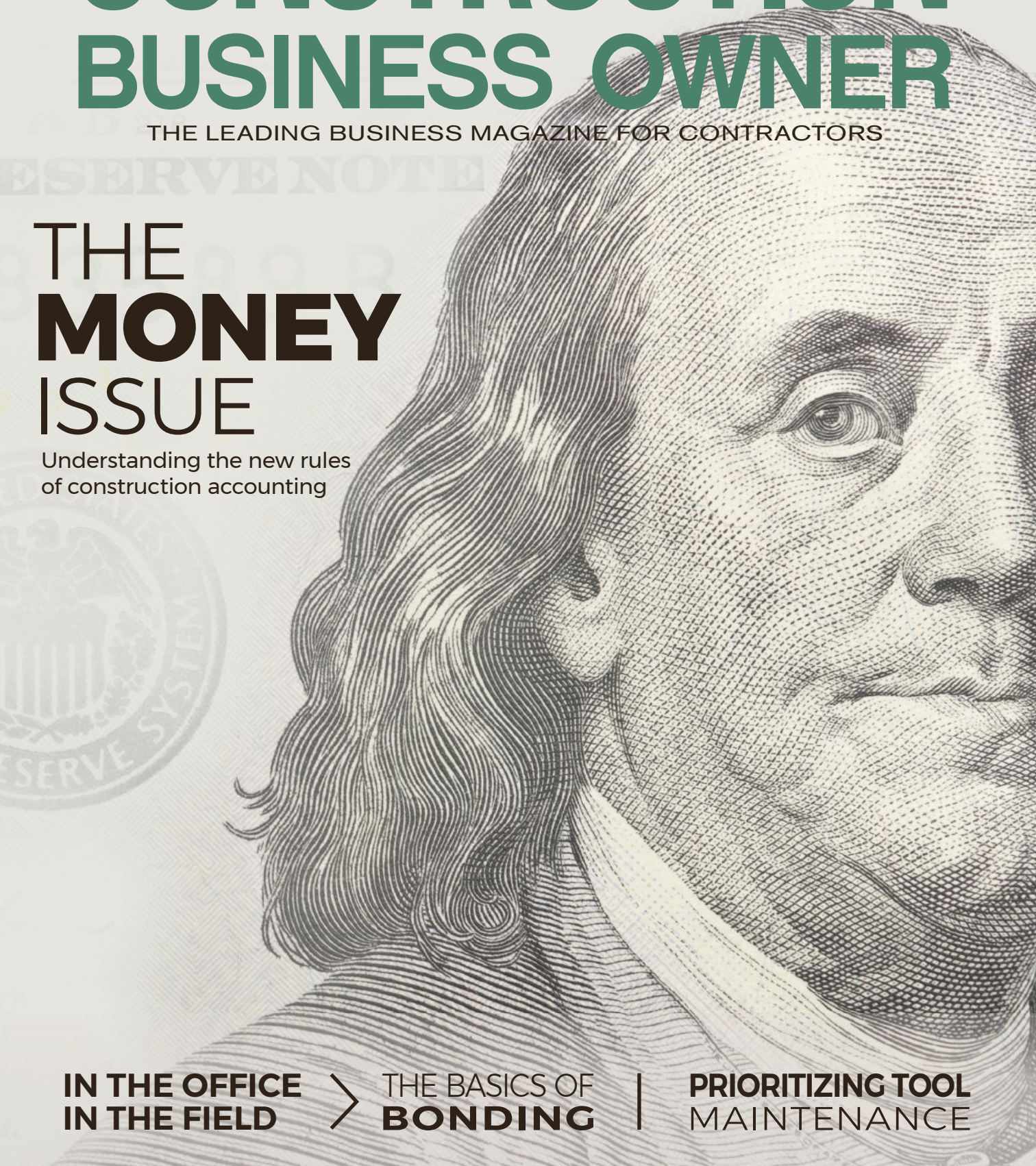
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THE MONEY ISSUE

Understanding the new rules of construction accounting

IN THE OFFICE IN THE FIELD > THE BASICS OF **BONDING** | **PRIORITIZING TOOL** MAINTENANCE

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FROM THE EDITOR | Kathy Wells

This month's cover series focuses on every business owner's favorite issue: money. The systems your company uses to record, summarize and report its financial results are the key to its success. Beginning on page 26, "Updating the Rules of Revenue Recognition," shares five steps to help business owners remain successful and compliant when it comes to the Revised Revenue Recognition Model from the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB). Next, on page 28, "Paving the Road to Better Benchmarking," sets forth guidelines for watching the competition and adopting new methods to improve your business. Closing the cover series on page 30, "Breaking through Estimation Limitations," offers insight into six major liabilities that estimators can overcome by working with specialized software. We hope the strategies in this series provide a new outlook for shaping your company's financial success.



In April, *CBO's* editors joined the National Association of Women in Construction (NAWIC) at its Southeast Forum 2017 in Birmingham, Alabama, which hosted attendees from 13 NAWIC chapters, offering educational seminars and industry networking events. In this picture, forum attendees execute CPR training tips provided by professional instructors.

With finance in mind, the *CBO* team will attend this year's Construction Financial Management Association (CFMA) Annual Conference & Exhibition, taking place in Phoenix, Arizona, June 3-7. CFMA is dedicated to construction financial professionals and serves more than 7,800 members via 95 chapters throughout the United States and Canada. CFMA's annual conference provides attendees the opportunity to network with peers and discover innovative solutions. The conference will include networking events and educational sessions following course tracks in accounting and finance, human resources, leadership and management, risk management, surety and technology. Turn to page 28 to read an article from CPA and CFMA conference presenter Steve Tenney, which is based on his session on benchmarking. To keep up with *CBO* at CFMA, follow @CBOMagazine on Twitter for live conference coverage and business tips from construction industry finance experts. Look for *CBO's* post-conference coverage in next month's issue to find out what we learned.

This month, *CBO* has partnered with Dexter + Chaney to present a free webinar, "Driving Organizational Performance through Business Intelligence," taking place Thursday, June 22, at 1 p.m. EST. The event will feature a presentation from 25-year software and technology industry veteran Wayne Newitts, and will discuss what business owners might be missing from their business intelligence (BI). BI is a term that has become diluted through overuse, but its power to transform a company's performance is stronger than ever. This webinar will cover BI from the perspectives of people, process and technology, with an emphasis on how and why it is becoming more important for contractors of all types and sizes to establish a BI strategy. For free registration, visit constructionbusinessowner.com/webinars.

Take good care,

Kathy Wells

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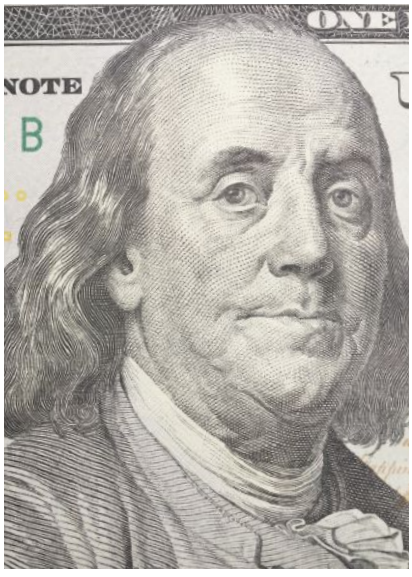
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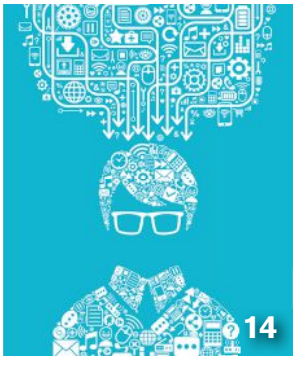
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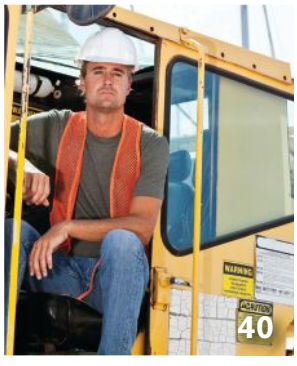
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Global Human Capital Trends 2015
Deloitte, February 2015



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VMAC Names New Director of Operations

VMAC has announced Stuart Coker has accepted the position of director of operations. Responsible for providing leadership and management of VMAC's production, execution and planning of manufacturing operations, Coker will play a vital role in VMAC's continuous improvement. Coker began his career at VMAC almost 20 years ago, and has worked in various quality and engineering roles. Visit vmacair.com.

Dynapac North America Welcomes New Vice President of Finance & Administration

Dynapac North America LLC named Shellie Larranaga its new vice president of finance and administration to build and adapt business models and practices for road construction operations within the United States, Canada, Mexico, Central America and the Caribbean. Larranaga is a certified public accountant and member of the North Carolina Association of CPAs. Larranaga joined the Atlas Copco group in 2013. Larranaga will oversee financial reporting, ensure internal control efficiencies and promote transparency for information-based, decision making processes. Visit atlascopco.com.

84 Lumber Hires Chief Information Officer

84 Lumber appointed industry veteran Paul Yater as chief information officer (CIO). With this hire, 84 Lumber is continuing to recruit and retain top talent at all levels within the organization. Yater is responsible for advancing 84 Lumber's technology infrastructure and optimizing the network to support growth and expansion. Yater will be accountable for all facets of information technology operations, while also serving as a key member of the company's executive leadership team. Visit 84lumber.com.

CFMA Elects New Executive Officers

The Construction Financial Management Association (CFMA) announced the election of the 2017-2018 executive officers. The executive officer roles are the highest-ranking volunteer positions within the organization, responsible for representing the interests of more 7,800 members across North America. CFMA's executive officers are: Chairman Samantha M. Hutchison, CCIFP, Brookstone, L.P., Houston, Texas; Vice Chairman Joe McLaughlin, CPA, CCIFP, Austin Commercial, LP, Dallas, Texas; Treasurer Michelle Eastman, CCIFP, North Mechanical Contracting Inc. and North Mechanical Services Inc., Indianapolis, Indiana; and Secretary Asif Choudhury, Bahar Consulting, Bethesda, Maryland. Visit cfma.org.

Hyundai Construction Equipment Americas Adds Northeast District Service Manager

Hyundai Construction Equipment Americas Inc. announced the addition of Eric Cliff as Northeast District service manager. Cliff will provide product support to Hyundai dealers throughout the northeastern U.S. Visit hceamericas.com.

Curry Supply Names Vice President of Operations

Curry Supply Company announced that Regis Sherry has joined the organization as vice president of operations. Sherry has over 26 years of experience in operations with several industries. He will be responsible for leading the manufacturing, quality, safety, engineering, purchasing and performance of operations through improvement methods that will support the continued growth of Curry Supply. Visit currysupply.com.

Terex Bid-Well Partners with Terex Materials

Now part of the Terex Materials Processing Systems (Terex MPS), Terex Bid-Well announced a strategic alliance with Terex MPS sales and support to grow its equipment sales and service beyond the U.S. market. The concrete paving equipment manufacturer will leverage synergies with the Terex MPS sales and certain distributor locations to expand Terex Bid-Well's global customer sales and support capabilities. These company representatives will work directly with paving contractors and Terex Bid-Well technicians to help customers select the right equipment. Visit terex.com.

300,000

CASE Construction Equipment's manufacturing facility in Wichita, Kansas, produced its 300,000th CASE skid steer/compact track loader. The TR270 rolled off the production line March 13 and shipped to Southeastern Equipment Co. in Brunswick, Ohio. Visit casece.com.

Komatsu Acquires Joy Global

Komatsu America Corp. has completed its acquisition of Joy Global Inc. Retaining its headquarters in Milwaukee, Wisconsin, Joy Global Inc. will be renamed Komatsu Mining Corp. and operate as a subsidiary of Komatsu. The company will continue to promote and invest in the P&H, Joy and Montabert product brands. The close of the transaction adds to the Komatsu team more than 10,000 people with knowledge and experience in the mining industry, bringing the company's global total to more than 57,000 employees. Komatsu Mining Corp. will be led by Jeffrey Dawes, formerly leader of Komatsu Latin America. Dawes and the management team will be based in Wisconsin. Visit komatsu.com.

Lackmond Products Inc. Appoints President

Lackmond Products Inc. has named Steve Leeper as president, overseeing the Lackmond Products and Lackmond Stone's divisions in the U.S., Canada and Mexico. Leeper brings over 41 years of experience in the construction industry, providing products and services through distribution to the residential, commercial and industrial markets. Visit lackmond.com.

Hobart Brothers Company Celebrates 100 Years

Hobart Brothers Company announced it is commemorating its 100-year anniversary this year. In those 100 years, Hobart Brothers Company has manufactured battery chargers, introduced its first arc welder in 1925, built all-steel homes and founded the Hobart Trade School, now the Hobart Institute of Welding Technology. Hobart Brothers Company was family owned and operated until 1996, when it was acquired by Illinois Tool Works (ITW). Visit hobartbrothers.com.

Manitou Group Names President of CEP Division

Manitou Group announced the appointment of Richard L. Alton, II, as president of the Compact Equipment Product Division. Alton will report directly to Michel Denis, CEO of Manitou Group. For nearly a decade at JLG, Alton had responsibilities for managing all facets of international markets. He was most recently with Contech Engineered Solutions. Visit manitou-group.com.

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

Creating Files, Not Piles

How do you best manage your human resource documents?



