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THE LEADING BUSINESS MAGAZINE FOR CONTRACTORS



WORK AHEAD

The 2016 State of the Industry Report

WORLD OF CONCRETE PRE-SHOW COVERAGE

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10 AVOIDABLE BUSINESS MISTAKES

TOP MAINTENANCE TIPS TO BOOST PRODUCTIVITY



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FROM THE EDITOR | Kathy Wells



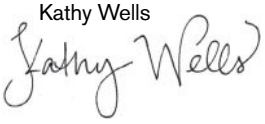
In December 2015, the employees of Cahaba Media Group gathered to celebrate the year with a holiday tailgate. All four of its trade publications were represented in the event-sponsored cornhole tournament. To learn more about the Cahaba Media Group team and its publications, visit cahabamedia.com.

Happy New Year, construction business owners! So much change has affected the industry throughout the past several years, and it's finally feeling like this steady recovery might actually become the norm. In our cover series this month, you'll find *Construction Business Owner*'s annual State of the Industry Report. Beginning on page 38, check in with leaders in construction finance and equipment, and learn what topics they are watching in the new year. The labor shortage is one topic that continues to worry many business owners. Attracting and retaining great employees should start with a focus on corporate culture, engagement and work-life quality. On page 42, FMI's Sabine Hoover shares the results of FMI's recent talent development survey and the consequences that skilled labor shortage can have on your business. Wrapping up the series on page 46 is Euler Hermes' Amit Nadiv, who provides an in-depth look at the statistics driving growth throughout both the residential and nonresidential construction markets.

In this issue, you might notice some changes to our pages. We have introduced several design updates to streamline the layout and provide even more content and business strategies than ever before. As you'll see, we have also revived our Ask the Experts section. The section is designed to help address the real-life situations and decisions for your business. Every month, we will select a question from your own submissions and reach out to our industry experts to provide you with opinions, business tips, mangement strategies, etc., that you may not have access to otherwise. To submit a question, email Associate Editor Elizabeth Manning at emanning@cahabamedia.com.

Check out our World of Concrete pre-show coverage starting on page 34. Next month, Las Vegas hosts the trade show Feb. 2-5 in its 41st year of the latest innovations, know-how and best new products in the commerical concrete and masonry industries. *Construction Business Owner*'s team will be in attendance, so please stop by to visit us at Booth C4333. We would love to speak with you and learn which topics you would like to see more of in future issues. If you can't make the show, keep up with us on the trade show floor by following @CBOMagazine, @KathyWellsCBO and @EManningCBO on Twitter.

Take good care,
Kathy Wells



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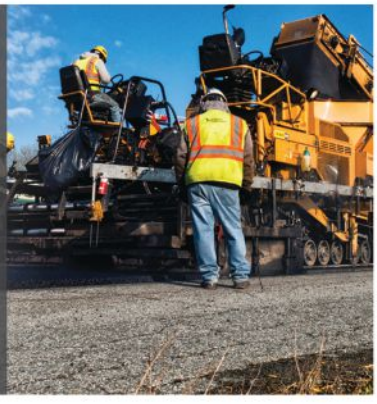
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BOC's Claudia Zacharias Elected Chair of ICE Board


Claudia Zacharias

The Board of Certification/Accreditation's president and CEO, Claudia Zacharias, MBA, CAE, recently assumed leadership as board chair of the Institute for Credentialing Excellence (ICE) Board of Directors. The announcement was made at the ICE Annual Meeting in Portland, Oregon. Earlier this year, Zacharias was re-elected to the ICE Board of Directors for a second, three-year term. ICE is a professional association that advances credentialing through education, standards, research and advocacy. Visit bocusa.org.com.

Faith Technologies Promotes Joe Amara to Safety Director


Joe Amara

Faith Technologies has promoted Joe Amara to safety director in Atlanta. Amara is responsible for formulating, developing and coordinating safety and loss-control functions for the organization. Amara has been with the company since 2006, and previously served in a senior safety manager role. Amara develops safety training curriculum and trains employees and customers in company and OSHA safety practices. Visit faithtechnologies.com.

Dexter + Chaney Partners with FieldConnect

Dexter + Chaney has announced a technology partnership agreement with Irvine, California-based FieldConnect Inc. to empower a mobile service-management workforce. Fully integrated with Spectrum and functional online or offline, FieldConnect's mobile solutions expand work order, dispatch and service management capabilities for service contractors in the field. From their tablet devices, technicians using Spectrum and FieldConnect's mobile solutions can see all work orders assigned to them, read notes related to the job, access maps and directions, upload jobsite photos, collect electronic signatures and email work orders and other documents directly from the job. Visit dexterchaney.com.

Texas First Rentals Joins SmartEquip Network

Texas First Rentals, of San Antonio, Texas, has entered into an agreement to participate in the SmartEquip Network. By utilizing SmartEquip's Enterprise application, Texas First Rentals will be able to automate their service process, increase technician productivity, eliminate parts order errors and improve uptime and the availability of their rental fleet. The integration of the SmartEquip and Wynne Systems RentalMan will allow Texas First to automate the workflow for parts and service and leverage integrations with the manufacturers of over 160 brands of equipment. Visit smartequip.com.

