators can

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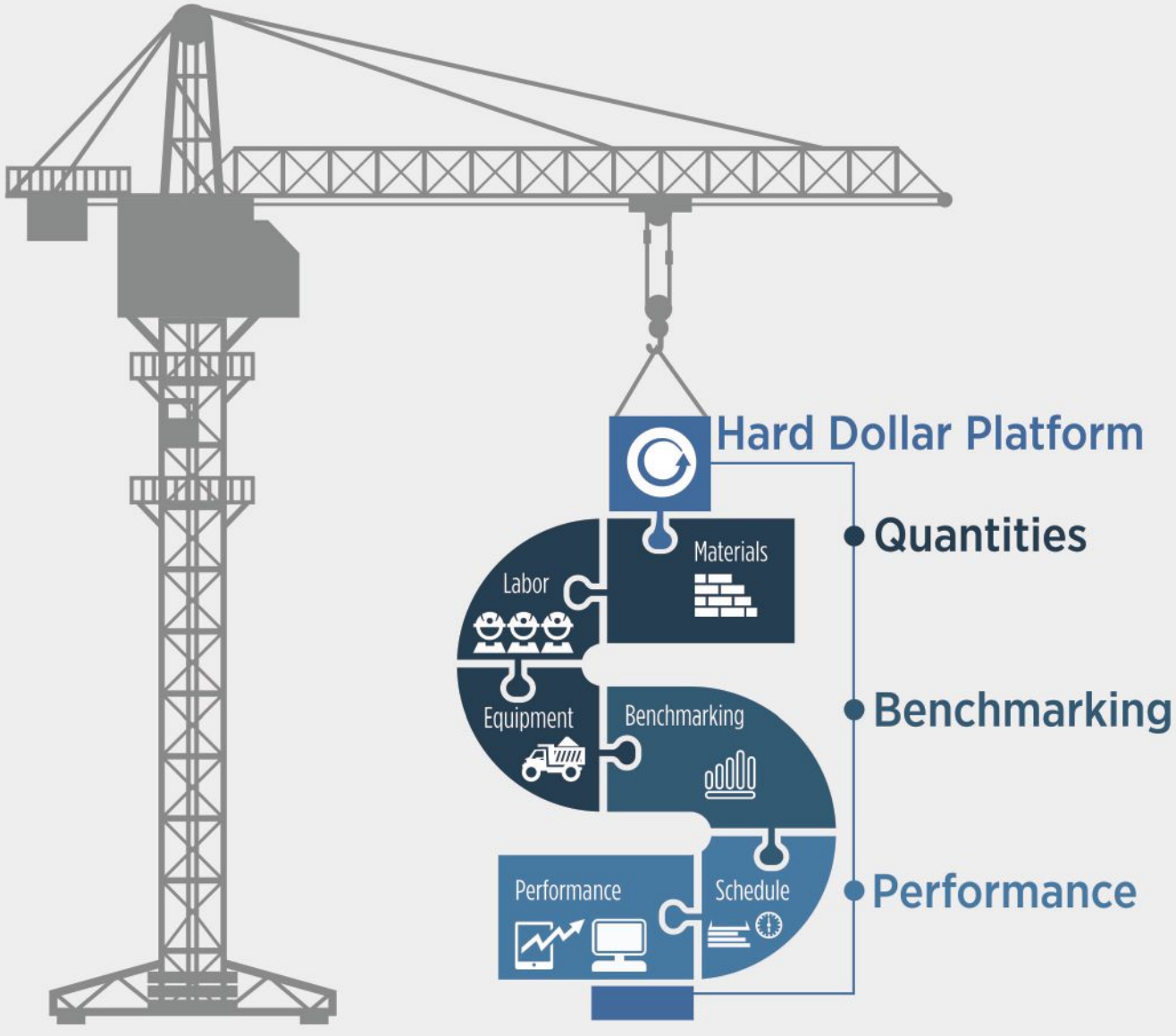

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efficiently troubleshoot problems and help prevent issues before they occur.

4. ADVANCED ATTACHMENT SYSTEMS

Hydraulic-activated attachment mounting systems can be a faster and easier method of changing excavator attachments without the need for tools. Excavator operators can release or secure an attachment by simply pressing a switch inside the cab, eliminating the need to get out of the machine to manually secure an attachment during hookup. A hydraulic attachment mounting system also encourages operators to use the properly sized excavator bucket or the best attachment for the job, which helps with fuel savings and reduces backfilling time and machine wear. When using attachments, some manufacturers equip their machines with selectable auxiliary hydraulic flow. There are typically three settings found on the instrumentation panel to best match the application:

- *Low flow*—Provides accurate angles in trenches with a tilting bucket
- *Medium flow*—Suited for clamps and grapples when handling material
- *Maximum flow*—Ideal for use with hydraulic breakers or augers

5. CHOOSE YOUR PREFERRED ARM LENGTH

Many manufacturers offer more than one arm configuration on select excavator models. Select excavator manufacturers offer an extendible-arm option to provide even more dig depth and reach and minimize machine repositioning.

6. ACCESS REMOTE AREAS WITH RETRACTABLE UNDERCARRIAGES

When working on a variety of jobsites, equipment operators may need to travel through narrow gates. Select manufacturers offer excavators equipped with a retractable undercarriage to move through tight workspaces. When operators want to return to dig, they should extend the undercarriage to its maximum width.

Improvements to compact excavators can help increase your utilization and enhance your productivity, making your business a much more profitable one. CBO

Tom Connor is an excavator product specialist with Bobcat Company, a compact equipment division of Doosan Infracore Construction Equipment America. Connor specializes in the development of new-generation excavators and the implementation of those concepts into product training and dealer instruction in North America. Visit bobcat.com.