SARAH MUELLER
Director of Human Resources, SHRM-SCP
Shapiro & Duncan

Shapiro & Duncan strives to be a paperless company. Our electronic filing cabinet is managed through the paperless document system, PVault. Our hiring process starts online with our applicant tracking system (ATS), which captures a candidate's application, resume, cover letter, certifications and more. The custom system is designed for quick access when searching for a specific document associated with an employee or multiple employees. As a result, our hiring manager is more organized and can address employee issues in real time. A best practice is to conduct an in-house audit of what information you are collecting and where you are storing it. From there, you can develop a strategy that works best for your department and will help create a more efficient workspace for your entire team.



CHRIS LENNON
Vice President of Product Management
BirdDogHR

It can be difficult for construction companies to manage human resources (HR) files in a way that is easily accessible, and the additional employee paperwork that comes with seasonal workforces only adds to this issue. When compliance paperwork is also required, managers can find themselves wading through cumbersome processes that distract them from getting the project done. We recommend automating your paper-based human resources and talent management processes. Automation can be applied to new hire paperwork, training schedules, performance reviews and even the recruiting and hiring processes. Not only does automation reduce the time and stress of file management, but it also reduces errors. All the information becomes centralized, so you can report on it by employee or across the company. Plus, there will be no more concerns about tracking down lost files or gaining access to information when you need it the most. Automating your HR processes will help you compete.



AMBER KINNEY
HR Director/EEO Officer
Dunn Construction Company

Organization is key to staying abreast of the legalities of human resources. There are so many legally mandated elements, documents required by company policy and formal and informal record-keeping rules about employment events to keep track of currently. At Dunn Construction, it is paramount that we have internal audits in order to be sure that we are utilizing the best possible processes. As far as systems go, we recently invested in BirdDogHR to reduce our paperwork for our recruitment through onboarding processes. Although this will not eliminate paper files anytime soon, it does cut down on time spent on the vetting and orientation processes. We utilize Viewpoint as our human resource information system (HRIS), which links our time-keeping, payroll and cost coding along with heavy jobs. For us, our record-keeping is complex and must tie into every part of the business because, after all, our people are what make the business successful.

A Plan for the Future

6 steps to transition your company to the next generation



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

ASK GEORGE

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

A construction business owner's exit options include closing, selling or transferring the company to a family member. Over 80 percent of business owners prefer to eventually transition their company to the next generation in the family. However, a good succession plan might take a minimum of 2 to 3 years to put in place. The sooner that future leaders can take responsibility for business growth and profits, the better off everyone will be. If you plan to transfer your company to your family, first answer the following questions:

- Are you willing to trust others to care for the company without you?
- Are you ready to walk away from daily activities and major decisions?
- When is the right time to turn over ownership, leadership and management to the next generation?
- Do you have enough money to stop receiving a paycheck as the president of the company?
- Are your family members ready to accept the risks, responsibilities and liabilities of owning a business?
- Is the best solution for you and your family to close, sell or transition?
- Why haven't you started the transition process yet?

1. DRAFT A 5-YEAR PLAN

Once you decide to transfer your company to your next generation, what will make the transition a success? Companies can have a higher value when they are less dependent on an owner to manage the business. To build a valuable company, you need basic structure, a clear business plan and a 5-year vision, including:

- Growth targets
- Core values and principles
- Financial profit and return on investment goals
- Organizational chart for growth
- Clear position descriptions with responsibilities
- Defined management team
- Workforce enhancement programs
- Regular strategy meetings
- Customer and project goals
- Sales and marketing plans
- Investment targets and goals

2. DETERMINE OWNER NEEDS

Developing a transition plan starts with determining what the owner wants and needs from the transfer. The owner's desires must be balanced with what is fair and reasonable for the next generation and with what will allow them to be successful.

- **Price**
  - Amount of money the owner wants from the transfer
  - Worth of the business to investors
  - How to pay for shares (stock transfer, loan or lump sum)
  - Timing of transfer
- **Income**
  - Amount of money the owner needs



The sooner that future leaders can take responsibility for business growth & profits, the better off everyone will be.

- Payments, terms, interest and timing
- Salary, benefits, perks and duration
- Dividends and profit sharing
- Investments

- **Former owner's role**
  - Former owner's involvement after the transition
  - Former owner's work schedule
  - Responsibilities and activities
- **The next leader**
  - Ownership, timing and responsibility for any liabilities
  - Transfer ownership to workers or family in or outside the business
  - Percentage of ownership for owners, spouses and children
  - Timing of succession or transition
- **Compensation & liabilities**
  - Transfer of risks and liabilities
  - Pay for work and profit for owners
  - Profit split for managers versus owners internally or externally
  - Compensation, benefits, perks and pay for owners
  - Tax consequences of transfer
  - Bank line of credit, guarantees, bonding, insurance and licenses
  - Long-term agreements (mortgages, leases and equipment)
  - Compensation, benefits and perks for key employees
  - Clear policies, standards of performance and policies for owners

3. PLAN FOR THE FUTURE

Who is the best choice to be the new leader? Should the company hire an outside president or transition leadership to a family member? Which family member is the best choice to run the company? Does he/she have the drive, skills, experience and respect? Is he/she willing to take on added liability, risk, extra responsibility, workload and long hours? Can the new leader manage key relationships? How will important decisions be made?

4. PUT THE PLAN IN WRITING

Draft and prepare the necessary documentation, contracts and buy-sell agreements. Don't forget to address what can go wrong and what happens when something does go wrong. Develop a plan to address worst-case scenarios, too.

5. NAME LEADERSHIP DURING TRANSITION

During the transition, leadership will eventually transfer to the new owners. Be sure to address timing, levels of authority, control and decision making. Include the transition of control, the proposed organizational chart and position descriptions, a timetable for transition and how you will communicate the transition plan to your team. Open the books to the next generation and explain financial management. To ensure you don't lose any of your valuable managers, address how you will reward and compensate them moving forward.

6. REVIEW THE RESULTS

Determine the factors you will review on a regular basis, and develop scorecards to track actual results versus the plan. Include the following success factors in your monthly analysis.

- Financial performance and accounting system and practices
- Dividends, distributions, profit sharing and return on investments
- CPA and annual audit policies
- Compensation and benefits of owners
- Develop plan for regular updates
- Create an active advisory board

Transitioning your business to the next generation is a step-by-step process filled with emotion and tough decisions. If you want to turn over your business to your family, get started on developing a plan for the future now. **CBO**

Fit for Competition

Common mistakes & pitfalls of mergers & acquisitions



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.

Experts will tell you that the mergers and acquisitions market is ripe for activity. Several current conditions lend themselves to creating an attractive marketplace. First, the industry is seeing continued, positive traction in revenue growth. Secondly, the demand for construction services, specifically in the infrastructure arena, provides a stimulus, which further improves the attractiveness of many candidates by inflating potential backlog. Finally, the industry continues to age, leaving many firms seeking an expedient succession plan. There are plenty of other reasons driving firms to seek acquisition. However, while valuations will vary and due diligence abounds, there are plenty of hazards that firms fail to identify long before the transaction is complete.

THE STRATEGY

Mergers and acquisitions often fulfill the strategic needs of a firm. It may be a niche market or geography that enables the buyer to claim a competitive advantage. However, there has to be more to a firm than either of those characteristics. Using this rationale, if a buyer moved to a new city, any residence would be acceptable. In reality, the sector, niche or geography should be the starting point to engage in deeper conversation, rather than a terminal point to make an offer. An acquisition target should have other compelling features that make it desirable. For instance, it may be that firm's strategy in dealing with customers or maybe an internal system discovered during the due diligence phase.

Often, a firm acquires another one only to conduct a wholesale overhaul, leaving very little semblance of the original target. By forcing an integration or wholesale change to the parent firm, teams, customers, vendors and trade partners become disenchanted. Because of this, there is often flight, leaving the parent company with nothing short of an office. Leverage the acquisition appropriately, and view the target as something with more intrinsic value than simply an office. It should be attractive for multiple reasons. Find a way to learn from this new organization, and bring those lessons back to the mothership.

THE TECHNOLOGY

It sounds simple, but so many firms forget the costs of integrating multiple, sometimes incongruous systems. This is more than just transferring data from an accounting system. Consider all costs and challenges associated with every option, including:

- *Estimating platform*—Whether it is a customized, elaborate macro-enabled spreadsheet or an off-the-shelf estimating program, there is a level of integration that must occur.
- *CRM platform*—Are customers and activity tracked via a database or by a cloud-based application?
- *Accounting*—This is normally the



item that gets the most attention, but integrating disparate systems can sometimes be a big-dollar proposition.

- *Websites and social media*—The good news is that the firm will be able to announce the assimilation of the new firm. The hard part is deciding whether this looks like one firm or two firms that share an accounting system and a light bill?
- *Infrastructure*—With a mass migration to the cloud, there seems less emphasis on hardware and storage. Regardless, this takes time and requires a great deal of thought.
- *Phones and hardware*—Apple versus PC; Samsung versus iPhone; voice over internet protocol (VoIP); and rotary phones. Hopefully, no one is concerned about the latter, but the mechanics and costs associated with simply determining the "right tools" opens Pandora's box.
- *Other considerations*—There is no shortage of tools outside of the traditional spreadsheets and word processing programs. Scheduling, building information modeling (BIM), document control, project management, close-out and punch list control are just a few considerations that may or may not require additional transition time and energy.

Often, firms look at the equipment with a heavy emphasis on yellow iron. In today's construction world, acquisitions would be better suited to look equally at the integration of these new tools. The raw costs are one serious consideration, but when one adds in the effect of transitioning 10, 50, 100 or 500 people onto a new system, as well as all the training and heartache associated with it, it may drastically change the complexion of the deal.

THE CULTURE

In the end, it all comes down to the people. Despite all of the bluster about strategy, information technology, equipment, offices and more, it truly is about the people. The bells and whistles of the deal lie within the most important asset of the transaction. These are the people that know the market, know the players, know the customers, know the hot topics and know the intricacies of doing business within a specific sector or location.

The fascinating aspect is that this is the one variable of the deal that is not guaranteed. In the end, the computers, the office and the equipment will stay put. If your people do not buy in, they will leave. One of the most common reasons for acquisition failure is the lack of ability to recognize the impact of culture. This intangible component is one that so many leaders wrestle with and has such an important impact on strategy and tactics, yet defining it accurately is almost impossible. In the end, there has to be a cultural fit between the two companies. Think of an acquisition as a marriage–it is an intricate blending of two individual firms into one that often begins with a relationship predicated on similar compatibilities. The people in your company must buy in, so careful consideration should be given to:

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

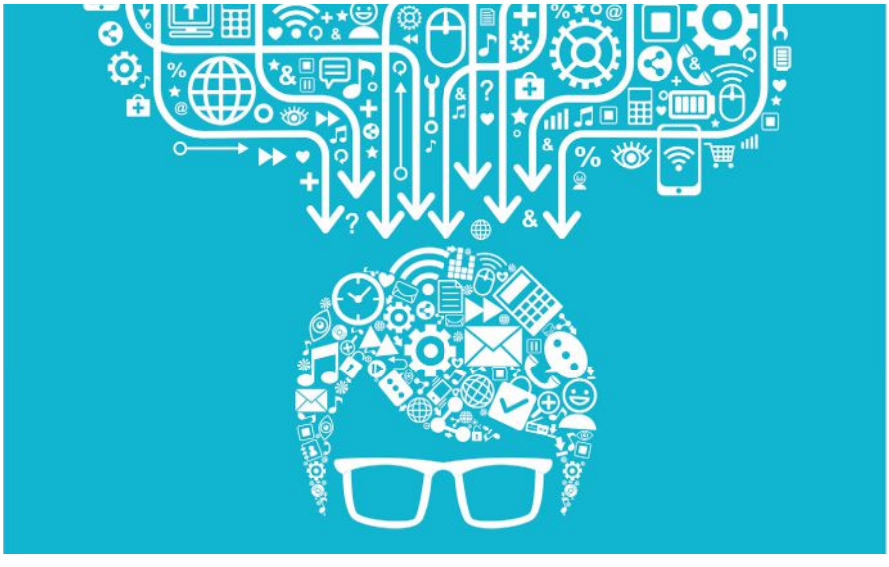
All signs point to a fertile market ripe for expanding empires. Growth can often occur organically through key leaders migrating to a new market or sector. There is no shortage of challenges associated with this strategy, but it is clearly another perspective to consider. Mergers and acquisitions are an excellent vehicle to allow firms to grow quicker, with fresh talent and an improved business strategy. However, even in the haste to do something, it is always important to do it right. **CBO**

When Networking & Litigation Collide

3 legal considerations for navigating social media in the construction industry

BY JACKIE WHEELER

According to a recent Pew Research study, roughly 8 in 10 Americans use Facebook, and it comes as no surprise that a large percentage of employed Americans are utilizing a variety of social media platforms on a daily basis. As this technology segment continues to grow, employers must follow state and federal laws that relate to social media, or they will likely find themselves in an unwanted legal dispute. Companies must consider the legal implications of using social media in their business processes, should they find themselves in the midst of litigation.



1. HIRING PROCESS

Social media can be a great tool for discovering information about candidates. However, the discovery of that information may have severe legal consequences. Federal, state and local laws prohibit employers from making employment decisions based on protected characteristics, such as race, gender, sexual orientation and disability. Typically, employers shield themselves from this liability by asking proper, nondiscriminatory questions on job applications. However, employers who use social media during the hiring process may expose themselves to discrimination claims if they discover information on a potential candidate's account that cannot be unseen. For example, suppose an employer receives an application from Candidate A. After reviewing the application, the employer proceeds to look up Candidate A on Facebook, only to discover Candidate A is Muslim, African American with a same-sex spouse. The employer would not have been aware of this information without reviewing Candidate A's Facebook page. After review, the employer determines a different candidate is a better fit for the job, thus denying Candidate A employment. If Candidate A sues the employer because he believes he was discriminated against in the employment process, the employer loses the defense that race, gender and sexual orientation did not enter into the hiring process because the employer reviewed Candidate A's Facebook page.