Hyundai Names Midwest District Sales Manager


Edward Harseim

Hyundai Construction Equipment Americas announced the appointment of Edward Harseim as Midwest district sales manager. Harseim joins Hyundai with 15 years of sales and support experience in the heavy equipment industry. In his new position, Harseim will support dealers throughout a 14-state territory. Visit hceamericas.com.

The Walsh Group Names Southeast Regional Senior Vice President


Paul Carter

The Walsh Group welcomed Paul Carter to its professional staff as senior vice president/senior business group leader of the Southeast region. Carter will be responsible for pursuing new business, project execution and expanding the company's brand in the Southeast United States. Carter's career spans over 20 years, beginning as a field engineer and working his way into senior leadership. As an executive for Kiewit, Carter was responsible for operations in the Southeast United States and Eastern Canada. Visit walshgroup.com.

Headwaters MB Named Winner of the 14th Annual M&A Advisor Awards

The M&A Advisor announced the winners of the 14th Annual M&A Advisor Awards on Tuesday, November 17, at the 2015 M&A Advisor Awards Gala in New York, New York. Headwaters MB's representation of Nelson Pipeline Constructors Inc. was named a winner for the M&A Deal of the Year. "Since 2002, we have been honoring the leading M&A transactions, companies and dealmakers. Headwaters MB was chosen from over 690 participating companies to receive the award," said David Fergusson, co-CEO and president of The M&A Advisor. Visit headwatersmb.com.

Viewpoint Names Chief Financial Officer

Viewpoint Construction Software announced that Kelly Lang has joined the company as chief financial officer. Lang was most recently vice president and CFO for Tripwire, an international cybersecurity software developer focused on protecting and detecting cyberattacks on IT infrastructure and sensitive data. Lang brings over 25 years of progressive finance, accounting and M&A experience with publicly traded businesses and venture-backed and private equity companies. Visit viewpoint.com.

R.S. Mowery & Sons Inc. Announces New President


David Cross

R. S. Mowery & Sons has announced David Cross as the new president and COO. The company's former president, Donald Mowery, will continue to serve as chairman of the board and CEO. Cross holds a bachelor's degree from Messiah College and most recently served as president of management solutions for ROCK Commercial Real Estate. Cross will be responsible for the

20th Anniversary

The Architecture, Construction and Engineering (ACE) Mentor Program of America celebrated its 20th anniversary and its founder, Charles H. Thornton, Ph.D., P.E., Hon. AIA, Hon. ASCE. After more than $12 million in scholarship awards and 40,000 students provided with opportunities to prepare for college and beyond, ACE continues to expand. Visit acementor.org.

overall day-to-day operations of the company including contract negotiation and management and client relations. Visit rsmowery.com.

Subaru Grows Distributor Network with Five New Companies

Subaru Industrial Power Products increased its distributor network with five new companies, expanding customer access to standalone engines and replacement parts in 13 states. The five new distributors—Jerry Pate Turf & Irrigation, LL Johnson Distributing Company, RBI Corporation, Total Energy Systems and Golden Eagle Distributing Corporation—offer sales and service support for customer needs to maintain Subaru engines on a wide range of machines. "To support our dedication to our dealers and customers, we've partnered with distributors who are well-known for their strong focus on customer service," said David Frank, vice president of sales and marketing. Visit subarupower.com.

RWA Director of Planning Transitions to New Role



Patrick Vanasse

RWA Inc. recently announced that Patrick Vanasse, AICP, will be assuming a new role within the company towards the end of 2015. Vanasse's new role as community development director will involve him in the strategic development of the firm's initiatives, along with business development and client relationships. This new role will foster Vanasse's continued involvement with RWA, while allowing him to start up a niche building and development company. Over the next few months, his ongoing involvement in RWA's current project workload will be the firm's highest priority in order to ensure the success of projects and to continue providing outstanding service to its clients. Moving forward, RWA will be recruiting planners to work within the company's existing planning group. Visit consult-rwa.com.

New Day Underwriting Managers Names Jeff Slivka President



Jeff Slivka

Jeff Slivka has been named president of New Day Underwriting Managers, a company he helped launch in 2005. Slivka previously served as executive vice president and COO supervising the company's day-to-day operations and business development efforts. Slivka will retain these responsibilities while also concentrating on the development and growth of New Day's national carrier network, marketing and producer training programs. Throughout his career, Slivka has dedicated his efforts to helping construction insurance industry leaders better understand the intricacies of these highly-specialized insurance products as a presenter at events, such as: IRMI, CFMA, AGC and MCA. Visit newdayunderwriting.com.

Intertek Acquires MT Group

Intertek has acquired MT Group, a materials testing and specialty construction inspection firm, headquartered in Long Island, New York. The acquisition further expands Intertek's portfolio of services in its building and construction line to support the building commissioning and building sciences markets, and extends its fenestration testing reach into the New York City metro area. Intertek will be able to integrate MT's geotechnical evaluation services, materials testing and special inspection capabilities into its already extensive service offering. This acquisition also builds on Intertek's successful purchase of Architectural Testing Inc. (ATI) in 2013 to further extend its services to the construction phase of the building cycle. Visit intertek.com.