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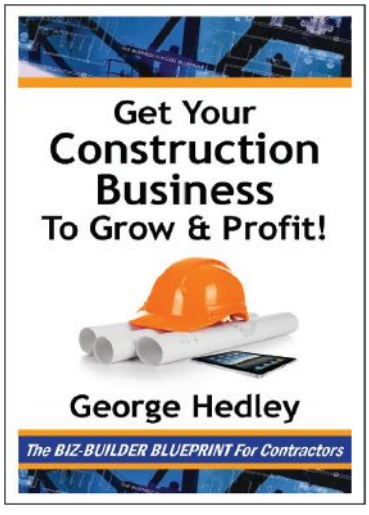

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The Secret to Managing Your Fleet Over Time

Discover new methods for gaining the most value from your heavy equipment

BY SUE MCGREGOR & AVNISH PATEL

Now that fleet managers have robust technology at their fingertips, the discussion around fleet disposals has shifted from selling the way it has always been done, to managing fleets over time to maximize equipment value.



REGULARLY VALUE YOUR FLEET

Regular estimates of your fleet's market value accomplish three things:

- Allow you to keep books up to date
- Give you current estimates of equipment that could be pledged as collateral to finance your business
- Enable you to better make decisions about when to dispose of equipment

Using a professional appraisal service to obtain a comprehensive valuation of your fleet will give you a sense of the value of your equipment. The age, mileage or hours, condition, maintenance and repair records and current market conditions all drive how much your equipment is worth and can help you determine whether to sell equipment by auction or some other means of disposal.

TRACK FLEET CONDITION

Updating your fleet maintenance records will help you to determine which items to utilize, repair, sell or replace. Frequently assessing fleet condition, in addition to regularly valuing your fleet, may highlight inexpensive repairs that can dramatically increase resale price. If you conclude that serious and costly repairs are needed, there may still be buyers interested in purchasing such equipment. Items with many hours or miles can bring solid values, as long as you have kept thorough maintenance records. Buyers are often willing to buy older equipment and repair it themselves. In particular, make certain that equipment is properly winterized and reflected in your maintenance records. Good records will not only increase the value of your equipment, but also save you time when you are ready to dispose of those items.

ASSESS FLEET INVENTORY

It's also wise to review your fleet in light of future projects and decide whether you will need all of your current equipment. Selling underutilized equipment, whether by auction or some other means, will save on maintenance and provide working capital. That cash can be invested until you need to replace that equipment. Keep in mind that regulations vary from country to country. There are buyers in markets around the world who either don't need or aren't looking for the latest technology.

Connecting to worldwide markets will help you get the optimal price for your used equipment, especially if the local economic conditions are not favorable.

When you are ready to sell your aging machines, look for a marketplace that can tap into the global buyer base to bring the best value. If you are unsure about whether or not you will be able to sell your surplus

equipment, a good marketplace will be able to give you a sense of the market value and will work with you to put together a successful disposal strategy.

PARTNER FOR MULTIPLE SELLING SOLUTIONS

You have options when it comes to heavy equipment disposal. You can sell directly to someone in your network or check if your dealer has a buy-back program. Increasingly, fleet managers are working with equipment marketplaces to manage their inventory and connect with the maximum number of buyers globally.

Of course, not all heavy equipment marketplaces are alike. Your best bet is to identify an online marketplace with multiple selling solutions that meet your liquidity and disposition timeline. For example, IronPlanet enables sellers to choose from a series of disposition formats, including a buy-it-now marketplace, a negotiated sale marketplace particularly well-suited for specialty items and a highly liquid weekly auction. Such marketplaces should have a team that works with you to advise you on which marketplace formats to use to drive the highest prices in the timeframe you elect. Sellers often decide to start items in one marketplace and move them to another over time in order to drive higher returns. These moves can be made fluidly and at no cost to the seller in order to meet sale requirements. Aside from sales format flexibility, it is important to select a marketplace with a sizable buyer base, low fees, excellent customer service and detailed inspection reports backed by a buyer protection program. Keep in mind that selling online also saves you transportation fees to the sales and auction yard, which further maximizes your net sale proceeds.

You can increase the value of your fleet assets through periodic equipment valuation, regular maintenance and care, regular appraisal, consistent review of utilization and by partnering with the right equipment disposal marketplace for your needs. Following these practices will help you maximize the value of your fleet throughout its usage and upon disposal, whether you are contemplating a complete liquidation or just selling individual units. **CBO**

Sue McGregor is the managing director of IronPlanet Canada. Avnish Patel is vice president of corporate development and strategy at IronPlanet. For more information, visit ironplanet.com.



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The Shift to Rental is Here to Stay

Economic signs point toward a healthy, growing construction equipment rental industry

BY TOM HUBBELL

When the equipment rental industry converges on Atlanta this month for The Rental Show 2016, the mood will be celebratory and optimistic. Not only will the industry mark the 60th anniversary of the American Rental Association (ARA) at the annual trade show, but recent economic indicators also point to a healthy and growing industry.

November's industry forecast from ARA projected steady growth in United States equipment rental revenue through 2019, including 6.8 percent construction and industrial growth in 2016. Earlier in 2015, the ARA Rental Penetration Index indicated that construction/industrial rental penetration rose for the fifth straight year to 53.9 percent in 2014, the most recent reporting year.

"The industry's positive economic outlook means equipment rental companies can prepare for steady growth, plan for expanding their markets and build inventory to meet customer demand," said Christine Wehrman, ARA CEO and executive vice president. "Many customers who have turned to renting during and after the recession have seen the benefits and will continue to rent to control and manage their costs. The secular shift toward rental is here to stay."

CONSTRUCTION REBOUND FUELS GROWTH

ARA monitors the industry on a quarterly



basis to ensure that association members have the best information available in a dynamic economic environment. Released on Nov. 15, 2015, the latest analysis from ARA, through its ARA Rental Market Monitor subscription service, calls for overall U.S. equipment rental industry revenue growth of 6.7 percent in 2016 and 2017, 6.2 percent in 2018 and 5.8 percent in 2019 to reach $48.7 billion.