2. EMPLOYEE HANDBOOK

A social media policy can inform employees of an employer's expectations regarding employee conduct on social media platforms. These policies can protect the interests of both the employer and employee by (i) guarding confidential information, (ii) minimizing online discrimination and harassment and (iil) helping the employer avoid tricky legal situations. A nonexistent or poorly crafted social media policy may lead an employer to an undesired legal battle for violating an employee's rights

under the National Labor Relations Act (NLRA). Employees are permitted under Section 7 of the NLRA to engage in protected concerted activity, which may include communicating with others about the terms and conditions of their employment. Employers may violate the NRLA by taking adverse action against an employee for exercising Section 7 rights. Accordingly, employers should contact legal counsel before taking an adverse action against an employee based on social media because the employee's conduct may be protected under the NRLA. When crafting a social media policy, employers should consider including a disclaimer. The disclaimer should state that the company respects employees' rights to express personal opinions and discuss the terms and conditions of employment. This disclaimer should also state that nothing in the social media policy is intended to interfere with the employee's rights. While this disclaimer does not completely shield an employer from violations, it can help inform employees of the employer's intent behind the policy. Consider consulting legal counsel before implementing any policy that may regulate employee conduct. Applicable state and federal laws, recent cases and governmental memorandums concerning social media policies should guide an employer's legal counsel in crafting a compliant and effective policy.

3. PRESERVATION OF EVIDENCE

Employers also need to be careful of their company posts on social media and how the organization reacts to its employees' social media posts. Despite the obvious impact of an employer's controversial online statement on the company's public image, statements on social media can be used against the employer in future litigation. As such, it is critical for an employer to preserve historical social media posts. The duty of an employer to preserve evidence arises upon the reasonable anticipation of litigation, and can expand depending on the circumstances of each case. Failing to preserve evidence can open an employer up to additional penalties or litigation.

Social media can be an effective tool for employers. However, employers should strive to avoid negative legal implications by consulting with counsel before responding to situations involving social media situations and/or crafting a legally enforceable social media policy. **CBO**

Jackie Wheeler is an attorney in the Dallas, Texas, office of Munsch Hardt Kopf & Harr. Her practice focuses on matters regarding general civil litigation, business litigation, construction law, labor and employment, energy and environmental issues. Contact her at jwheeler@munsch.com. Visit munsch.com.





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The Basics of Bonding: Part 1

Guiding principles to help navigate construction surety

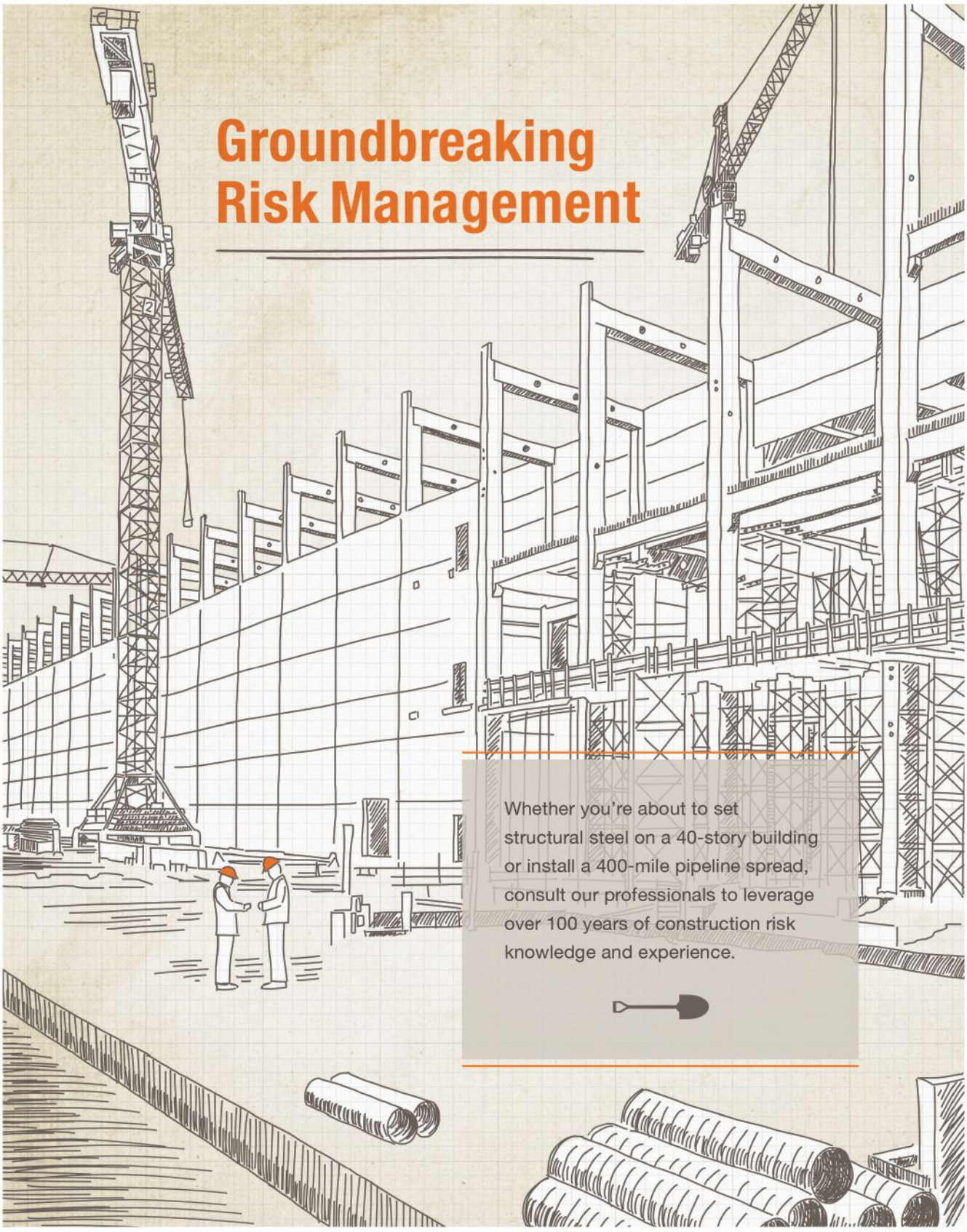
BY MARILYN KLINGER

Surety bonds were created to protect owners, taxpayers, subcontractors and suppliers from performance and payment risk during the construction phase of a project. Sureties use the underwriting process to determine which contractors are capable of completing a contract. Whether the contractor can afford the financial risks is merely one inquiry. Whether the contractor has quality staff and expertise to support the construction is a further inquiry.



THE DIFFERENCE BETWEEN INSURANCE & BONDING

- *Relationship of the parties*—An insurance policy is a form of risk management. The insurance policy is a contract between the insured and the insurance company, with no third-party beneficiary. The insurance policy promises that the insurance company will compensate the insured in the case of a covered loss. In contrast, a surety bond is a contract between the bond principal (the primary obligor) and the surety (the secondary obligor), but includes a three-party relationship with the oblige—an express, third-party beneficiary.
- *How risk is handled*—Under an insurance policy, the insured transfers the risk, typically of personal injury or property damage, to the insurance company that insures a large pool of similar risks. When an insurance carrier pays on an insurance policy claim, it does not expect repayment. In contrast, the obligee transfers its risk to the surety for the failure of a principal to meet its contractual obligations. Because, a surety bond is a form of credit, the bond principal is responsible to reimburse the surety for any losses it suffers as a result of having issued the surety bond. Theoretically, the surety only suffers a loss if the bond principal/contractor and the individual indemnitors are unable to reimburse the surety for the loss.
- *Premiums*—The premium on insurance policies is designed to cover the potential losses, although pooled with other insurance policy premiums. Insurance premiums are typically charged and paid on an annual basis. The one-time premium on a surety bond is based on a percentage of the obligation guaranteed. Notwithstanding that sureties can charge a premium for bid bonds, sureties typically do



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not charge a premium until they issue what are called the "final bonds," after the contractor has won the bid and been awarded the contract. Surety bond premiums can range from 0.5 to 3 percent of the contract amount, often with a sliding scale. Sureties charge a one-time premium based on the value of the bonded contract, notwithstanding that they have issued both a performance bond and a payment bond, each in the amount of the contract. Hence, the surety technically has double exposure. Because of the surety's equitable subrogation rights, the surety does have the benefit of the remaining contract balance in a default scenario. If the contract amount increases by way of change order, the premium increases as well. However, unless the bond provides otherwise, the bond amount does not increase.

- *Loss expectation*—Under a surety bond, losses are not expected. Some surety professionals state that the only time a surety should suffer a loss—if its underwriting was solid—is when the bond principal files bankruptcy or dies. Surety bonds are underwritten more like bank lines of credit.

CONSTRUCTION PROJECT BONDS

- *Performance bond*—The performance bond guarantees to the owner or, if a subcontract bond, to the general contractor that the contractor will perform the contract pursuant to the contract's terms, covenants and conditions.
- *Payment bond*—The payment bond guarantees that the bond principal, either the general contractor or subcontractors, will pay its subcontractors, suppliers and laborers on the project.

FINANCIAL SECURITY & CONSTRUCTION ASSURANCE

Surety bonds are the only form of financial security related to construction project performance and payment that provides 100-percent coverage up to the maximum amount on the bond. Letters of credit are typically 10 percent of the total price of construction, and subcontractor default insurance typically carries a substantial deductible or self-insured retention.

Surety bond requirements are almost always a part of the initial bidding process with the form of the required bonds included in the request for bids/proposal. That is, the procuring agency determines the bond form. The contractor, through a surety agent, obtains the bonds and provides them to the obligee.

PREQUALIFICATION & UNDERWRITING

One of the values that the surety industry offers to the construction industry is prequalification of the bond principal. Sureties can take on the risk of contract default because of their rigorous, in-depth investigation of the contractor. Before issuing a bond, the surety determines that the contractor has, among other attributes:

- Appropriate references from the construction community and an excellent reputation from its peers, customers and vendors
- The capacity to meet current and future obligations, including a cash reserve for unexpected expenditures
- The capability to perform the proposed bonded contract as to size, complexity, nature and location
- The required talent and equipment
- The financial wherewithal needed
- Adequacy of insurance coverage
- A relationship with a bank or financial institution and an available line of credit

THE THREE Cs

The 3Cs are a trademark of surety underwriting, listed below.

1. *Capital*—Generally speaking, this criterion is the most important. Whether capital, cash, credit or a combination thereof, it is the financial evaluation of the bond principal.
2. *Capacity*—A synonym for this is capability. It is the evaluation of the contractor's ability to perform the contract.
3. *Character*—Some underwriters advise that the way in which they evaluate character is by having a face-to-face meeting to determine the contractor's honesty and integrity. Underwriters usually obtain references from others with whom the contractor has worked in the past.

UNDERWRITING CONTRACT LANGUAGE

Surety underwriters review the proposed contract to determine whether there is problematic contract language, including:

- Liquidated or delay damages
- Warranties, particularly duration
- Insurance requirements
- Performance guarantees
- Contingencies
- Change-order provisions
- Termination provisions, both in the contract and the bond
- Dispute provisions
- Attorney's fees provisions
- Owner approval requirements

Based on the above information, it is clear that surety bonds provide a much-needed safety net for the construction industry as a whole, in addition to consumers, taxpayers and others. Use these guiding principles to assist your company in navigating the world of surety. CBO

This article is the first in a two-part series on the basics of surety bonding. To read Part 2, visit constructionbusinessowner.com.

Marilyn Klinger serves as the firmwide chair of Sedgwick's commercial division. Located in the Los Angeles, California, office, she is the chair emeritus of Sedgwick's Construction Practices Group and is involved in all aspects of construction law on a state and national level. Klinger represents the full spectrum of the construction industry, from owners, contractors, subcontractors and sureties. Visit sedgwickllp.com.



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WAYNE NEWITTS
Marketing Director
Dexter + Chaney

SPEAKER

Wayne Newitts has spent the last 25 years delivering technology solutions for business. Working as a design engineer, project manager and now, as marketing director for Dexter + Chaney, Newitts has spent the majority of those years developing and providing software and information technology for both the telecommunications and construction industries. Newitts is an electrical engineer by education, earning a degree from Texas A&M University.