AHRI Names Chief Operating Officer

The Air-Conditioning, Heating and Refrigeration Institute (AHRI) announced that John Lanier, Chief Operating Officer (COO) of North American Technician Excellence (NATE), will perform the same role for AHRI, overseeing public affairs, technical services, regulatory and international policy and information technology, while continuing to lead NATE. In his expanded role, Lanier will manage AHRI's certification programs, as well as standards, software development, regulatory and international policy, communications and information technology. Lanier was previously the senior vice president of operations at the National Federation of Independent Business. Visit ahrinet.org.

J&J Truck Bodies Promotes Joseph Caldron to Director of Operations



Joseph Caldrone

J&J Truck Bodies & Trailers announced the promotion of Joseph F. Caldrone to director of operations. Caldrone will be responsible for directing the activities of the company's operations departments, which include engineering, purchasing, manufacturing and quality. Caldrone has been with J&J Truck Bodies for 21 years. Starting as a machinist, he steadily advanced through the company based on his work ethic, leadership skills and passion for building quality equipment. Visit jjbodies.com.

Proxibid Adds Tom McSweeney as Senior Vice President of Sales

Proxibid appointed Tom McSweeney as Senior vice president of sales. McSweeney's focus will be on growing Proxibid's presence in the heavy equipment and industrial machinery markets. McSweeney brings a wealth of experience in managing quantifiable results as a senior-level leader in sales and business development. This, coupled with his sales operations experience, makes him a valuable asset to the Proxibid team. McSweeney joins Proxibid from InfoGROUP Inc., where he served in several capacities, most recently as executive vice president of enterprise solutions. McSweeney also contributed more than 25 years at Automatic Data Processing (ADP). Visit proxibid.com.

EHC Global Appoints New Director of Marketing

EHC Global recently announced the appointment of John M. Calderon as director of marketing. His responsibilities will include marketing strategy and branding, corporate communications, media relations, trade show management and business intelligence. Calderon will be based in the company's headquarters in Oshawa, Ontario. Calderon joins EHC with more than fifteen years of marketing and business development experience. His previous positions include marketing and communications manager at L-3 Aviation Products and vice president of marketing and business development at ASI Technologies. Calderon's experience includes industrial automation and construction. Visit ehc-global.com.

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

The Future of Tier 4 Final

How will Tier 4 Final regulations play out for construction business owners in 2016? Where is clean diesel technology headed?



JOHN FISCHER
Engine Consultant
Palatine, Illinois

"Business owners investigating new equipment purchases will see higher prices, but also some new features, which makes engines perform even better—turbochargers for added performance and altitude compensation; high-pressure common rail fuel systems for usable power at all engine speeds; piezoelectric injectors for multiple injections for each combustion event for both improved combustion, as well as lower noise levels.

But, most significantly, the adoption on many engines of Selective Catalytic Reduction (SCR) systems that allow engines to produce the most power and thereby use less fuel—which does result in increased NOx generation—but that can be converted in the exhaust stream to essentially harmless elements.

Operators or technicians of these new machines should review special requirements for each particular machine, as they are now more sophisticated and (clean) fueling requirements require special attention. It has become clear that with tighter tolerances of the new fuel systems, these engines are more susceptible to impurities and current fueling practices are just not good enough.



CRAIG TIMMERMAN
Product Marketing Manager,
Engines & Powertrain
John Deere Construction & Forestry

"Clean diesel engines will remain the proven solution for construction and forestry equipment in the off-highway world. Clean diesel engines continue to demonstrate that they are the most energy efficient internal combustion engines.

They deliver all the power and high torque needed in off-highway applications and are proven to meet all emissions levels. They are also accepted by our customer base due to their performance and demonstrated longevity on the jobsite.

As a manufacturer, we are focused on improving efficiency as we head into 2016 and beyond. It's also important that we look at lowering the cost of maintenance through longer-life aftertreatment, longer oil and filter changing intervals, and reducing/eliminating valve lash intervals.