In the construction and industrial segment, an average annual increase of 6.5 percent is anticipated over the next 5 years, including 6.8 percent in 2016 and 6.9 percent in 2017.

While the projected construction/industrial growth pace is slightly more moderate than the previous 2 years, it represents more than double the growth rate of the general U.S. economy.

The ongoing rebound in real residential construction will be a primary driver of overall growth in the construction/industrial equipment category in the near future, according to analysis provided by ARA research partner IHS Economics, the leading international forecasting firm that delivers data and analysis for the ARA Rental Market Monitor.

RENTAL PENETRATION ON THE RISE

In addition to the steady growth pace, the climbing ARA Rental Penetration Index is another indicator of equipment rental market vitality.

Up 100 basis points from 52.9 percent in 2013 to 53.9 percent in 2014, the ARA Rental Penetration Index has been growing steadily since the dramatic dip in the index between 2008 and 2009. The index has been on the rise over the past 10 years, when rental penetration was just under 40 percent in 2005.

Rental penetration has been increasing due to the growing demand for equipment in the construction/industrial segment as commercial construction has rebounded, coupled with tight credit conditions and the increasing costs of buying new, Tier 4 emissions-compliant equipment. This combination of circumstances has made equipment rental an attractive alternative to full ownership.

"There is still room for rental penetration to continue to increase," said John McClelland, ARA vice president for government affairs and chief economist. "As the economy continues to grow this means more demand for rental equipment—a double-barreled boost to the equipment rental industry. We expect the 2015 ARA Rental Penetration Index to reflect the continuing secular shift away from equipment ownership by end users toward rental."

WHY COMPANIES RENT VS. BUY

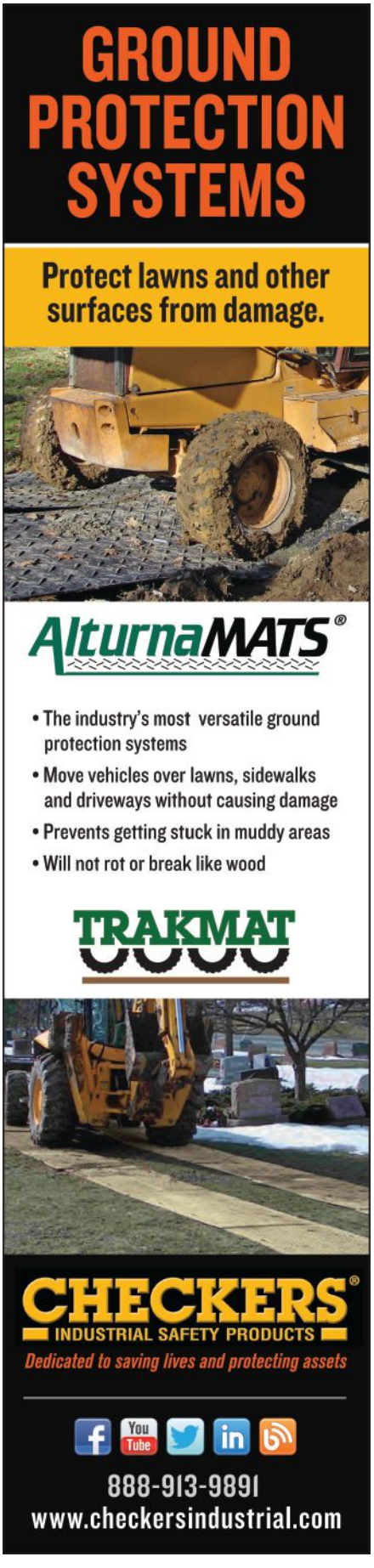
The ARA's optimistic 5-year outlook and a rising Rental Penetration Index show that construction companies continue to see the value of renting as an alternative to purchasing equipment.

Renting offers the opportunity to free up capital, control costs and access the right equipment, when and where it is needed. It also doesn't require additional staff to maintain the equipment, spare parts on hand or storage of the equipment.

"Renting enables companies to get exactly what they need to get the job done while eliminating time and costs associated with buying, maintaining and storing equipment," Wehrman said. "It's a simple and affordable way to manage a construction equipment fleet and focus on competing for more jobs." CBO

Tom Hubbell is vice president of marketing and communications for the American Rental Association (ARA). ARA is an international trade association for owners of equipment rental businesses and the manufacturers and suppliers of construction/industrial, general tool and party/event rental equipment. Visit ararental.org.





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8-Point Guide to Project Management Software

Explore the value that cloud-based options can bring to your business

BY JODI WRIGHT & TYLER RIDDELL

Construction business owners and project managers alike know how tough it can be to manage a project, but some are reluctant to change processes to find an easier solution to management. Read below to explore the possibilities of productivity by using project management (PM) software.



SCENARIO 1: WITHOUT PM SOFTWARE

Before you have even had your morning coffee, you receive a call from your subcontractor telling you he's delayed because of issues with another customer. So, you get to spend the morning retooling your entire work schedule by hand, as well as calling workers to notify them of the adjustments necessary in the original schedule. Three hours later, you receive a text message stating that one of your workers discovered a nail-gun has been stolen. You have spent the majority of the day rushing all over town delivering or picking up materials for other workers. Just like every jobsite, having the right tools makes all the difference. Cloud-based PM software offers:

- Real-time access to project data from anywhere on any device
- Consistent and auditable workflows
- Improved field to office communication
- Reduced response times with instant notifications and message alerts
- Increased productivity of teams
- Improved accountability with documentation, tracking and record keeping
- Reduced risk and operational costs
- Increased ROI on every project

SCENARIO 2: WITH PM SOFTWARE

While drinking your morning coffee, you check the day's schedule on your computer or smart device. You receive a reminder that the drywall in the office you are remodeling is supposed to be completed that day. The same schedule is also available to all your onsite workers, so all team members are also automatically notified with the reminder on their connected devices this morning. As you finish your breakfast, you notice one of your workers updated the equipment database. Five tools are broken and will need to be replaced. You plug the numbers into the software, and it calculates the price automatically. Using the cost estimation feature, you see that if you buy five, you will be over budget, so you decide to stick with four. On your way to the jobsite, you receive a call from an employee to pick up a tool he needs immediately. Rather than just buying one, you check the database and see the same tool is at another jobsite, and is not currently being used. You make a detour to that jobsite to pick up the tool. Once at the jobsite, you can snap some pics and upload them—in real time—to your project file, complete with annotations. You make a note of all of this in the daily report using your phone's talk-to-text capability. At

the end of the day, your preformatted daily report only takes a few minutes to highlight activities, costs, schedule changes and much more. Below are eight points to consider when beginning the search for a PM software suite that fits your company.