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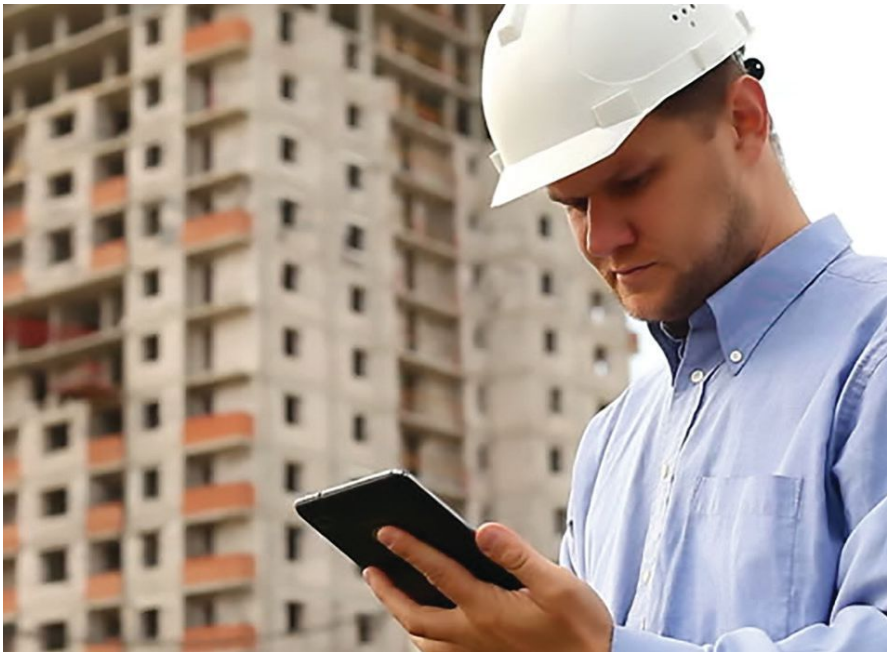
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Preparing for Future Success

Why on-demand BIM training is essential for construction business owners

BY TONY GLOCKLER

General contractors don't have the time or resources for excessive rework while working on large projects. This means that implementing new technology tends to get pushed to the back burner, because new technology means training yourself and your team on how to effectively use the tools. With little downtime between projects and no room for mistakes, construction business owners often delay implementing new technology, even when they know it will save them time and expense.



One such technology, building information modeling (BIM) software, provides general contractors with the ability to visualize projects, estimate costs and operate more efficiently. Proposed changes can be tested within the model to estimate budget and schedule impact. Through clash detection, issues can be resolved before they become problems. Construction business owners can utilize technology to communicate with customers, collaborate with their teams and manage planning. BIM software is changing the way projects are constructed to achieve substantial time and cost savings.

So, why aren't general contractors investing in training and equipping their teams with BIM solutions? Often, the short-term expense and potential delays in off-site training deter construction business owners from prioritizing learning new tools and technologies. However, on-demand BIM training can increase productivity without taking team members off the jobsite. Web-based platforms offer learning resources wherever and whenever teams need them, providing answers to questions as they have them.

Implementing BIM software and the training required to use it effectively requires a new mindset. It is now important for general contractors to become technically adept at using BIM software to manage projects and collaborate on designs. This training can also help streamline communication, which shows designers how your real-world insights and field experience can improve the design and building processes. Technologically-adept general contractors can benefit from the advancements in BIM with a relatively small training investment.

For general contractors, it isn't a question of if they should be using BIM software, but how to do so most effectively. Which solutions will increase business profitability and quality? How do you get your team up to

speed on new technology quickly? While BIM software can have a great return on investment (ROI), it is essential to ensure that your team is fully benefitting from the capabilities.

First, assess the technology you currently use. Determine the team's level of proficiency, and assign lessons in any functions that could use improvement. BIM software adds new features and capabilities regularly, but without ongoing training, many teams do not fully utilize the advancements. Next, look for new tools or upgrades that can help improve the bottom line.

While it is important to factor in disruption costs, don't put off adopting new tech any longer than you have to. Many business owners view technology as an expense, but often, new technology can save more money than it costs. It's important to consider is that BIM software can only provide a positive ROI if it is being used effectively.

Review your business goals for the year, and put in place a plan to obtain the resources to get there. Some business owners view technology as an expense and an attempt to save money by not providing their team with the resources they need, but skipping this investment costs much more in decreased efficiency. Cutting-edge construction businesses who implement software tools and provide their team with training resources to effectively use those tools quickly recuperate costs through increased productivity. These business owners also see long-term returns through attracting and retaining customers.

Technology is evolving more rapidly than ever. Construction business owners need to be proactive in planning for their company's future. Instead of becoming comfortable in your current practices, challenge yourself to think about how you can continue to evolve. You will be able to anticipate where the industry is going by implementing a professional development program that puts your team on the path to future results. If you wait until a technology is common practice to start implementing it, you will be left behind. Get ahead of cutting-edge technology by thinking about where the industry is headed and how to create a path to get there.

By adopting on-demand training to get up to speed on new technology and ensure their team is fully utilizing the capabilities available, contractors can maximize their business potential long term. **CBO**

Tony Glockler is the CEO of SolidProfessor. SolidProfessor provides next generation learning for teams, schools and individuals to keep up with rapidly evolving engineering tools and technologies. The company's online learning resources include video tutorials, hands-on exercises and skills assessments to provide an engaging and effective learning experience. Visit solidprofessor.com.



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2017 Insurance Update

Why equipment operation is one of this year's biggest areas of risk

BY MARTHA KUVEIKIS



Thanks to new technology, our vehicles are getting smarter and safer every day, with programs to help manage everything from GPS navigation and blind spot detection to lane-departure notification and emergency braking. Yet, even as equipment has become safer, highway fatalities are increasing at an alarming rate, and insurance companies have targeted distracted driving from cell phone use as a contributing factor. Increased accidents from distracted driving, more costly repairs, medical inflation and increased litigation have led to auto-loss ratios beyond insurance industry expectations and premiums that have not kept pace with the claims.

Employers around the country can expect to see significant increases in their auto premiums in the coming months. According to Liberty Mutual's 2017 Commercial Auto Industry Outlook, "Commercial auto loss ratios have increased steadily over the past 5 years, and [are] expected to stay well above target for the foreseeable future." For business owners with large fleets, this represents a serious challenge, since fleet vehicle accidents represent the costliest of all worktime injuries, averaging $70,000 per accident, which is almost twice the cost of the average workplace injury. The combined impact of expected increases in auto losses, increased auto premiums and related increases in workers' compensation modifier (mod) rates could spell disaster for the uninformed contractor if it doesn't take corrective steps now to minimize the potential financial impact.

Having a well-designed fleet safety program is key to maintaining a competitive edge. You may already have a fleet safety program in place, but it is good practice to review your program on an annual basis to make certain it is keeping pace with the changes in industry and technology. Your auto insurance carrier's loss-control division is an excellent source of information to help you review and manage your procedures. However, not all carriers have the same guidelines, so it is to your benefit to understand the key components of a good fleet safety program and then tailor it specifically to your business.

The most important factor in successfully implementing your fleet safety program is understanding your exposure, knowing who your drivers are and making certain that you have hiring guidelines in place prior to making a job offer. Motor vehicle reports (MVRs) should be reviewed and point and violation guidelines should be established. Your human resources (HR) director should know these guidelines and strictly adhere to them. Many contractors

rely solely on their insurance companies to run MVRs and notify them of issues, but a proactive stance toward your safety goals should include the use of a regular, internal MVR review. There are many companies across the country that offer this service for a nominal fee, and many insurance companies are contracted with these provisions to offer reduced fees for policyholders.

Non-owned auto use in your company should be reviewed, since these claims can be just as devastating to a business. The office clerk that runs to the store in his/her own car to pick up lunch for the staff can expose your company to large auto losses in the event of an accident. Office staff that drive their own vehicles for occasional business use should be held to the same auto driver standards as your regular drivers.

Many employers allow the use of company vehicles for their employees' personal use to foster a friendly working environment, but does your company have written guidelines for what is considered acceptable personal use? Should employees be allowed to pick up their children from school in your company trucks? Do you have guidelines that prohibit travel to Mexico or Canada? The best programs are the most restrictive, since more time on the road means more exposure to losses and increased costs to your company. You can obtain sample personal use guidelines from your insurance company that can be tailored to your business and to your exposure tolerance.

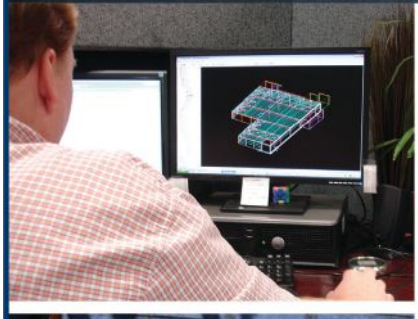
Your fleet safety program wouldn't be complete if it didn't address the use of cell phones. It is important to be able to reach your drivers, but that also leaves your business susceptible to driver distraction from texting and using social media apps while driving. It takes just 5 seconds to read a text, but at 55 miles per hour, that is like driving the length of a football field with your eyes closed. Safety guidelines and training meetings can go a long way toward helping your employees understand the risks, but sometimes even that is not enough. Fleet telematics programs are an excellent way to pinpoint the drivers with a greater potential to cause accidents. Your insurance agent should be your first point of contact. They can help you review your current fleet safety program and direct you to your available carrier resources. CBO

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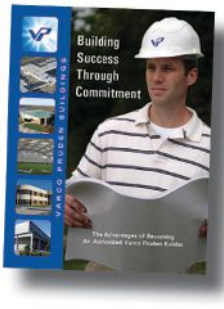


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UPDATING THE RULES OF REVENUE RECOGNITION

Follow these 5 steps to remain successful & compliant in 2017

BY LARISSA RAPOPORT & CHRIS NICOLETTE

After years of work, the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) have issued ASU 2014-09, the Revised Revenue Recognition Model. The model is intended to harmonize what had been a collection of over 200 specialized revenue recognition systems under United States Generally Accepted Accounting Principles (GAAP), and provide a more principle-based framework for business in different countries or in situations not covered by the previous arrangement. While these revised standards should make revenue recognition both more consistent and more flexible in the long run, adoption and application will unquestionably present some challenges, particularly for construction companies.

Because the model represents a significant departure from the previous regime, FASB decided to defer the original effective date by a year. Accordingly, public entities will apply it to annual reporting periods beginning after December 15, 2017. Nonpublic entities have another year, and will be expected to put the model into effect after December 15, 2018. For companies with calendar year fiscal years, this effectively means that the new rules go into effect January 1, 2018, for public entities, and January 1, 2019, for nonpublic ones. Transitioning to the new standard will require companies to review their internal processes and metrics and make guided judgments concerning revenue that will power the entire recognition process. All in all, the goal is a consistent, conceptual structure for determining and allocating revenue, rather than the previous, rules-based arrangement. At a fundamental level, the model breaks down the recognition process into five distinct steps:

1. *Identify the contract with a customer*—A contract is defined as "an agreement between two or more parties that creates enforceable rights and obligations." In other words, the creation of the obligation, rather than the actual transfer of funds, is the defining activity. There are additional provisions for combining contracts, as well as modifying them with change orders in projects.
2. *Identify the performance obligations in the contract*—The next step, identifying the contract's performance obligations, is guided by another definition, "a promise in a contract with a customer to transfer a good or service to a customer." The term "performance

obligation" is a new one created for this standard. A contract may have several independent obligations, or may have just one, despite specifying several independent activities.

3. *Determine the transaction price*—The third element, the transaction price, is a function of numerous items besides cash consideration, including the time value of money, variable and noncash consideration, discounts, rebates, commissions and other factors.
4. *Allocate the transaction price to the performance obligations in the contract*—Next, a transaction price needs to be allocated to each performance obligation. The metric here is the standalone selling price for each separate good or service. This can be calculated based on what competitors are selling the same product or service for, on a cost-plus-reasonable-margin basis or a residual basis in variable markets.
5. *Recognize revenue when the entity satisfies a performance obligation*—Finally, revenue is recognized as the point when control of the good or service is transferred to the customer, or when the customer has the ability to direct the use of or receive the benefits of the goods or service. Typically, control passes and revenue is recognized at a contractually specified point in time. However, there are specific situations in which this isn't the case. Where control transfer is less clear, revenue is recognized over time using one of several different general measures of progress, such as costs incurred.

In the context of the updated revenue recognition rules, construction presents several new challenges. One is change orders, which may be treated as new, distinct goods or services requiring new contracts. A change order may also mean replacing an existing contract with a new one or continuing with the existing one. Each has a different impact on revenue recognition. Other elements of construction projects may require new revenue treatment. Transitioning to the new system can require either a full or modified retrospective method. The impact of the transition will affect virtually every aspect of a company's operations.

The key to managing the transition is to get out in front of it. Create an internal team specifically charged with oversight of the implementation, a review of current contracts (or at least a meaningful subset of them) and, when appropriate, guidance from a professional advisor or auditor on particularly complex aspects of the process. **CBO**

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PAVING THE ROAD TO BETTER BENCHMARKING

How to learn from competition & fill in the holes in your operations

BY STEVE C. TENNEY

We live in a competitive world. Who has the most marketing leads? Who won the bid? What is your safety record? Pertaining to your self-performed work, what are the actual production rates compared to the budgeted production rates? Is work being performed on time, and with the level of quality that is desired? Whatever the question, you have to know the score.

KNOW THE SCORE

Contrary to some opinions, it's not just the final score that matters, but it is also how you measure that score and use that information to improve. For example, in sports, you evaluate your competition, their statistics, the active players and how your team will match up. Sure, it's fun to win games, but the long-term vision might evaluate individual game results, how you are doing in your division, your playoff position and the pursuit of the championship.

The construction industry is similar. How busy is the competition? What has the competition's record been with the client or project you are pursuing? How has it priced similar work? Which subcontractors line up best for the project pursuit, and do you get their "A" teams on the project? A company really needs to know its score in many areas, including financially. How is that potential client evaluating your company? Is the client looking at the strength of your balance sheet and income statement to compare you with your competition? Does it require prequalification? Is the company looking at your backlog to see if you have capacity for the project?

Bankers are going to compare your company against industry averages to see if you are a good credit risk. Your surety is going to compare you to its current client base and other industry benchmarks to determine bonding capacity and project restrictions. For businesses, benchmarking is an evaluation method that can see how your company compares to others. The following are a few definitions for "benchmark," according to Merriam Webster.