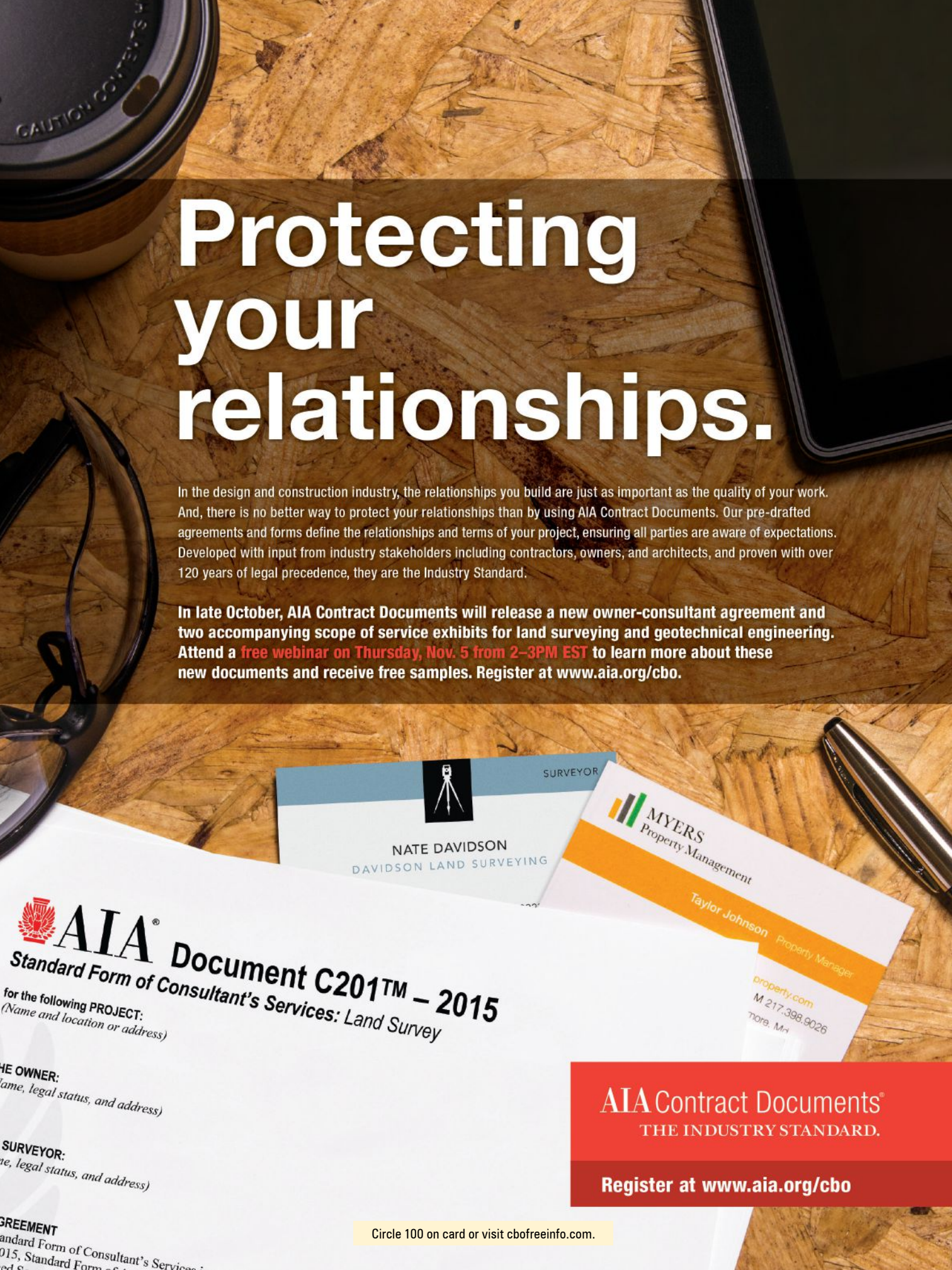
We are also continuing to monitor and support future regulations, such as Stage V, which is currently underway in Europe.



MIKE ROCHFORD
Director of Emissions
Regulations & Conformance
Caterpillar Inc.

"From a Tier 4 Final standpoint, 2016 will represent more of the same as construction equipment fleets continue to transition from previous Tier levels to new Tier 4 Final equipment, according to the customer's normal replacement cycle. For some customers who already have Tier 4 Final equipment, they have established procedures to handle new operating and maintenance needs, such as DEF handling and storage. They have also realized some of the productivity and fuel efficiency benefits that this equipment typically provides. Other customers will be on the learning curve with these issues, but there are numerous resources available to help.

As Tier 4 Final regulatory requirements have brought us to near zero levels of NOx, PM, and CO, most clean diesel technology building blocks, such as fuel system and electronic controls improvements, air system upgrades and aftertreatment systems including selective catalytic reduction (SCR), diesel particulate filters (DPF), or diesel oxidation catalysts (DOC) are already in play for Tier 4 Final, but different manufacturers have applied different variations of these design components depending upon the machine application and life cycle cost impact.



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Performance Pay Plans Improve Results

A guide to creating a bonus plan that improves project outcomes



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

ASK GEORGE

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

Construction business owners always strive to find the perfect incentive program to reward managers and employees. Without a clear bonus plan, many owners struggle to decide how much extra pay employees deserve for their hard work. Frustrated, owners arbitrarily determine a year-end bonus amount to give each employee based on emotion, loyalty, effort or some other factor. To solve this dilemma, define a performance pay plan (PPP) with clear targets, goals and compensation amounts known to all participants at the start of each fiscal year.

GIFTED OR EARNED BONUSES

To decide which kind of bonus plan to offer, you must first decide if you just want to offer annual year-end bonus gifts based on arbitrary factors like position, longevity, loyalty, attitude or pay scale. Gifts often become entitlements and do not improve performance or results throughout the year. And if your company loses money, reducing an annual gift bonus becomes difficult to present to employees who don't know or see the bottom line. Typically, gift bonus compensation plans include one to three weeks' pay, based on subjective factors such as project performance, contribution to overall company success, employee tenure, adherence to bylaws or general attitude. Compensation plans earned based on actual results will keep managers, supervisors and employees informed and focused on achieving company, project and personal performance goals.