1. Identify your company's pain points.
What everyday activities are causing you and your firm the most pain? List these out. Prioritize them in order of importance. Decide which features are must-haves.

2. Look for a proven solution.
You may find there are inconsistencies between how your team works and how the software wants your team to work. Also, make sure the vendor has a proven, tested solution for your niche.

3. Consider future growth.
Consider where your company will be in a year or two to make sure you purchase software that will grow with your business.

4. Require ease of use.
Just because a software solution has a long list of features, it doesn't necessarily mean it is the best choice. The solution you select needs to both solve your pains and provide ease of use to your entire team.

5. See a demo of the software.
Bring in as many end users as possible to review the demo. Potential users need to get a feel for the software and can weigh in on its effectiveness. This also helps you procure early buy-in from the staff.

6. View the solution on your hardware.
The vendor says their software will work on all devices, but will it? What happens if your team opens the app in the field and what they see on the screen doesn't quite fit?

7. Evaluate the solution's support staff.
You will inevitably run into some issues. Before you reach any major problems, be sure you have access to a qualified support staff. Take into consideration their average response time. You don't want to wait around when you need an answer.

8. Make your decision.
You have evaluated a lot of solutions, and they are probably starting to blend. Identifying your pains is key to determining the right solution for your company. **CBO**

Jodi Wright is the marketing manager at eSUB. Tyler Riddell is eSUB's director of marketing. eSUB provides cloud-based construction project management software with the tools and information to track project details directly from the field. Complete RFIs, get up-to-date information from submittals and finalized change orders with documented approval. Visit eSUB.com.



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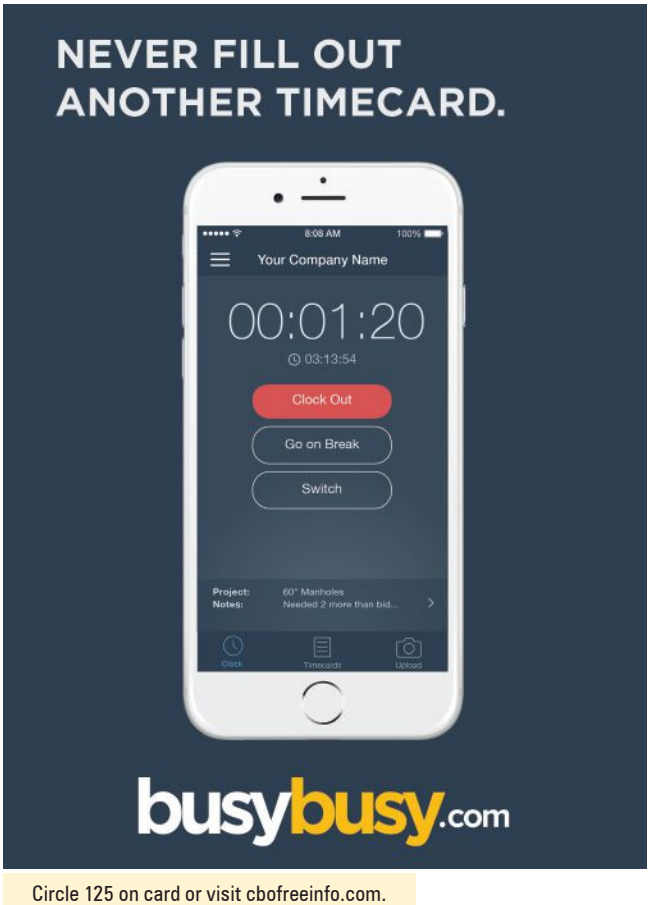

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Enhance Current Safety Procedures

5 ways your jobsites can benefit from a GPS tracking system

BY JENNY MALCOLM

Employee safety on the jobsite is a crucial responsibility for fleet management. Construction businesses across the country are making it mandatory for their fleets to implement a GPS tracking system to enhance current safety procedures, create new safety procedures and meet regulations overall. GPS tracking systems provide access to real-time vehicle locations to help businesses ensure safety on the jobsite and faster response time in an emergency.

GAIN VISIBILITY OF DRIVERS ON REMOTE JOBSITES

Working on remote jobsites is a frequent requirement for construction fleets. If drivers are out of contact for the majority of the time on a jobsite, it is a significant liability for the construction business and a major safety risk for employees. GPS tracking systems provide access to vehicle locations to ensure driver safety. In the event of an emergency, having the ability to pinpoint an employee's exact location becomes instrumental in creating the fastest response time possible. If an employee is in danger and requests immediate assistance, fleet managers will be able to use the GPS tracking system to identify the driver's location instantly and dispatch emergency response or a nearby driver, depending on the severity of the situation.



EQUIP DRIVERS FOR EMERGENCY SITUATIONS

In some instances, drivers may find themselves in danger on a jobsite, but are unable to access the cab of their vehicle or cell phone. Without a way to call for help, an already unsafe situation becomes even more dangerous for employees. Some GPS tracking systems offer a panic button that can be attached to the driver's keychain to provide an additional safety resource during an emergency. By pressing the panic button, management will be notified that the driver needs help and can access their location to send assistance.