- *Noun*—A point of reference from which measurements may be made, or, something that serves as a standard by which others may be measured or judged
- *Verb*—Evaluate or check by comparison with a standard

Knowing about your own organization is a good place to start. Benchmark your organization to see how you are doing this year compared to prior years. Use that information to help with your plans for the upcoming year and the next 5 years. Evaluate what changes you want to make to gain a competitive edge over your competition. You have to know what to measure in order to have an effective, strategic evaluation process. Know where have you been and where you want to go. When you have a direction on where you want to go in the future, you can begin looking at what you need to change to get there.

Tell your story, instead of being told your story. By performing benchmarking on your own and presenting your information, you will be ahead of your competition. When you meet with your financial partners, brag about your successes and admit your shortcomings, along with your plan for improvement. Help your financial partners see your vision and how you plan to get there.

Convince them that you know your business, your competition and industry trends. It is better to be the storyteller. Use benchmarking information to your advantage.

USE BENCHMARK INFORMATION SOURCES

Your financial partners may be willing to help you with benchmark information. Several CPA firms are now helping their clients' business evaluations by sharing benchmarking reports. Your surety partner may also help you to see how you stack up with some of their benchmarking comparisons.

Your banker will underwrite your risk based on benchmarking comparisons. Your banker may identify some loan covenants based on your financial status. They may even be willing to share their credit evaluation measurements with you.

The Construction Financial Management Association (CFMA) has a helpful benchmarking tool with a catchy name, the "Benchmarker." The tool helps you do some of the following:

- Grab your financial statements and enter the current data you want to use to compare. You can enter historical data if you want to see trends, too.
- Decide what peer group you want to benchmark against. This could be company size, geographic operating area, subcontractor or specialty category and other groupings. Some companies may also choose to benchmark internally between divisions.
- Once you have selected your benchmark group, produce the reports you want.

Some benchmarking is basic and compares current ratio, debt to equity, days of sales in receivables, return on net assets and others. The data can be more complex and detailed, too. The real benefit is determining what the ratios and results mean for your business going forward. You can even benchmark your future projections to see how your future results compare to current industry standards and trends. This helps you concentrate on the factors that will generate the results you desire. It also helps you position your company more competitively in the market.

It is important to present this information to your audience. Know your audience and whether you are presenting the information internally to management, to your bank or to others.

UNDERSTAND KEY PERFORMANCE INDICATORS

One of the next steps is identifying key performance indicators (KPIs). In short, KPIs measure factors that impact results. For example, if one of the ratios that the company wanted to improve based on the benchmark comparisons was to reduce the number of days that a sale ages in accounts receivable, a KPI might be established to focus on collection efforts.

FIND YOUR COMPETITIVE ADVANTAGE

Remember that meeting with your bank, prepared with benchmark data, the plans you have and the confidence you showed in the presentation of information could result in a ½ percent off that line of credit costs.

That big job that you were hoping to be able to submit a bid on, but was pushing your surety line, may have just moved to the win column after you gained the added capacity from your surety, simply because you shared your story and recapped the trend information from your benchmarking efforts. And don't forget about the insurance company that realized you have established measurements that are more leading indicators for safe activities and you have started to see a decline in your incident rate frequency. As a result, you got a better renewal on your workers' compensation policy.

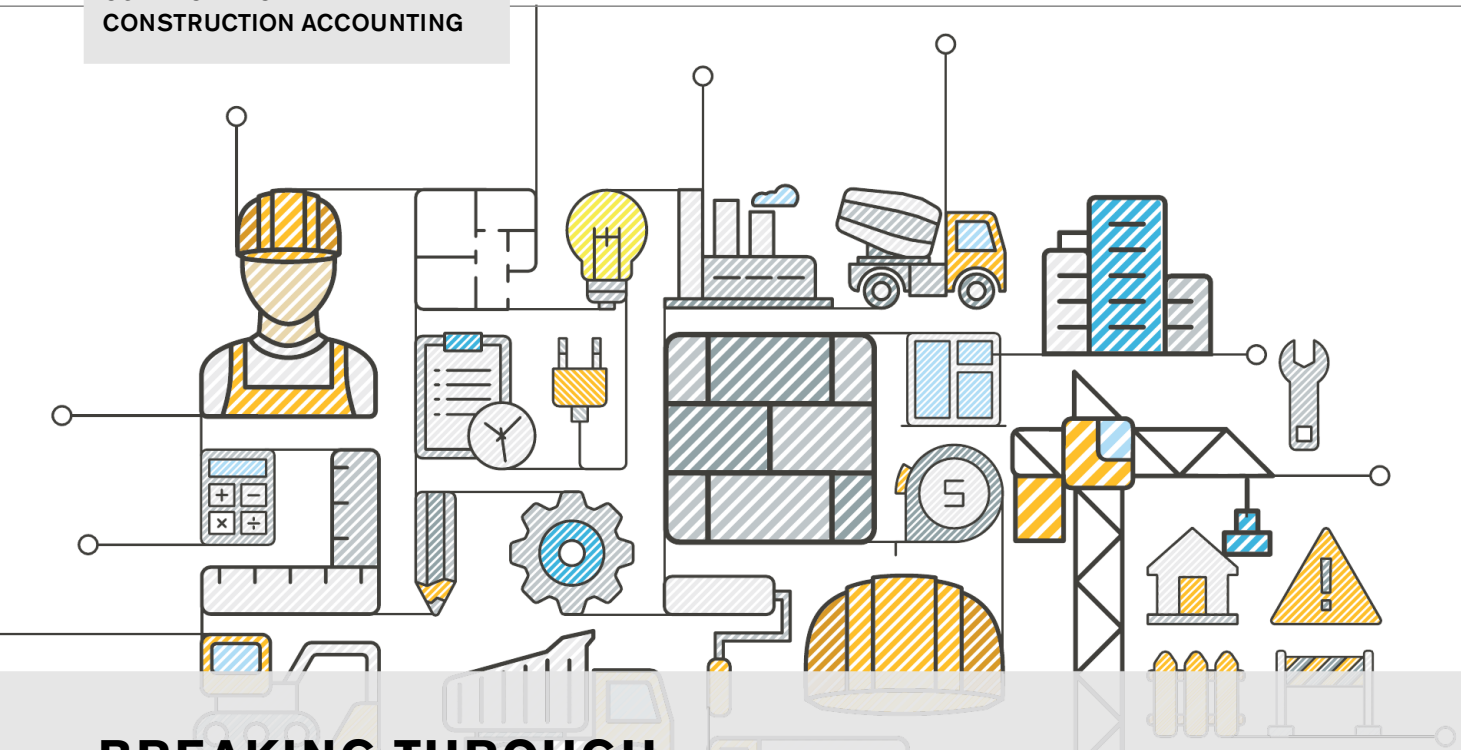
The more you know about your own company and its competition, the better you can position yourself on the road to success. Benchmarking can make a difference in your company when you use the information to improve your results and gain competitive advantage. CBO

learn more

from the Construction Financial Management Association (CFMA) by visiting cfma.org. Follow CFMA on Twitter and Facebook with #CFMACONF to catch highlights from its Annual Conference & Exhibition in Phoenix, Arizona, June 3-7.

Steve C. Tenney, CPA, is a stockholder and chief financial officer (CFO) of Story Construction Company, a nonresidential general contractor, design builder and construction management company in Ames, Iowa. Tenney is a past chairman of the CFMA, and has over 35 years of experience in the construction industry.





BREAKING THROUGH ESTIMATION LIMITATIONS

6 major liabilities that estimators can overcome with specialized software

BY PATRICK REITZ

When pencils, paper and calculators were the go-to tools for estimating, spreadsheets represented a major breakthrough to contractors looking for a smarter solution. Now, contractors who rely on spreadsheets find themselves at a disadvantage when they compete against companies equipped with estimating software. Even processes built around advanced, customized spreadsheets are no match for the collaboration capabilities provided by specialized software. The following are six liabilities estimators can overcome when they leave spreadsheets behind.

1. *Costly formula errors*—Spreadsheets rely on formulas. The problem is, formulas can be changed, and those changes are hard to detect. Checking and double-checking every cell to prevent errors in the final bid is tedious and time-consuming. Unfortunately, estimators are often forced to skip this step when a deadline is looming and they have to focus on cost components and strategies. Spreadsheets also lack the safety net of automated error checking, a feature that is built in to specialized estimating software. Like spell check, this feature scans the estimate and flags common mistakes or discrepancies, such as a zero or negative cost, undistributed values and other variables.
2. *Slow systems*—With spreadsheets, estimators essentially have two choices. They can start from scratch by creating a structure or framework and then populating it with cost components that they have to find from multiple external sources. The second option is to start with a similar, previous bid and make adjustments. Obvious dangers here are that the cost data could be outdated or they have to verify or change the formulas in the cells. In either case, they lose time and accuracy and increase risk.
3. *Inaccurate data*—When cost information for materials, labor and other components of a bid is maintained in spreadsheets, contractors struggle to keep track of changes and keep the data current. Estimators typically search through multiple sources and previous bids for cost data that may or may not be accurate. Different estimators use different sources, which can waste time and lead to mistakes. A centralized cost database is the cornerstone of specialized estimating software and provides a single source of truth.

4. *Collaboration challenges*—Having several estimators contributing to an estimate is common and essential. That is especially true when contractors bid for large, complex projects, perform a broad scope of work or operate in multiple locations. With spreadsheets, limitations on collaboration are a big disadvantage. Estimators generally have to input information one at a time and in succession, rather than concurrently. This means they can't see what their colleagues are doing in real time. This can slow the process, create overlapping or conflicting entries and leave companies trying juggle and reconcile multiple versions.
5. *Lack of standardized processes*—Spreadsheets make it difficult to standardize the estimating and bidding process within a company. Each estimator might do things a little differently. Methods and cost data, and how they are applied within the bids, can also evolve over time. This threatens efficiency and the ability to compare one bid to another. More importantly, companies with an inconsistent or nonstandardized process struggle with conveying the bid information to the field and with comparing actual costs of a job to the estimated costs.
6. *Isolation*—Estimating impacts multiple workflows, but spreadsheets isolate the process. Communicating data to accounting, project management and field operations systems can be inefficient, often requiring manual rekeying of data, which invariably leads to errors. The lack of a seamless connection between estimating and field management can be particularly damaging. Teams in the field struggle to plan and execute according to the expectations of the bid, and estimators miss opportunities to use field performance to improve future bids. Incorporating quotes from vendors and subcontractors presents similar integration challenges for estimators relying on spreadsheets. Specialized estimating software also allows contractors performing Department of Transportation (DOT) work to take full advantage of electronic bidding systems (EBS), which involves downloading forms, building bids from prepopulated databases and exporting to a bid file at speeds that would be unimaginable with spreadsheets.

Every dollar a construction company earns or loses begins with the estimate, so there is a lot riding on the accuracy and speed of the process. The spreadsheet liabilities above can force estimators to choose between speed and accuracy and to compromise in both areas. The result is an increased risk of losing potentially profitable jobs. **CBO**

Patrick Reitz is a product manager at B2W Software. He has had a leadership role in the continuous development of B2W Estimate, the company's comprehensive application for heavy civil construction estimating and bidding that is used by more than 1,500 companies in all 50 states and each Canadian province. Contact Reitz at preitz@b2wsoftware.com. Visit b2wsoftware.com.



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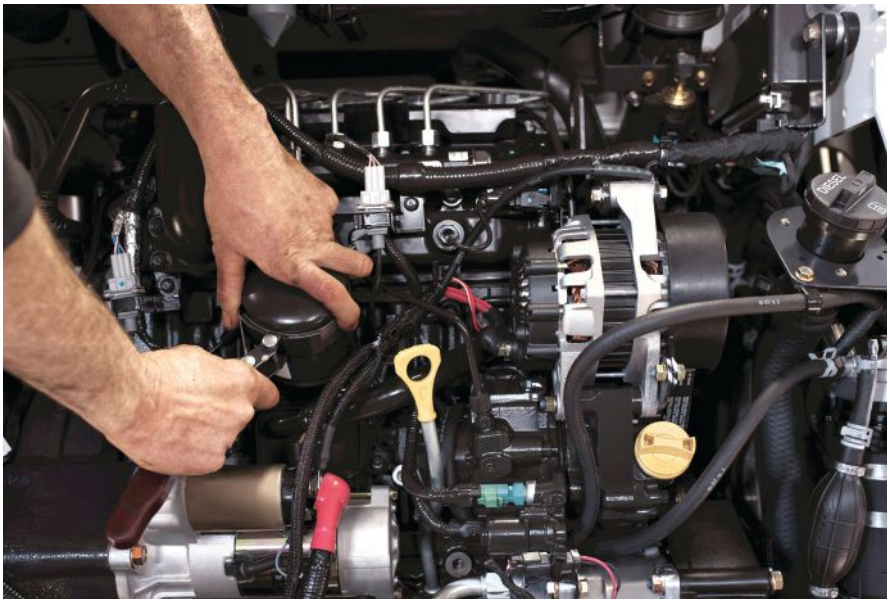
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Nail Down Your Parts Strategy

How a dealer can contribute when your compact equipment needs help

BY JASON ARCHBOLD

As a business owner, unexpected maintenance can place financial strain on your company and directly impacts profitability. To make matters worse, you or your equipment operators may not have adequate service training or access to an on-site mechanic for the repairs that get your compact equipment up and running. That's why partnering with your local equipment dealership for parts and maintenance can be beneficial. Dealerships have the time, tools, knowledge and parts availability that give you the best chance of maintaining a healthy compact equipment fleet.