PPP PROGRAM

1. *No bonus or incentive is earned until paid.* Make sure every participant in your PPP program signs a document stating they agree that no PPP bonus pay is earned until paid. This will eliminate potential conflicts when employees leave your company before PPP compensation is paid.
2. *Determine when PPP incentive compensation will be paid.* The best PPP plans pay quickly and often. Companies who only pay extra compensation at the end of the year don't benefit from constant reminders that better results yield more money. Quarterly PPP plans work well when they are paid 90 days after each previous quarter. This allows time to calculate actual, final results and adjustments for any changes. If you determine that quarterly incentive compensation pay will not work in your company, pay out half the amount after each quarter and the remaining funds at year-end, adjusted for changes in the final amounts due. Present the results at quarterly meetings to show participants who performed above their targets and goals.
3. *Decide who participates in the PPP.* Determine who will share in the PPP compensation pool. The best plans compensate those who directly affect and manage the outcome and results of the company.



FRAMEWORK OF A SUCCESSFUL PPP

Designing the perfect PPP program is different for every business. The following is a plan which compensates managers and supervisors for results and provides annual bonuses to all other employees.

A. Company profit-sharing incentive compensation
- Incentive compensation pool participants
  - Vice president, managers and estimators
  - Controller, office manager and equipment manager
  - Project managers and general superintendent
- All participants get a pro-rata share weighted based on their base pay
- Company net profit sharing pool earned
  - First $250,000 net profit, pool earns 5 percent of net profit
  - After first $250,000, pool earns 15 percent of net profit
  - After $500,000 net profit, pool earns 25 percent of net profit

B. Project incentive compensation
- Incentive compensation pool participants
  - Project manager, superintendent and foreman
- Incentive compensation earned by participants
  - Project gross profit (GP) after completion
  - 1 percent of total project GP if on budget
  - 2 percent of project GP saved under budget
  - Field-crew labor production after completion
  - 1 percent of total crew hours if on budget
  - 2 percent of total crew hours saved under budget

C. Project safety bucks compensation
- Incentive compensation pool participants
  - Superintendents, foreman and all crew members
- Incentive compensation earned by participants quarterly
  - No lost time accidents for entire company field crew quarterly
  - $1 per day earned for each crew member
  - Entire field crew loses safety bucks for any lost-time accident
  - Paid quarterly

D. Annual bonus program (gifts)
- For all employees who don't participate in above programs
- Performance review criteria compensation
  - Superior results = 3 weeks extra pay
  - Excellent results = 2 weeks extra pay
  - Good results = 1 week extra pay
  - Expected results = $100 gift card

E. Company-wide improvement incentive compensation
- New hirae referral—$500 bonus after 90 days employed
- No profit fade—PM earns $100 per project
- Customer performance rating—Above 90 percent pays $500 to PM and superintendent
- On-schedule project completion—Superintendent earns $250
- Subcontractor and supplier coverage over 4 to 1—Estimator earns $100 per bid
- Call-back work, equipment accidents and repairs will be deducted from all PPP

4. *Determine how much money is available in the PPP compensation pool.* You can decide to have an annual, companywide, all-employee PPP plan based on overall company net profits, or base your incentive compensation program on each project's performance. You must choose to reward everyone or reward only the leaders, managers and supervisors. For annual, companywide profit sharing incentive compensation PPP plans, start each year by deciding how much PPP compensation participation is available to distribute. Owners should make and keep a minimum amount of all net profits earned in the company before profit sharing. Annual PPP plans should be paid out quarterly with a holdback for potential adjustments, and then adjusted after the fiscal year-end.
5. *Determine which results will be compensated.* Consult the PPP framework example on the next page. You can keep it simple and pay 100 percent of all PPP based on companywide profits, or you can decide to break the total PPP pool into several areas of performance criteria.

Improving performance starts with a clear understanding of what is expected of employees. Start every year by defining your targets and goals. Outlining, tracking and offering incentive compensation for the performance you want will help you get results. CBO

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

The best construction businesses are now focusing on building the next generation of stars in their firm. For the last 20 years, the industry has lamented about not having enough great people in the office and in the field. Rather than fall victim to the numbers game, many firms enacted a strategic push to not only find the best and the brightest, but also retain and develop future leaders. However, the development of an in-house training program might seem like an insurmountable achievement for your company.

The creation of a firmwide university might be relegated to the ranks of the elite large or mega-firms. Cost, time, facilities and more provide a litany of reasons why a firm might be dissuaded from developing an in-house training program.

While plenty of firms offer a course catalog that resembles catalogs of larger institutions, it is important to recognize that creating an internal resource can be much easier than anticipated. Although, there is much work to be done, small and midsize firms can create a best-in-class curriculum with dedication. Training and educating needs to involve more than the obligatory OSHA 10- or 30-hour training or first aid and CPR programs. While safety should never be diminished, if the only business concern a firm trains for is safety, vast skill gaps will emerge.