RECEIVE LONG-STOP ALERTS

Construction fleets can also use GPS systems to increase safety by verifying drivers' well-being during long stops. Receiving notifications during longer-than-usual stops increases safety because it will alert

management if a driver may be experiencing complications or has an emergency. Having the ability to monitor how long engines are turned off becomes a valuable tool to provide safety and help fleets stay compliant. If a vehicle's engine has been turned off for an extended period of time and surpasses the acceptable threshold set in the system, managers will receive an alert that signifies the driver may be in trouble. Receiving this alert allows management to contact the driver right away to ensure their safety and send help if needed.

IMPROVE PROCEDURES DURING SEVERE WEATHER

Severe weather is a significant safety challenge for construction businesses because it can be very difficult to identify all drivers who may be affected and warn them in time to ensure they are out of harm's way. GPS tracking systems allow fleet management to quickly identify all drivers who are near a dangerous weather event to ensure they are notified as soon as possible. Identifying all drivers who may be at risk from severe weather will allow managers to immediately alert them to evacuate the area by sending a message to their Garmin navigation device or cell phone straight from the system's dashboard interface.

STREAMLINE MAINTENANCE TRACKING

While some unsafe situations are impossible to avoid, staying on top of fleet health is a proactive safety practice and will prevent dangerous situations like tire blowouts and engine failure caused by maintenance neglect. GPS tracking systems help businesses make sure all assets are in premium condition by automatically tracking fleet maintenance. GPS tracking systems can be used to send automated reminders to ensure all vehicles and equipment receive preventative maintenance on schedule. A system's maintenance module will automatically track run time and odometer readings, then send reminders when services are due.

One of the most valuable use cases for a GPS tracking system is to increase employee safety on the jobsite. By selecting a GPS tracking provider with the ability to customize its functionality, construction businesses are able to solve specific safety concerns. CBO

Jenny Malcolm is the content marketing specialist for GPS Insight. Malcolm is responsible for external marketing communication for all business segments that GPS Insight targets. Visit gpsinsight.com.





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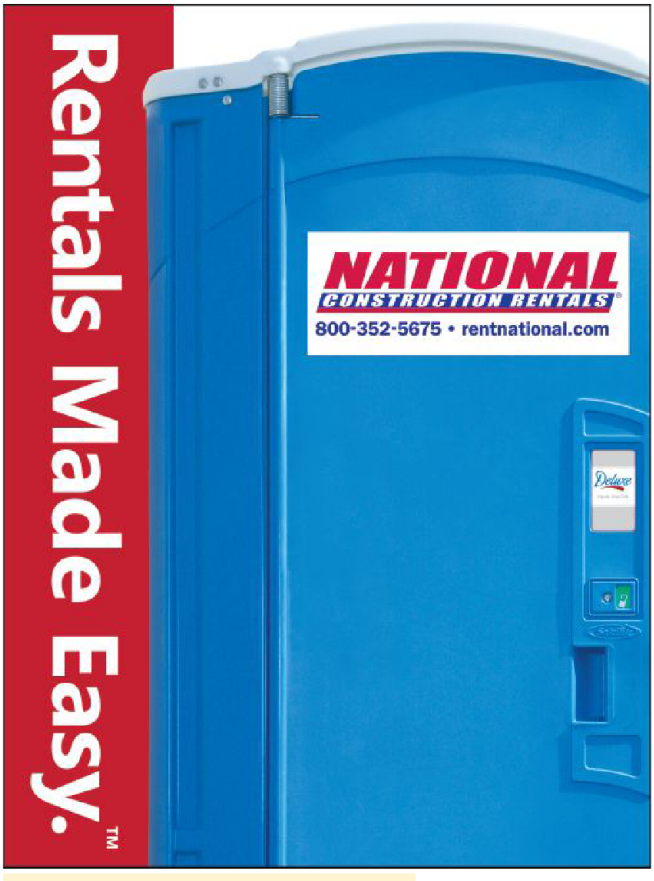

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The Rise of the Subcontractor

Technology & collaboration with subs can bring your business new expertise

BY DAN CONERY

One of the consequences of the "do more with less" emphasis in construction is that everyone who participates in designing and building a project plays a more important role—subcontractors included. Building owners seek to satisfy customer demand for eco-friendly, ergonomic environments, all while keeping costs in check and projects on schedule. The result? Everyone must innovate. But, for subcontractors to add significant value to the process, they can no longer be thought of as hired hands brought in to do specific tasks and then sent on their way. Subcontractors have developed substantial expertise, and building owners reap considerable benefits when their project teams harness their subcontractors' vast wealth of knowledge.



INSTANT TEAMING

From design through the building phases, companies that have not previously worked together (and are possibly located in different time zones) come together for a particular project. These companies are expected, within days or weeks, to morph into a fully functional team, even though they may have had little opportunity to work face-to-face previously. This requirement for instant teaming makes the relationship among contractors and subcontractors integral to the project's success.

GETTING THERE

Through the years, the industry has seen its fair share of adversarial relationships between architects, general contractors and their subcontractors. Many assume that this is just part and parcel of the industry. In fact, construction is just like every other sector, in that poor communication and collaboration threatens project success, creates mistrust among key players and needlessly adds costs and delays.

For proof, consider the industry's rigid lines of communication and how they affect a subcontractor facing a tight deadline with a critical question to ask. The traditional RFI process can take up to 2 weeks, even though the ultimate response from an architect or designer may be fairly straightforward. The new dynamic in our industry—build more complex projects and build them efficiently—demands that subcontractors are active collaborators throughout the project delivery process.

Fortunately, technology is a proven enabler of better coordination and collaboration among the extended project team—contractors included. For example, software solutions now provide a central repository for all project documents, allowing every team member to access the

information he or she needs at all times. Better still, architects and designers have the power to ensure that only the most up-to-date documents and drawings are in that repository, which means all team members always have accurate information.