DEALERSHIP EXPERTISE

One of the biggest advantages of partnering with your compact equipment dealership is having trained technicians with access to the latest information, resources and tools concerning your equipment. They know what to look for, and they have the proper training on the latest emission standards, how to calibrate the machines and how to check diagnostics with tools and software that are typically not available to customers. In addition, your dealership's service team should know what parts are stocked, and can help ensure that your scheduled maintenance is performed according to the recommended service schedule. You may consider creating a planned maintenance contract to ensure you are following the recommended service schedule. A planned maintenance contract can better assess what equipment and tools are needed to keep your compact equipment running properly.

FLUIDS & FILTERS

Dealerships stock engine oils, coolant, hydraulic fluid, grease and drive-motor lubricants to help you follow your service schedule and minimize downtime during your busy months. They can help match excavator and loader fluids to the proper ambient temperatures and to the manufacturer's recommendations. Your dealership can determine if you need synthetic or synthetic-blended oils, which are formulated with additives that can extend oil change intervals and promote longer engine life. These oils have better cold weather starting and lubricating performance, as well as additional wear protection during high-performance operation.

Fuel and air filters should also be changed according to your machine's recommended service schedule. Dirtier and dustier conditions may require filters to be changed more frequently. Regular inspections, as outlined in your equipment's operation and

Your dealership has the proper training on the latest emission standards, how to calibrate the machines & how to check diagnostics with tools & software that are typically not available to customers.

maintenance manual, will help your dealership identify when to change filters.

Speak to your dealership about purchasing fluid and oil analysis programs. Each program provides reports and insights that can help you better understand the current operating status of your machine. With the oil analysis program, you can examine what is happening inside the engine, gearbox or hydraulic system without disassembly. The practice of regularly sampling and monitoring test data can expose trends over an extended period.

TIRES & TRACKS

You rely on tires and tracks to give you long-lasting performance when paired with compact equipment. You also rely on your dealership to have the proper replacement parts in stock in case you encounter a flat tire or if a track is loose. Make sure your dealership knows the scope of work your business is completing so they can have the proper replacement items in stock. For instance, if you are excavating, grading or performing other construction tasks, consider a pneumatic tire for superior traction. However, if you are working in demolition situations, a solid tire will resist cutting and chunking caused by debris.

The life of a pneumatic or solid tire depends on a variety of factors, including the application where it is used. You may get 1,000 to 1,200 hours of use on one set of tires when working on sand or very soft ground. However, if you are working on hard dirt, gravel or rock, you should expect between 600 and 800 hours of life. When working in severe operating conditions on only roads and parking lots, you may get 400 or less hours of life from tires.

If you own a compact excavator or compact track loader, your dealership should have a variety of wide or narrow tracks to match ground conditions and different tread patterns on the tracks to suit your individual needs. Wide tracks work well when lower ground pressure and flotation are desired, while narrow tracks add increased ground pressure, traction and pushing force. The tracked undercarriage provides lower ground pressure, improved flotation and traction, helping distribute the machine's weight across a larger area. The undercarriage consists of many moving components that need to be inspected frequently, especially if the machine is being used in harsh applications or challenging operating conditions.

Compact track loaders can be equipped with a variety of rubber tracks. Custom, C-pattern rubber tracks provide the best combination between flotation and traction, but there are a variety of tread patterns that can accommodate various applications, including:

- *Multi-bar lug*—Offers a smoother ride than traditional lug patterns and has excellent traction with a greater number of tread lugs per foot
- *Multi-bar lug (non-marking)*–Provides an option for sensitive worksites
- *Non-marking*—Designed for turf and landscaping applications where reduced ground pressure is desired

GENUINE PARTS

It can be tempting to cut costs with lower-priced alternatives, but with today's emission regulations and sophisticated treatment systems, cheaper options could cost you more in lost time and revenue than using genuine original equipment manufacturer (OEM) parts. Dealerships stock OEM parts, and often carry a warranty that can help protect the overall value of your machine. Using genuine parts helps extend the life of your machine, but will also give you the peace of mind that your equipment will continue to function properly.

OPPORTUNITY COSTS

You should evaluate the savings gained with having a dealership service your compact equipment. Opportunity costs can vary based on rates and accurate time estimates, but in many cases, your dealership can perform many routine maintenance tasks in significantly less time. Utilizing a dealership is not only appealing because it can be the cheapest option, but also because it can be the most convenient and reduce downtime.

Poor equipment performance and component failure can be frustrating, but consider visiting your local dealership to perform service on your compact equipment. They have adequate service training, access to the right parts and have on-site mechanics available to get your compact equipment operational. Proper and timely scheduled maintenance can help extend the life of the equipment, minimize downtime and save you money over time. **CBO**

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



Productivity, Power & People

The 3 tips you need to keep your equipment up & running

BY GREGG MANGIALARDI

Jobsites are generally dirty, unforgiving places. They are the product of a hard day's work, and the reason why so much emphasis is now placed on dust-control solutions. But at the end of a day's worth of grinding, sawing and drilling, keeping your equipment running in the best possible shape comes down to prioritizing tool maintenance. Properly maintaining your suite of tools keeps them running harder for longer periods of time before the eventual replacement.

More than the cost savings, though, proper equipment maintenance ensures the safety of your workforce on the jobsite. Sure, you get the oil in your car changed and the tires rotated because you don't want it breaking down on the highway, resulting in a wasted day at the mechanic and an unwarranted bill. But more than that, you do it so your car doesn't flip into a ditch.

The same is true for tool maintenance. While the short-term goal may be to save money on replacement equipment, every business owner knows that maintaining a safe work environment contributes to the success of his/her employees and the company.

In fact, according to a 2016 report from the United States Bureau of Labor Statistics, professionals in the construction industry need to take roughly 10 days away from work after suffering from a job-related injury or illness. That means maintaining your equipment quite literally translates to safety and productivity on the jobsite. Here are a few key tips for keeping your equipment up to the task.



1. KEEP THE MOTOR RUNNING SMOOTHLY

It seems obvious enough, but it bears repeating: keep your tools clean. Both dust and moisture are killers on the jobsite. They can affect tool performance and overall lifespan. Because of the upcoming OSHA regulation regarding silica dust, concrete tools will soon need to have dust-control solutions. However, it is still wise to ensure your tools, specifically the motors, are dust free. The easiest and most efficient way to clean your tools at the end of a rigorous workday is to pull out the air compressor. Focus on a tool's motor and any areas where there is motion, like a foot plate or blade guard on a saw.

Next, know your equipment and what it needs to run smoothly. For example, did you know the lubricating oil in a worm drive saw needs to be replaced annually? Or if you are experiencing excessive arcing or sparking, did you know it's time to replace the motor brushes? Knowing your tools'

needs can make the difference between a total replacement and a simple repair.

2. NOTICE THE CORDS

While cordless tools are becoming more powerful and realistic to use on a jobsite all day, the job at hand often still calls for its corded counterpart. It is just as important to inspect your tools' cords and extension cords as it is the equipment itself. Examine the cords on a regular basis to make sure there are no tears or exposed conductors. Once you have cut the jacket or insulation, you should replace the cord entirely. Some safety officers bring a colored roll of tape with them to inspect a jobsite. Should the cord pass the test, they wrap the colored tape around a small part. That way, they know it was inspected and can keep track of all the tools. The next time they visit, they bring a different color, which helps them keep a visual record of inspections.

3. REMEMBER MAINTENANCE STARTS WITH YOUR CREW

Cleaning your tools, making proper replacements and checking the cord are all important, but in reality, the best way to get ahead of any maintenance issues is by maintaining your people.

By ensuring your team is properly trained, you can be more confident that your company's tools are being used properly, which leads to less maintenance overall. This includes general safety instructions as well, such as reminding the crew not to violate a tool's safety guards and features or setting tools down in a location where they won't fall or get damaged.

Many workers come to the jobsite with the appropriate skills gained during years in the field, union training or having gone to a vocational school.

But for those without that kind of experience, individual manufacturers can visit a jobsite and put on a training seminar regarding their equipment. This is especially important when new specialty tools come out that haven't existed in the market before. Owners need to make sure they are reading the operation and maintenance manuals and that their crews know how to use them safely.

Proper equipment maintenance is essential to a functioning jobsite, a profitable business and a safe team. By taking an extra step to be concerned about both your tools and your people, you can create an atmosphere that facilitates success. **CBO**

Gregg Mangialardi is a Skilsaw product manager with over 40 years of experience in the power tool industry. During his time at Skilsaw, he has contributed to a variety of Skilsaw products. Most recently, he was a part of the development and launches for the worm drive, sidewinder, metal and concrete saws. Mangialardi holds several patents spanning multiple products. Visit skilsaw.com.

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A Safer Alternative

Using low-level lifts on the jobsite to help eliminate injuries

BY JUSTIN KISSINGER

Ladders and scaffolds have long been the go-to solutions for elevated work. They are simple to transport, and they don't cost much to purchase or rent. While they excel in these areas, ladders and scaffolds continue to lag in one major, costly area: safety. According to 2014 data from Liberty Mutual's 2017 Workplace Safety Index, workplace falls, both to the same level and a level below, led to a combined $16.12 billion in direct costs to businesses. In fact, these injuries rank right behind overexertion, the No. 1 cause of workplace injuries. One could speculate that a fall from a ladder or scaffold is not a matter of if it will happen, but when it will happen. But, like many workplace injuries, most falls can be prevented with the right equipment. Low-level scissor lifts are compact and lightweight enough to work on finished floors, drive through doorways and take a ride on an elevator, but, most importantly, they enhance safety by leaps and bounds. Operators get a stable platform to stand on while performing work and railings protect them from falling. So, what is holding some businesses back from implementing safer alternatives, such as low-level lifts? One word: awareness.



LADDERS

Setting up a ladder can be more complicated—something many users would never suspect from such a basic tool. From duty ratings to height guidelines, there are several factors to consider when choosing a ladder and setting it up for optimum safety. Unfortunately, this knowledge is often overlooked and not communicated to users, making the risk of falls a very real concern.

Ladders come in five duty ratings: Type III light duty, Type II medium duty, Type I heavy-duty, Type IA extra heavy-duty and Type IAA extra heavy-duty. Each are designed to safely handle a specific amount of weight. Exceed that weight, and physics kicks in, with the potential for the ladder to snap and cause severe injury. There is a safer way for workers to haul themselves and their materials to the elevated jobsite, and that is with a low-level lift. Workers can place material on the lift's platform and move it from place to place on the jobsite. Some of the lifts even feature overload sensors that alert the user or limit the lift height if there is excess weight on the machine.

In addition to capacity, height is a critical factor that often gets overlooked when selecting a ladder. When it's too short, it is

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tempting to stand on the top rungs or overstretch beyond the rails, both of which can lead to a fall. A ladder that is too tall is more likely to be set up incorrectly against a wall and can slip out from underneath a worker because there is not enough friction to hold it in place. Low-level lifts address these potential pitfalls by allowing users to work as high as 20 feet, which is ample height for reaching almost any job.

"Most jobs don't require a working height of more than 19 feet," said Jason Colby, territory manager for ADMAR Supply, a New York rental company. "That really means a 12- to 14-foot platform height is sufficient. I often tell customers lower level lifts offer a better overall value and are very maneuverable. And, due to low step heights, they also reduce the risk of injuries from ingress and egress."

By eliminating daunting climbs and providing a step-in height as low as 20 inches, low-level lifts allow workers to quickly relocate. When projects require moving the ladder as work progresses, the contractor needs to climb down, fold up the ladder, carry it a few feet over, set it back up correctly and climb back up the rungs. This not only is cumbersome and time consuming, but it can also fatigue a worker, which will increase the risk for falls.

Properly setting up a ladder is challenging and leaves a generous amount of room for error. OSHA recommends that users ensure the top of the ladder extends three feet higher than the elevated surface, place it at a 75-degree angle and set it one-quarter of the working height away from a wall. For instance, if the wall's height is 40 feet, the base of the ladder should be 10 feet away. It is often impractical to measure for these recommendations on the jobsite, but not following that guidance can substantially reduce the ladder's stability.

Cutting safety corners for the sake of time and effort is also a concern with ladder usage. Overreaching can cause the ladder to topple over, and "walking" it—shifting side to side to move—can also cause it to tip or fold on itself. With low-level push around lifts, the user brings the lift to the ground and pushes the unit to the next location. Or, with a self-propelled lift, the operator can simply drive to the next spot. Most lifts also use counterweights and tilt sensors to prevent tipping when pushing against the wall with tools. Some manufacturers will even provide custom solutions to address safety issues in unique scenarios. Michael Folaron, lead foreman at Danforth, recalls working on the construction of a University at Buffalo medical facility, where the crew needed a safe way to transport pipe from the ground to the ceiling.

"We worked with a low-level lift manufacturer to develop a unique pipe rack for our lifts that enhanced stability and efficiency," Folaron said.

Unlike other systems on the market that simply weld on top of the lift, which disturbs the machine's balance and capability, the custom-designed pipe rack system was integrated into the overall design of the lifts without impacting machine stability or safety. "The pipe racks were an ideal solution for our crew's overall safety and productivity," Folaron said.

SCAFFOLDS

Scaffolds can provide variable working heights and larger elevated platforms, which ladders cannot, but they still create some of the same safety challenges. Just like ladders, scaffold must be set up correctly to provide a stable framework and prevent collapse underneath the weight of workers, tools and materials. Low-level scissor lifts are ready to go and leave little room for assembly error. They also make reaching elevated heights nearly effortless. Hauling tools and materials up and down scaffold is a challenging and dangerous chore that can increase user fatigue and lead to more slips and falls.

Depending on the setup, once a worker is on the deck, there might not be anything to prevent them from taking a perilous step off the side of the platform. On the other hand, lifts offer an encircled platform with 38- to 42-inch-tall railings and toeboards, which protect people below from falling tools and materials.