BEGIN WITH CORE VALUES

Safety, customer service, innovation, quality, collaboration and excellence are just a sample of typical values that construction organizations use to describe the core DNA of their firms. Safety is often the only area that firms consciously train in annually. In some cases, this has become an industry mandate, rather than an elective.

Firms with little or no training programs should consider using the firm's core values as the foundation for their program. What better way to illustrate the tenets of customer service than to provide training and the real-time application of customer service in action? With four core values, a firm has four courses it can offer in a year. The framework in Table 1 illustrates a syllabus for a firm's core-value curriculum. Explore with your teams which topics make the most sense for your company's focus.

One of the most important lessons of any training program is that there is never a good time for training, so just plan ahead, commit to a date and follow through. There will always be projects and customers, but creating a non-negotiable standard in the firm is important. By publishing a calendar with three days of commitments, it becomes hard to find a reasonable excuse to miss a training date.

THE BEST TEACHERS ARE RIGHT NEXT DOOR

There is no shortage of great instructors in the industry, but the greatest sources of training talent are people within the firm. They know the business and the customers, and



they helped craft the strategic direction of the firm. Enlist their services to become the internal experts. Assign instruction of the courses to individuals within the firm who are passionate and embody the behavior daily. Not everyone will be a great instructor naturally. When leaders realize this is an internal platform to share knowledge and help people become great speakers, they refocus and understand the true intention of why they are educating and training in the first place. Provide a set of guardrails for employees to use in their content development phase:

- *Real world examples*—Adults learn best through actual examples. Avoid the theoretical world and stick to real-life scenarios. The more a firm can learn from the actions of others—good and bad—the better off it will be.
- *Discussion*—Incorporate a healthy dose of group discussion. Adults do not learn well from someone preaching from the pulpit. This also helps reduce the stress of the instructor when groups are learning from each other, rather than the leader only.
- *Pictures, pictures, pictures*—Something about 1,000 words? Use visual images to make lessons easier to retain.
- *Takeaways*—Every session should leave the group considering an action plan, or what they will do differently as a result of the training.

BALANCE THE HARD & THE SOFT

There should be a balanced curriculum in any training program. Whether the program is grounded in the tenets of the firm's core values or instructors have chosen to customize their curriculum, it is important to create modules that provide hard skill reinforcement (finance, construction skills) and soft skill reinforcement (time management, leadership, communication). Additionally, it is important to expound upon the offerings annually. A blended course offering allows newer associates to catch up and provides senior staff members the opportunity to grow within the company.

While it is always good to consider outside sources for particular topics empowering the firm's own resources to take control of talent development cannot be understated.

Core Value	Course	Main Takeaways	Target Date
Customer service	Customer Focus Construction	▪ Examples of firmwide customer service ▪ Value of long-term customers ▪ Action planning for real firm customers and how to make them raving fans	May 2016
Quality	Quality Management	▪ The cost of rework in the industry ▪ Real examples of high-quality trade work ▪ Development of a photo log to serve as the firm mock-up	June 2016
Innovation	Brainstorming 101	▪ How can we improve our productivity? ▪ How can we build quality? ▪ What does "Construction 2.0" look like in our firm?	October 2016

Table 1. Core value curriculum

THE FINAL EXAM

Most training programs provide an immediate injection of passion and excitement about a subject when delivered. However, once "real life" takes over after the training, there is what can be termed a "half life" for the knowledge and lessons learned. With any training, though, it is said that a person retains 10 to 30 percent and applies those principles to their life.

One way to increase the likelihood of retention is to consider some component of after-training applications. Schools use exams to test the retention level. While testing is one idea, it is important to give credence to the intentions behind this tool.

Consider rewards, or even make the testing an internal competition. Use the opportunity to reward creativity, retention, real-world application and collaboration. For example, consider rewarding the superintendent or manager that demonstrates the highest level of customer

service after that specific module. Another idea would be to incentivize the lowest number of punch-list items after a module on quality management. Whatever the incentive is, it should be fun and should reinforce the principles that your firm uses to guide the business on a daily basis.

Training and education are no longer options for firms or aspects of the firm that can be disregarded. Talent development is imperative at all levels, and as the war for talent rages, the firms that have progressed from mere safety training into more advanced levels will win.

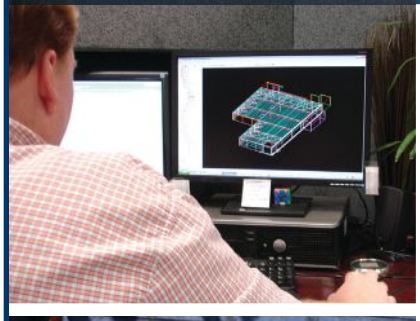
Talented employees want to be associated with firms that are willing to invest in them and their long-term future. People leaving a firm is inevitable and it is a poor reason not to train your employees. Instead, ask yourself what might happen if you don't train them, and they stay. **CBO**

01	▪ Customer Management ▪ Financial Management for Non-Financial Managers ▪ Safety 101 ▪ Quality 101
02	▪ All Year-1 Courses ▪ Leadership and Management ▪ Time Management ▪ Advanced Civil Design
03	▪ All Year-1 and -2 Courses ▪ Executive Leadership and Motivation ▪ Marketing and Our Value Proposition ▪ Advanced Steel Design

Table 2. Basic and advanced curriculum by year

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Finding Financial Protection

4 key solutions to prevent construction contract exposures

BY JOHN CAMPBELL



Construction companies constantly seek insurance solutions that can provide material financial impact, limit their contractual exposures and provide coverage enhancements. The following are four strategic solutions which can provide substantial financial protection for construction companies.