Technology allows for true collaboration by providing a forum for subcontractors to share their expertise. They can ask specific questions, share photos from the field and even mark up drawings for the rest of the team to discuss. True collaboration—where extended project teams leverage a central repository for project information—results in a single source of truth and all team members having a seat at the table.

Finally, technology can promote transparency and accountability by tracking when updated documents are sent to the field and when contractors and subs actually download them. Conversely, subcontractors can track the status of the RFIs they submit and feel assured that the appropriate architect or designer is addressing their questions. Ironically, an industry where technology was once thought of as a necessary evil is now embracing it in order to design, plan and build better projects.

UNEXPECTED BENEFITS

Companies that have embraced collaborative technology have been surprised by unanticipated benefits. Specifically, in response to the new demands of building owners, contractors have continued to adopt advanced technologies and business practices that allow them to cut costs and improve project efficiency. As a result, the industry has seen an increase in the volume of project data. This data can be mined for business intelligence that makes projects even more efficient, and the volumes of data generated by each project no longer die when that project is completed. Enterprises can glean insights into what worked and leverage it through the building's lifecycle, including ongoing maintenance and future renovations.

Enterprises no longer need to manage projects in siloes. Project team members from different companies recognize that technology can reduce the amount of time they spend on administrative tasks and managing information, and give them more time to do the work they got into this industry to do. CBO

Dan Conery is the vice president of business development for Newforma, a developer of cloud-based, mobile and enterprise apps for design and construction project information management. Follow Conery on Twitter @dconery or visit newforma.com.





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Don't Gamble with Trailer ROI

Select the correct trailer capacity to improve your bottom line

BY TROY GEISLER

Selecting a trailer is more than comparing the price tag. There are several implications that need careful consideration before signing a check. The most important of these is safety. Safety has a tremendous impact on a trailer's return on investment because of unconsidered costs that can arise if a contractor inadvertently exceeds the trailer's capacity. These costs can be several times more than the trailer's original purchase price. Selecting the right trailer with a focus on safety, maximum efficiency and a high ROI is crucial.



CAPACITY'S FIVE POINTS

There are five contributors to capacity ratings. They include the materials' properties used in building the trailer, the area of the deck, safety and the speed at which the trailer will generally travel. These contributors apply to any kind of open trailer, and trailer manufacturers can manipulate their designs according to each rating while meeting a contractor's specifications.

CONCENTRATED STRENGTH

There are more than 50 manufacturers of lowbed heavy-haul trailers in North America, and they apply several different methods of rating the capacity of their trailers. Because there is no industry-set or government-mandated system, it is up to every buyer to be in tune with the method each manufacturer uses before making a purchase decision. A key difference between manufacturers' ratings is in load concentration, or the length of the deck that can handle the rated weight. Obviously, a 26-foot, 50-ton lowbed can haul 50 tons. But how much of the deck those 50 tons occupy is just as important as the weight itself. Whereas one trailer might need the entire length of the deck to be rated at 50 tons, another can be rated for 50 tons in a 16-foot span.

Trailers rated for half the deck length can carry the specified load rating in just half the length of the deck. These ratings give a more realistic indication of the concentrated loads the trailer will be able to handle safely. In addition, manufacturers who build trailers with half-deck ratings often do so with a two-point rigid load base specifically for the tire spacing, or hot spots, of large equipment and heavy machinery.

SPREADING THE LOAD

How a load is distributed over the deck and the axles can be just as important as the overall weight rating. Although the trailers will be operating in the United States, the states are not very united when it comes to axle weight laws and regulations. Fleet managers need to be aware of variances between states and regions where their trailers will be used. It is important to have the proper trailer configuration to make the load distribution work for a fleet's particular area of operation.

Working with experienced manufacturers helps define not just the best trailer for the cargo those buyers will be carrying, but

also the best axle configurations for maximizing the load in every one of the states through which they will be traveling.

Clearly, it's impossible to max out a trailer's capacity in every state, but the goal of most regional contractors is to get a trailer as close to the maximum as possible across all the states in which the contractor intends to operate. Achieving the best possible weight distribution over the axles may be as simple as having a trailer designed to accept a fourth flip axle or as complicated as a trailer configuration with two or three axles and components to distribute an equal amount of weight from the payload.

UP TO SPEED

Another capacity determinant is speed. While some manufacturers rate their trailers at 55 mph, others rate them at 65 mph. Naturally, the slower a rig travels, the less added weight or stress is placed on the trailer. Though the trailer will still encounter potholes, railroad tracks and other road dynamics, the impact on the trailer is diminished with a lower speed.

PLAYING IT SAFE

A trailer's safety rating also comes into play when discussing capacity. Without understanding the safety rating, it's difficult for a contractor to get a clear, comprehensive picture of true capacity.

A safety rating is an indicator of how much stress a trailer can safely handle. A widely accepted average magnification of payload weight on a trailer due to road dynamics is 1.8 to 1 ratio. On average, the stress placed on a 50-ton-rated trailer by a 50-ton load when the rig hits those bumps equals 1.8 times 50 tons, or 90 tons.

Keep in mind that the 1.8 multiplier is only an average. On any given haul, the stress placed on the trailer can go above that level multiple times. If no cushion is built in to the trailer to handle those spikes in stress, there will be more potential for long-term, progressive structural damage.

There is no universally prescribed level for safety ratings, so they vary from manufacturer to manufacturer. They range from a safety factor of 1.8 to 1, which allows for no margin, to an industry high of 2.5 to 1, which is considered an ample cushion for even the most extreme road dynamics.

Not only does the safety rating tell a contractor how strong his trailer is, it's also a good indicator of potential life. The greater the difference between the static design safety factor and the dynamic 1.8 average multiplier, the longer one can expect a trailer's useful life expectancy to be.

A safety rating should never be used to determine how much weight can be added over the capacity rating and still keep the load, the driver and travelers on the road safe. Road dynamics will always increase the stress of the load and the trailer needs to have a margin to accommodate that added stress.