Just like when using ladders, operators using scaffolding are still tempted to sacrifice safety for productivity. When a scaffold needs to be moved, the worker needs to remove the deck and, in some cases, disassemble and reassemble the scaffolding at the new location. When a scaffold is on wheels, a user might try to surf an unsecured scaffold over to the new location by pulling on objects around the work area. This takes the operator's focus from where the scaffold is traveling. And if the wheels encounter an object or an uneven surface, such as a ramp, the scaffold could tip. On self-propelled lifts, the user can focus more on the wheels' path to avoid obstacles and uneven work surfaces while driving to the next location. Push-around units have automatic locking mechanisms on the wheels to prevent unsafe surfing.

The International Powered Access Federation recommends that a complete jobsite assessment be completed before a project begins. This assessment addresses safety factors, such as how people will gain access to the project, its scope and size and the working environment. Only after they have completed the assessment should contractors and project managers select the right tools and equipment for the job. The first step to enhancing elevated worksite safety is awareness. Ladders and scaffolds pose some of the greatest risks for injuries on jobsites, but with low-level lifts, safety can easily be restored. **CBO**

Justin Kissinger is the marketing manager for Custom Equipment Inc. He has been with the family-owned business since 1998, and during that time has gained knowledge from all areas of the company. He also has attended every major tradeshow in the lift industry since 2007. Contact Kissinger at 262-644-1300, ext. 13, or justin@customequipmentlifts.com.




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Put Success in the Hands of the Operator

3 ways to gain a competitive advantage using telematics for training

BY MIKA MAJAPURO

A forecast from PwC, also known as PricewaterhouseCoopers, estimates the volume of construction output will grow by 85 percent to $15.5 trillion worldwide by 2030. Such growth presents both a challenge and an opportunity for companies. Faced with increasing pressure and razor-thin margins, businesses are making significant investments in telematics technologies to meet this demand. The data collected through telematics provides fleet managers with a direct line of sight into how much material is hauled, how long it takes to complete a haul and how much fuel is burned from point A to point B. But these vehicles and assets are not working autonomously. In addition to providing a direct line of sight into a fleet's inner workings, telematics systems offer a variety of training benefits for employees, which will ensure greater productivity and cost savings.



MAKE EVERY OPERATOR YOUR BEST OPERATOR

When visiting any jobsite around the world, you will find employees with a wide range of skill sets—from new hires learning the ropes to veterans with 30 years of practice. While the ultimate goal of training new hires is to get them to the same level as the veterans, it is nearly impossible to teach 3 decades of experience in a week-long onboarding course.

Thanks to the insights generated through telematics, construction managers can now set a knowledge baseline for an entire fleet. Managers define parameters on how to score operator behavior—whether it's speeding, idling or harsh breaking—and use the telematics system to monitor and identify activities that deviate from the baseline. Some managers may even create a bonus structure to incentivize and reward operators for high performance.

This data creates an equal playing field for all employees to not only protect their well-being, but also the company's bottom line. The upfront investment in telematics and the resources leveraged for employee training will be recouped as construction fleets gain a competitive advantage in three critical areas:

1. *Safety*—Speeding, harsh cornering, heavy braking and distraction are just a few of the top safety risks on and off the road. Telematics allows fleet managers to train and course-correct behavior in real time. Audio alerts are

sent directly to an operator's phone, tablet or GPS navigation tool, which delivers instant feedback and potentially prevents an accident. Telematics further protects drivers and operators from unwanted repercussions. Some companies have enacted policies that result in job termination if too many points are accrued, but this pertains to on-road vehicles in particular.

2. *Maintenance*—Unsafe driving or operating behavior adds to the wear and tear of equipment and costly components. Construction companies already contend with increasingly tight budgets and rising operating expenses, so telematics helps close the gap for error. Telematics further protects the company and its equipment by providing detailed reports on the state of every vehicle. The system can preemptively alert equipment managers when assets are coming due for service, notify of diagnostic issues and calculate costs associated with repairs.
3. *Cost*—While construction vehicles may not log many miles, they can log thousands of engine hours. Fuel—second only to payroll as the largest expense for a construction fleet—is burned inefficiently based on the sheer amount of the weights being carried and the constant stop and go. Therefore, production efficiency is paramount when coordinating batch plant, quarry loading and construction site deliveries. Using telematics, managers can track every movement and realize the actual operating costs of haul cycles. When managers better understand how their machines are being operated and where there is excess use or idling, they can make adjustments to operational behavior for immediate improvements.

MAKE THE MOST OF YOUR TELEMATICS INVESTMENT

Construction companies will get even more out of their telematics investment by taking a closer look at the vehicle operators—not just the equipment, haul times or site conditions alone. And by developing a baseline of knowledge, fleets build a more sustainable business strategy, which is supported by their highly trained employees. CBO

Mika Majapuro leads the construction, mining and oil and gas practice at Teletrac Navman, where he is responsible for global strategy, product management and go-to-market development. Majapuro has over a decade of experience in strategy and product development in various industries. Visit teletracnavman.com.



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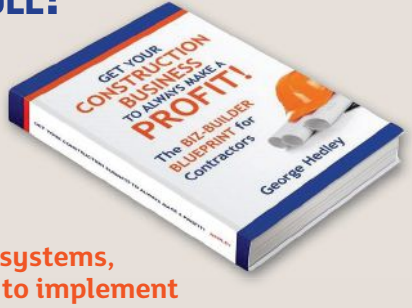


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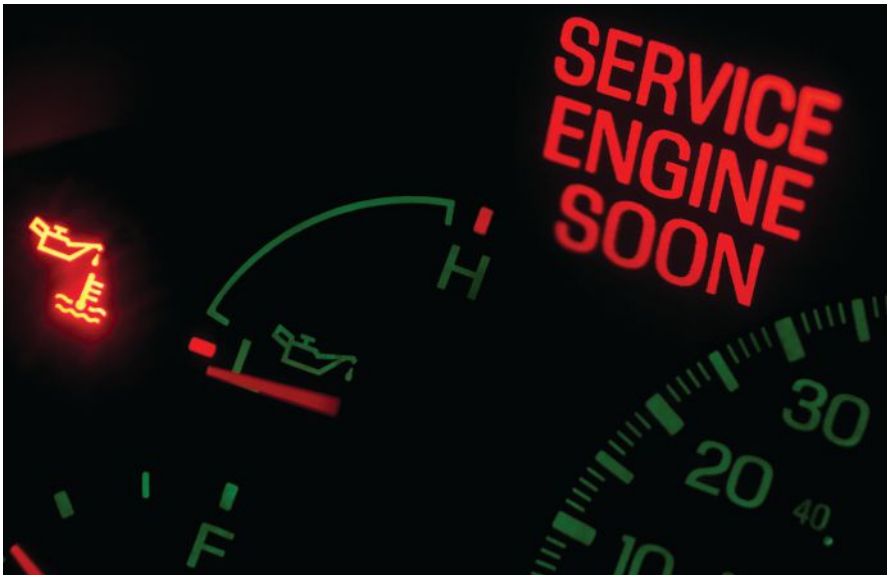
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Beyond the Check-Engine Light

How telematics & mobile capabilities can protect your fleet

BY CHAD SEMLER

The role of your company's work trucks in delivering materials to a construction site quickly, efficiently and safely can make or break a project. To enable the many steps in a construction process to stay properly sequenced and on schedule, intricate vehicle timing is essential. By contrast, any delay in the process can subject contractors to delays, cost overruns and liability issues. This is an area in which robust telematics systems can provide a tremendous advantage. Having access to a steady stream of data from each truck can help construction companies identify potential maintenance issues, avoid scheduling delays and prevent major breakdowns that can jeopardize a project's timeliness, safety or overall success.



VALUE OF TELEMATICS FOR CONSTRUCTION FLEETS

Certainly, the robust flow of telematics data has proven to be a boon for the large fleets that deliver consumer goods and other types of freight over the highway. However, construction fleets are generally smaller than freight transport fleets and don't always have the luxury of access to data and analytics.

When they do use telematics systems, construction fleets typically face a further challenge due to their reliance on multiple telematics systems. Naturally, many contractors are hard pressed to monitor multiple computer screens or devices at once. Whether working together or in isolation, several advanced technology tools can help contractors overcome these challenges, such as:

1. Open-architecture telematics systems that bring together maintenance and other data from multiple makes of vehicle onto one central portal
2. Truck electrical multiplexing systems that serve as a central access point for body chassis integration
3. Integrated mobile technology that delivers data from these sources directly to contractors via their smartphone, which enables them to handle vehicle issues in real time, either remotely or at the construction site

Each of these technology systems adds a special dimension of value. However, working together, they prove to be a powerful combination.

IMPACT OF OPEN-ARCHITECTURE TELEMATICS SYSTEMS

Open-architecture telematics systems can greatly reduce truck monitoring requirements by delivering the data from their

entire fleet through one integrated portal, accessible via a single device. Mobile access can ease this burden even further.

Today's open-architecture telematics systems are allowing fleet managers to view data from each truck in their fleet—regardless of make or model—right from their phone or tablet. To ensure trucks are up and running when they are needed, fleet managers are provided with not only fault codes, but also guidance as to whether each maintenance issue is time-critical or something that can be addressed in a more routine manner.

Many over-the-road fleets and some construction fleets have already made mobile monitoring capabilities a cornerstone of their technology systems. With instant issue notification, the ability to monitor all vehicles at once and the added insight to predict issues before they happen, contractors are often able to prevent breakdowns and keep their projects on schedule and on budget.

IMPORTANCE OF REMOTE ENGINE CALIBRATION

Closely related to telematics-enabled maintenance are software updates and recalibrations of engines and other components, which can now be delivered via mobile technology. This can be especially helpful for work trucks. For example, two-way mobile technology can enable a truck's engine control module (ECM) to be recalibrated to deal with the climate or topography of the vehicle's location, or to achieve optimal fuel efficiency for a given vocational application.

The specific tool used for this purpose is over-the-air (OTA) programming, a capability that enables the driver or fleet manager to utilize a mobile interface to initiate programming of the vehicle's ECM. This technology allows fleet managers to provide updated calibrations for engines in the same manner as a smartphone downloading software updates. Mobile technology allows these updates to be delivered remotely to trucks sitting at the construction site or another location, without even the necessity for a service visit, all through a secure Wi-Fi connection.

EFFECTS OF ADDING MOBILE TO MULTIPLEXING

Mobile technology can also help construction contractors capture the full benefit of multiplexed electrical systems, which operate as a kind of onboard computer to enable coordination between vocational trucks and their specialized equipment. When operating such mission-critical equipment, safety can often pose as big an issue as productivity. Drivers and fleet managers benefit from knowing that their truck is operating in a manner that is safe for their drivers and other drivers on the road.

Multiplexing systems offer contractors special tools for enhancing safety and productivity. For example, rather than relying on a traditional flashing light on the dashboard to signal if a dump bed is raised while driving down the highway, this system can be programmed to hold the truck to a maximum speed while the bed is in the air, to ensure that drivers lower the bed before they are able to drive at full roadway speeds.

Multiplexing electric systems can also ensure that drivers have reviewed their trucks for safety precautions, or to take advantage of proactive safety interlocks to reduce incidents. For example, consider boom trucks. The last thing a construction worker wants to worry about when doing work 20 feet above the ground is whether the truck will remain stationary. The multiplexing system can assure worker safety by requiring outriggers to be deployed before the boom can be raised, preventing the truck from rolling over.

Another good example of the value of multiplexing is the use of differential locks. This feature is commonly found in the drive axles of construction trucks, and is frequently used when carrying loads through muddy or loose-terrain environments. They are designed to improve traction at lower speeds on jobsites, but can become damaged if left engaged at highway speeds. Traditionally, a buzzer on the dashboard would indicate that the locks are still on, but the system can instead be programmed to provide an audible alert and to limit the vehicle speed while differential locks are engaged. Reviewing the sheer variety of construction equipment that can be added to work trucks underscores one important point: multiplexing is most effective when it is customizable and programmable. For this reason, OEMs should be willing to support their customers with training that enables them to write their own logic. Owner-driven programs can be especially helpful in vocational settings, which often require high degrees of customization. Such systems can be programmed so that headlights are interconnected with windshield wipers and both operate together, or so that wipers are programmed to stop operating when a truck is out of gear, reducing the chance of damage from wipers' grinding dust and grit into a dry windshield.

To all these benefits of multiplexing, today's mobile technology is now adding a new dimension of convenience and effectiveness. This comes into play when mobile technology is used to keep fleet managers abreast of the operation of not just each vehicle, but also its special equipment. Individually, telematics, multiplexing and mobile data can add tremendous value for construction fleets. Together, they can be especially powerful; enabling contractors to deliver entirely new dimensions of timeliness, safety, productivity and vehicle uptime. Boosting customized, remote control over all these dimensions can provide contractors with an added measure of business success. **CBO**

Chad Semler is director of product marketing for International Trucks, a maker of commercial vehicles. In this capacity, he provides customers in the construction industry with advice on which vehicles and specifications will best meet their needs. Visit internationaltrucks.com.