EXPERIENCE MODIFICATION REVIEW

Workers' compensation experience modification rates (EMR) are complex formulas, but understanding how they are calculated can go a long way in helping a company keep workers' compensation (WC) costs in check. By performing the same evaluation of the experience modifier as a regulator, your insurance broker can determine calculation accuracy and forecast future financial impact on a premium. Inaccurate EMR calculations are typically the result of errors in payroll amounts, improperly recorded WC job classifications, incorrect claim reserves and open claims that should be closed. For example, a mechanical contractor was having difficulty qualifying for new projects because of a 1.16 EMR. Many of the company's payrolls that were incurred under wrap-up programs had not been reported to the National Council on Compensation Insurance (NCCI). The contractor's open claims were excessive and needed to be negotiated down with the carrier. The correct payrolls and claims were reported to the NCCI, which resulted in the EMR being reduced to .94. This enabled the firm to bid on and win several contracts worth more than $15 million. The contractor realized a premium savings of $264,000 over a three-year period.

SOCIAL ENGINEERING EXPOSURES

Social engineering techniques are increasingly used to induce employees to break normal security procedures, leading to a rise in cybersecurity incidents and resulting financial exposures. According to a recent cyber-risk survey, 48 percent of large companies and 32 percent of companies of all sizes have experienced 25 or more social engineering attacks in the past two years. Thirty percent of all victims of social engineering cite an average per incident cost of more than $100,000. It is important to look for a solution that offers a wide range of coverage enhancements to fit the challenges of a construction business.

When a laptop belonging to an executive of a West Coast-based company was stolen, management feared criminals would gain access to sensitive customer

data. The potential breach required that roughly 18,000 customers spread across 22 states be notified and have their credit monitored. The business was able to immediately notify affected customers and provide credit monitoring for a year. Because the insurance program had been designed for and was flexible to the evolving nature of cyberthreats, the firm did not sustain any significant income loss.

ALIGNMENT OF POLICY COVERAGE TO CONTRACTUAL EXPOSURES

In the construction world, liabilities are often transferred contractually. Typically, the contracts require the company that assumes liability to provide specific insurance coverage and limits. As such, a contract and policy coverage review is a critical part in ensuring that the contractor's insurance program's terms and conditions meet their contractual obligations. Contractual compliance risks can create large losses, so be sure to work with an insurance brokerage firm that has proven experience in the construction industry to ensure the contractual obligations and coverage expectations measure up. Additionally, they should be able to negotiate additional insured endorsements with the broadest language possible and the applicable additional insured endorsements in order to meet contractual requirements. There are 36 ISO additional insured endorsements currently in the market. Properly aligning the policy coverage to contractual exposures helps prevent breach of contract issues.

COMPLETED OPERATIONS COVERAGE

Businesses are often contractually required to indemnify owners and/or general contractors during and after construction operations. However, many general liability policies limit coverage for general contractors and subcontractors to the ongoing construction period. Failure to provide coverage for the contractual obligation could put the contractor in breach of contract or cause them to be uninsured for the assumption of liability in the contract. It is important to negotiate separate additional insured endorsements to cover completed operations protect against liability post-project completion, as well as amend the definition of occurrence wording to include construction defect.

It is also important to review contracts to ensure that liabilities assumed are appropriately addressed. Work with a broker that is able to acquire the appropriate endorsements. For example, a plumbing contractor needed to obtain coverage for a claim that was tendered five years after the project's completion. The claim involved a hot water pipe that broke and burned a tenant in the building. The tenant sued the building owner, who sought coverage under the plumber's general liability policy. The plumber had been contractually required to provide this coverage to the owner. Fortunately, the policy was structured to provide completed operations coverage, so the plumber was not exposed to any damages resulting from the lawsuit.

These four solutions should be considered when evaluating potential insurance programs. When designed properly, they can provide significant financial protection and protect a company's bottom line. CBO

John Campbell is USI's construction practice managing partner and serves as the president of the company's wrap-up practice. USI ONE integrates proprietary business analytics with a team of experts in a consultative planning process to evaluate risk profiles and identify solutions. Contact Campbell at john.campbell@usi.biz or 314-554-9754. Visit usi.biz.





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Choosing a Business Appraisal Firm

8 questions to consider when preparing for your company's valuation

BY DAN DORAN

There comes a time when every business owner needs to know the value of their company. Most business owners perform a business appraisal only once or twice in the tenure of ownership of their company. So, with limited experience, business owners need to know how to select a business appraisal firm. Before you select a valuation expert, review the following eight questions.