MATERIALS MAKE THE TRAILER

Safety factors are strongly related to the quality of the components in the trailer, and that gets down to the fine details of the steel and the deck material. Manufacturers have several options when choosing steel. For the most capacity and smallest impact on the trailer weight, some manufacturers use a T1 material with 100,000 psi minimum yield. T1 not only has maximum strength versus ductility, but also equates to a lighter, stronger trailer frame over other materials. A trailer's decking is continually exposed to the elements, making durable decking with a long wear life also crucial. Apitong decking provides a tougher, longer lasting wood in comparison to other varieties, such as oak or pine. Tightly woven and incredibly dense, Apitong is less susceptible to chipping and cracking, and provides more traction than a smooth metal surface.

OVERLOAD RISK

Sometimes trailer owners or operators don't completely understand the capacity rating and mistakenly put more weight on the trailer than it is built to handle, or more weight in a concentrated area than it can handle. When a trailer breaks, the manufacturer hears about it.

Often, the complaint will be that a 50-ton trailer broke when it was hauling less than a full payload. The reason is not in that 40-ton load, but the number of times the trailer previously was overloaded and by how much each overload exceeded the yield strength of the trailer's load-bearing beams and cross members.

Yield strength refers to the amount of stress that the steel can withstand and still return to its original shape when unloaded. The first time a trailer is overloaded, the steel will return to something close to the shape it was in when it came off of the manufacturing line, but not exactly to that original shape. Each time it is overloaded, the steel will return to something less than the shape it was in the time before. Eventually, the steel will break.

It can be tempting to look at a trailer's capacity rating and stop there. But, for a true sense of how much a trailer can handle and how it will hold up under the stresses of a specific operation, with its individualized loads, geographies, weights and other variables, contractors need to consider everything that goes into that rating. Purchasing the right trailers for updating a fleet can be complicated and, clearly, the decision is an important one.

Low-quality components wear faster and fail earlier, which contribute to excessive downtime for repairs. That's not including any external factors and costs, such as liability risks with an overloaded trailer failing in a key traffic area or fines due to loads that aren't properly distributed. **CBO**

Troy Geisler is the vice president of sales and marketing for Talbert Manufacturing. He has more than 10 years of experience in trailer sales, including 3 years with Talbert. Visit talbertmfg.com.



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Allmand Introduces Night-Lite NL5000 Light Tower

Allmand has expanded its current line of diesel light towers with the introduction of the Night-Lite NL5000 60Hz light tower. The NL5000 features a 45-gallon steel fuel tank, providing users with approximately 90 hours of run time, a vertical, manual winch tower deployed from the rear of the unit to keep the operator away from the tower cables, exterior operating controls and fuel fill neck provide for quick operation and refueling of the unit, and a stepping pad for easy fixture adjustment and mast rotation from the ground.

allmand.com

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Caterpillar Adds High-Production B-Series Tandem Rollers to Paving Family

Caterpillar Inc. announced the addition of the new, high-production B-Series Tandem Vibratory Rollers that include the CB64B, CB66B and CB68B models. These machines are 12- to 14-metric-ton compactors that feature wider drum widths, high-flow water spray system, increased operator comfort, and enhanced technology. Many of the technological enhancements are offered through Cat Compaction Control. Auto-adjustable compaction optimizes compaction by delivering the highest amplitude possible without decoupling or over-compacting.

cat.com

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Takeuchi Introduces TB210R to Compact Excavator Lineup

Takeuchi-US has updated its compact excavator lineup with the introduction of the TB210R. One of the key features is the minimal tail swing design. Coupled with a retractable undercarriage, a backfill blade that can go from 40.2 inches wide down to 29.5 inches wide and a new foldable ROPS/TOPS canopy that can reduce the machine's overall height, this machine can gain access to and work in confined applications. Upgrades to the TB210R include pilot-operated joystick controls with an ISO/SAE control pattern change valve, selector valve and pilot accumulator.

takeuchi-us.com

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CASE Adds Two New Excavators to D-Series Lineup

CASE Construction Equipment has introduced two new crawler excavators to its D Series lineup: the CX130D and the CX160D. These models are designed to provide significant operational gains, including cycle times up to 5-percent faster, improved responsiveness and multifunctional controls and up to 8-percent greater fuel efficiency. The CX130D and CX160D's new electronically controlled hydraulic pump and larger control and solenoid valves boost breakout forces, increase lifting strength and improve responsiveness.

casece.com

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E2 Systems LLC Features Portable Modular Conveyor-Material Placer

E2 Systems LLC has received the prestigious 2015 NOVA Award from the Construction Innovation Forum (CIF) for its Portable Modular Conveyor-Material Placer (PMC). The Portable Modular Conveyor-Material Placer was developed to provide an efficient and cost-effective method of placing flowable materials before a slip-form paving machine. The PMC uses a front end loader's hydraulics to operate a conveyor belt system. The PMC moves such flowable materials as concrete, asphalt, aggregate, sand and topsoil.

materialplacer.com

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K-Tec Expands into Land Leveler Market

K-Tec Earthmovers have released a new line of land levelers to expand the company's product offering to earthmoving contractors and land forming professionals. The K-Tec land leveler has been designed for maintaining haul roads, precision site leveling and field drainage. K-Tec's heavy-duty land levelers range in size between 10 and 28 feet in width. Various advancements are included as standard features such as a walking axle, single, simplistic tilt, a depth-level gauge and an LED light package. A unique moldboard curve design enables superior rolling of dirt.

ktec.com

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Talbert Unveils Tilt Trailer Series

Talbert Manufacturing has launched a new Air Ramp Tilt Series for easy loading of low-clearance equipment. The series includes the 20-ton capacity AC-20-ART and 25-ton capacity AC3-25-ART. The unit's air controls provide additional operator safety when raising and lowering the trailer for loading, and its low deck height offers a superior view of the equipment and surroundings. The series features Talbert's lowest load angle, 7 degrees, for easily loading and unloading equipment weighing as much as 25 tons.