New & Innovative Products

Selected by the *Construction Business Owner* editors



5



1



2



4



3

1 ROI CALCULATOR

Hendrickson Trailer Commercial Vehicle Systems revamps its TIREMAAX PRO return-on-investment (ROI) calculator with a new look. The calculator is designed to provide a user-friendly interface for determining the potential savings a fleet could achieve by specifying TIREMAAX PRO, an advanced tire pressure control system. With Greenhouse Gas (GHG) Phase 2 regulations taking effect on trailers in 2018, many trailer OEMs will begin installing tire pressure systems as standard. This tool provides further understanding into a fleet's payback, which will play a crucial role in the decision-making process when calculating the impact of reduced emission technologies.

hendrickson-intl.com

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2 SPRO FRAMING NAILER

The **Paslode** PowerMaster line of framing tools have been trusted by framers for more than 20 years. The PowerMaster Pro increases productivity with features like a two-step, rear-load magazine and a half-pound lighter tool weight (at 7.9 pounds) for reduced fatigue all day long. The PowerMaster engine ensures nails drive flush into the toughest lumber allowing you to maintain jobsite momentum. Paslode's innovative 30-degree RounDrive fasteners complement the PowerMaster Pro system for peak performance. The nails are designed and manufactured to work optimally with Paslode tools to reduce jams, thus minimizing downtime.

paslode.com

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3 VERTICAL UNIT HEATING & COOLING PUMP

Modine Manufacturing Company has unveiled its latest in classroom HVAC solutions with the TeamMate single-packaged vertical unit cooling and heat pump. The TeamMate is a single-package, vertical unit engineered to provide efficiency, noise reduction and a small footprint at a budget conscious price. Features of the TeamMate include patented CF microchannel evaporator coil technology; smart integration capabilities to work with your existing thermostat or Modine Controls Systems; compliance with DOE efficiency requirements; and decreased sound and power output.

modinehvac.com

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4 ARTICULATED COMPACT DUMPER

Dominion Equipment Parts LLC has introduced the Italian-built Fiori articulated dumper line to the United States market. The first model to be made available is the Fiori D40, providing 180-degree bed rotation and three-way dumping in a package that is just over 13 feet long. Made especially for tight spaces and jobsites with restricted access, the unit's reliable, 49-hp Yanmar diesel engine and four-wheel drive hydrostatic transmission drive an articulated frame, making it a popular choice for construction sites. The bed rotation and three-way dumping allow the operator to put the load just where it needs to be. The dumper can be used for a wide variety of loads, including dirt, debris or even for pouring concrete. Fiori dumpers are engineered for safety, offering two-way driving and visibility in all directions. The open cab meets ROPS and FOPS level 1 criteria, and the ergonomic seat and controls protect from unnecessary fatigue and strain.

depparts.com

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5 COMMERCIAL DRONE

Yuneec International announced upgrades to its flagship professional sUAS platform, the H920, creating the H920 Plus and improved ProAction handheld grip. The new features and functions integrated into the H920 Plus commercial platform allow field service providers and cinematographers to capture aerial and ground content safely and precisely for a variety of industrial applications. The H920 Plus includes the ST16 Pro Ground Station, which operates on an Android platform with an integrated transmitter, flight controls and large, 7-inch screen display with a HD 720p video downlink for real-time flight footage and an HDMI uplink for distribution to external monitors, command/control centers or broadcast trucks. Users can also utilize video and image playback on the ST16 Pro and download aerial maps to cache H920 Plus waypoints. Yuneec's CGO-ET is the industry's first camera to combine simultaneous thermal and residual light capture.

yuneec.com

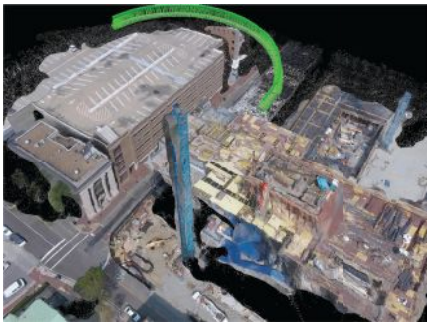
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6 VISUAL DATA ANALYTICS ENGINE

Netarus LLC announced the launch of SiteTrax.io, an analytics engine that interprets raw video and photography and produces near real-time, reports based on that data. SiteTrax.io aggregates all the data from multiple camera sources, analyzes it and generates reports that can be interpreted to make business decisions. SiteTrax.io creates surface maps, point clouds, optical character recognition reports and object detection summaries. SiteTrax.io is able to generate meaningful reports from disparate data sources in near real time. All subcontractors on a given jobsite benefit because the reports generated by SiteTrax.io improve communication and work coordination between them.

hoistcam.com

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6

7 HANDHELD WEATHER DEVICE

INO Technologies introduced the first handheld device that combines weather data with lightning detection. The INO Weather Pro's data and alerts allow outdoor workers to make informed and educated decisions about what is going on outside and how long to stay outdoors. The INO Weather Pro detects the distance of cloud-to-ground lightning strikes as far away as 40 miles, providing visual and auditory feedback of lightning strike distances. With an updatable software interface and a touch screen display, users are able to customize their dashboards with the information most important to them. The portable device is highly water resistant and runs on a USB-charged Lithium battery.

inotechnologies.com

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7

8 SMALL TANDEM ASPHALT ROLLER

Dynapac's new small tandem asphalt roller—the CC950D—is ideal for small-scale compaction work. It fulfils a need for compaction in areas that are difficult to reach with a larger roller. The small tandem roller comes with an operating mass of about 1.6 tons and a 38-inch drum width. The Dynapac CC950D features a water-cooled, 3-cylinder, 4-stroke, Kubota D722-E4B-KEA-2 diesel engine. The 20-horsepower (hp) engine is Tier 4 Final compliant. Together with the large drum diameter and drive motors connected in series, it contributes to excellent accessibility and hill-climbing capacity. High clearance along both edges of the drums facilitates compaction close to elevated structures, such as curbs. The Dynapac CC950D vibrates at 4,200 vpm (70 hz) on the front drum with a static rear drum. Shock absorbers on the rear drum minimize vibrations in the operator's platform.

atlascopco.com

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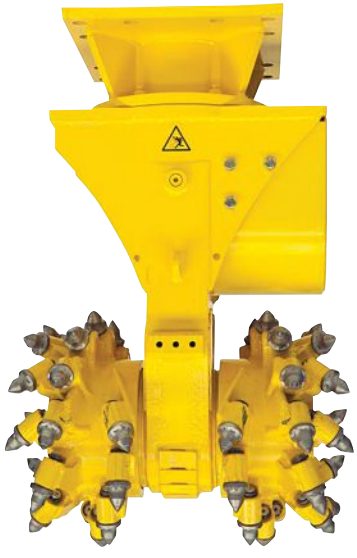
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9 CERTIFIED LUBRICANTS & SERVICES

Chevron Products Company announced the launch of its ISOCLEAN Program, which includes ISOCLEAN Certified Lubricants. These products have been certified to meet the fluid ISO Cleanliness requirements of OEMs. Chevron offers more than 50 ISOCLEAN Certified Lubricants for critical equipment components from hydraulics to gear oils to synthetics for a variety of industries. ISOCLEAN Certified Lubricants give customers the opportunity to significantly maximize equipment component life by 2 to 4 times. These lubricants have undergone one of the most rigorous testing processes in the industry to verify that the lubricants performance is not compromised, which is exclusively done at the Chevron Research and Technology Center.

chevronisoclean.com

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10

10 DC 200 DRUM CUTTER

Husqvarna introduces the DC 200 drum cutter, a new attachment for the DXR demolition robot product line. The DC 200 is an attachment made for surface profiling rock or concrete, trenching, excavating frozen soil, soft rock excavation in quarries, demolition and dredging. The 56 tungsten carbide-tipped picks on each side of the machine rotate and chip away at the surface material to the desired depth or complete removal. If the material is not completely removed, a smoother, more uniform surface results, as well as smaller, finer grain sizes so material can be removed more easily or used as backfill without additional crushing. The DC 200 is suitable for use on restricted jobsites and sensitive urban areas due to the low noise and low vibration levels.

husqvarnacp.com

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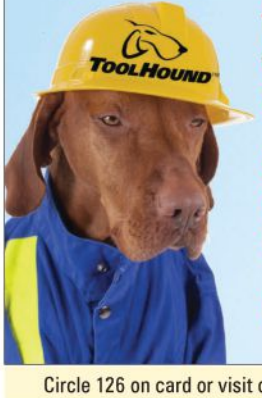
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Annual Value of Construction Put in Place

2015/2016/March 2017 Annual Rate Comparison

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

	2015	2016	Mar 17
Total Private Construction	**827,345**	**909,664**	**940,210**
Residential	433,108	475,167	503,425
Nonresidential	394,237	434,496	436,785
Total Public Construction	**296,153**	**279,277**	**278,075**
Residential	5,909	6,592	6,218
Nonresidential	290,244	272,685	271,857
TOTAL Construction	**1,123,497**	**1,188,941**	**1,218,285**

**Seasonally Adjusted Annual Rate. Source: U.S. Census Bureau*
***2016 numbers revised for annual report*

$1,218,285

MARCH 2017 TOTAL ANNUAL VALUE OF CONSTRUCTION PUT IN PLACE

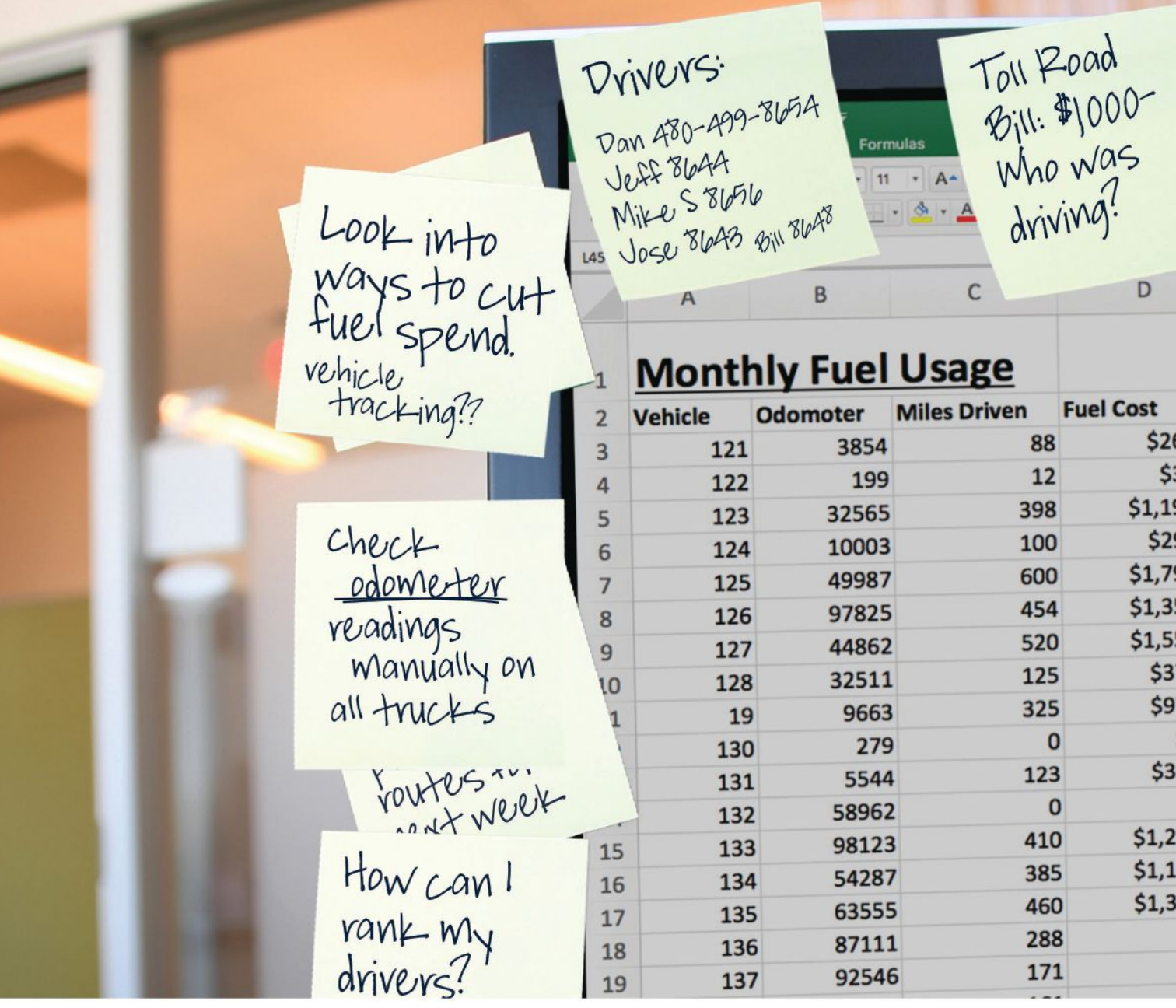
"The first quarter started out on **uneasy footing**, but fortunately **ended on an upswing** entering the traditionally busy spring season," said AIA Chief Economist Kermit Baker, Hon. AIA, Ph.D.

AIA Architectural Billings Index (ABI)

	National		*Regional - Billings				*Sectors - Billings			
Month	Billings	Inquiries	Northeast	Midwest	South	West	Multifamily Residential	Commercial/ Industrial	Institutional	Mixed
Oct-16	50.8	55.4	47.3	46.8	53.7	49.7	51.2	49.8	49.1	49.5
Nov-16	50.6	59.5	50.8	50.9	51.3	48.6	51.7	50.4	49.5	51.3
Dec-16	55.6	57.6	54.0	54.4	53.8	48.8	50.6	54.3	53.3	51.9
Jan-17	49.5	60.0	53.0	52.4	54.2	48.8	48.1	53.4	54.6	48.1
Feb-17	50.7	61.5	50.0	52.4	50.5	47.5	49.3	48.9	51.8	49.2
Mar-17	54.3	59.8	52.4	54.6	52.6	50.2	54.6	49.8	52.9	53.7

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

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



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