talbertmfg.com

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Miller Releases Tier 4 Final Welder/Generator

The Big Blue 600 Pro welder/generator replaces the popular Tier 4 Interim Big Blue 500 with an EPA Tier 4 Final engine. Designed for the United States market, this new 600 amp machine tackles tough jobs that require high output for welding, gouging and auxiliary power. Behind the power is Kubota's new V2403 turbocharged four-cylinder industrial liquid-cooled engine. Rated at 48.9 hp, this model is ideal for heavy industrial applications including construction, structural steel, mining maintenance, pipe welding and maintenance and repair rigs.

millerwelds.com

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Worksaver Introduces Adapter for Mini Skid Steer and Compact Tool Carriers

A new adapter is available from Worksaver Inc. for mini skid steers and compact tool carriers, allowing standard size skid steer attachments to be connected. The new Mini Universal to Standard Skid Steer Adapter is designed to fit any unit with the "universal mini mount," such as Toro Dingo, Boxer, Ditch Witch and RAMROD. Easily switch attachments between a standard skid steer loader and a mini skid steer.

worksaver.com

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Makita Unveils XSL02Z Cordless Miter Saw

Makita has released another 18 volt cordless solution that meets and exceeds corded demands with the new 18V X2 LXT Lithium-Ion (36V) Brushless Cordless 7-1/2-inch Dual Slide Compound Miter Saw, model XSL02Z. The XSL02Z is the first in the cordless miter saw category to be powered by two 18V lithium-ion batteries. It features an efficient, brushless motor that delivers 5,700 rpm, the fastest blade speed in the category. The XSL02 is powered by an efficient Makita BL Brushless Motor with direct-drive gearbox and electric brake that delivers a full 5,700 rpm.

makitatools.com

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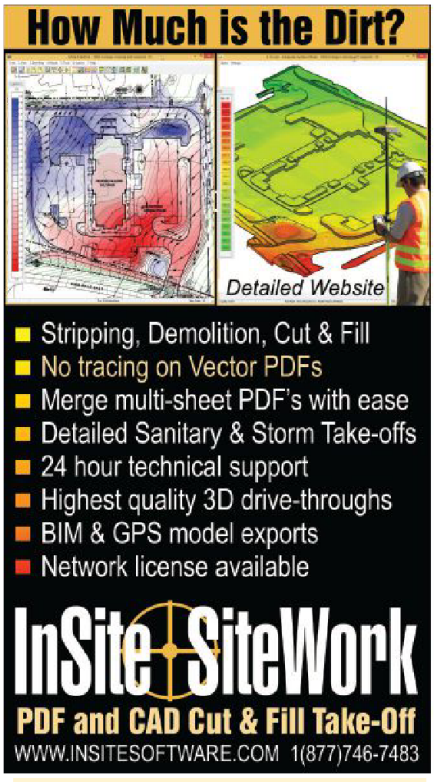

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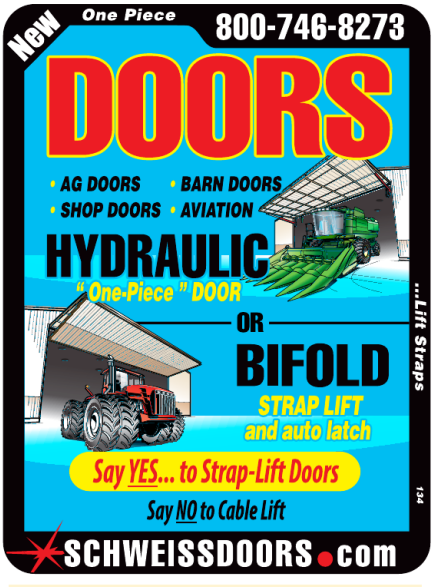

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Annual Value of Construction Put in Place

2013/2014/November 2015 Annual Rate Comparison

This chart compares the two previous years' total value of construction put in place to an annual forecast based on November 2015 figures. (Millions of dollars. Totals may not add up perfectly due to rounding.)

	2013	2014	Nov 15
Total Private Construction	**627,447**	**704,483**	**828,161**
Residential	331,355	349,643	427,909
Nonresidential	296,091	354,840	400,252
Total Public Construction	**271,760**	**280,019**	**294,296**
Residential	5,915	5,566	6,452
Nonresidential	265,845	274,453	287,844
TOTAL Construction	**899,206**	**984,502**	**1,122,457**

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

$1,122,457

NOVEMBER 2015 TOTAL ANNUAL VALUE OF CONSTRUCTION PUT IN PLACE

"Because architecture firms continue to report that they are bringing in new projects, this volatility in billings doesn't seem to reflect any underlying weakness in the construction sector," said AIA Chief Economist Kermit Baker, Ph.D.

AIA Architectural Billings Index (ABI)

National			*Regional - Billings				*Sectors - Billings			
Month	Billings	Inquiries	Northeast	Midwest	South	West	Multi-family Residential	Commercial/ Industrial	Institutional	Mixed
Jun-15	55.7	63.4	50.4	57.2	54.9	50.7	47.0	51.6	59.1	54.7
Jul-15	54.7	63.7	53.5	58.2	55.7	53.8	49.8	53.4	57.3	56.8
Aug-15	49.1	61.8	46.8	56.1	53.8	50.2	49.5	49.7	53.7	52.8
Sep-15	53.7	61.0	43.7	54.2	54.5	51.7	49.5	50.9	51.5	52.6
Oct-15	53.1	58.5	49.2	52.6	56.2	54.4	52.5	55.1	51.4	54.9
Nov-15	49.3	58.6	46.2	47.8	55.4	54.5	53.8	51.0	52.0	47.6

For more information on the index or to subscribe to the complete historical data going back to 1995 for your internal analysis, **please contact James Chu, director of research at the AIA, at jchu@aia.org or 202-626-8045.** 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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