1 WHAT DOES A BUSINESS APPRAISAL FIRM DO?

A business appraisal is typically conducted by a specialist that has specific credentials in the performance of valuation work, typically indicated by the designation of certified valuation analyst (CVA) or accredited senior appraiser (ASA). Many business owners assume that their accountant is the best choice for appraising a business. While some CPAs also hold the CVA or ASA credential, it's important to find a firm that is focused exclusively on valuation.

2 WHAT DOES A CVA/ASA DO THAT A CPA DOESN'T?

Business appraisal firms are specialists. Valuation work is all they typically do, which results in efficiency, awareness of current industry developments and case law and direct experience performing valuations for similar types of construction businesses.

There is much more to the value of a particular business than the black and white numbers presented on a tax return. Lower and midmarket businesses live and die by key contributing growth factors like recurring revenue streams, vendor relationships, location and managerial hierarchy.

3 CAN I USE MY CORPORATE FINANCIAL STATEMENTS TO UNDERSTAND VALUE?

Financial statements reflect the equity balance of a company, but to the extent that there is "goodwill" value to the company, that amount is not reflected on your statements. Corporate financial statements are often prepared for tax reporting and do not reflect the discretionary recast earnings required to value most privately held companies. The financial statements must be interpreted to present the total adjusted earnings. In many cases, when valuing privately held companies, adjustments must be made for applicable one-time or nonrecurring income and expenses, normalized ownership perks and fringe benefits, above or below market-value salaries, noncash expenses and other expenses. In-depth discussions between the appraisal expert and the company's management and their advisors are necessary to perform this important step.

4 DOES THE FIRM HAVE BUSINESS APPRAISAL CREDENTIALS?

There are several bodies that credential business appraisal experts. The most recognized appraisal-specific credentials are the CVA and the ASA. Without experience

in business appraisal and a recognized designation, you cannot be sure that the individual has relevant valuation experience.

5 DOES THE FIRM HAVE EXPERIENCE ACROSS A VARIETY OF APPRAISAL PURPOSES?

Many business owners aren't aware of the wide range of reasons that companies require a business appraisal. These situations are unique and require insight into the factors that drive the need. Firms that do not complete appraisals for your purpose on a routine basis may be at a disadvantage. Look for a firm that has performed valuations for the purposes of:

- Buy/sell agreements
- Gifting/charitable contribution
- Economic damages
- Shareholder dissent
- Litigation support/divorce
- Due diligence
- Estate tax and tax planning
- SBA financing/SBA loans
- Gift tax
- Recapitalization
- Financial reporting
- 409(a) compensation/stock options

6 DOES THE FIRM OR PRACTICE GROUP WORK EXCLUSIVELY IN BUSINESS APPRAISAL?

Many times, business appraisal is an afterthought for a service provider. Business appraisal might just be an "also-ran" service the company provides. It's difficult to be good at the third or fourth service you offer.

7 CAN THE FIRM WORK WITHIN A REASONABLE TIMEFRAME?

Often, business appraisals will take three months or more to complete. This timeline can drastically impact other events—holding up litigation or tax filings. Look for a firm that can deliver your valuation efficiently, ideally in two or three weeks.

8 DOES THE FIRM HAVE INDUSTRY EXPERIENCE?

It's critical to find a valuation expert who has experience in either the construction industry or a similar industry or business type to the subject company being appraised. Understanding their experience level is critical in selecting an appraisal firm. **CBO**

Dan Doran is principal of Quantive Business Valuations, a business valuation practice specializing in small to midsize, closely held and family-owned businesses. He holds the CVA credential and has performed hundreds of valuations Visit quantivevaluations.com.



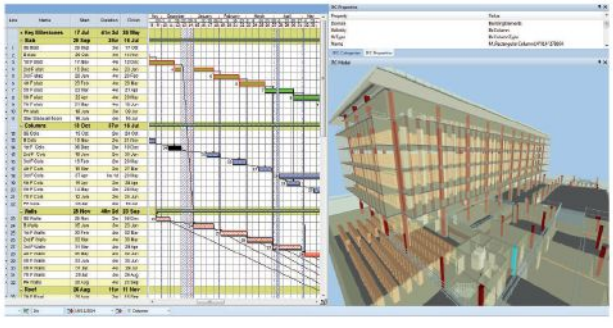
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Construct a Solid Foundation with Your Business Partner

Address common issues early to avoid costly litigation down the road

BY RICHARD LIEBERMAN

Both you and your business partner bring different skills and contacts to your working relationship, and you seem well suited for each other. But before you move forward, consider some key aspects of the relationship to ensure you have a common understanding of any issues that may arise. Because it is impossible to predict any problem situations, it is helpful to develop one or more agreed upon methods for resolving inevitable concerns.



Too often, new business partners jump into a relationship without a consensus on their individual roles, experience and expectations. Resentment and frustration can build when things don't turn out the way one owner had anticipated. One of you might be working 60-hour weeks, while the other leaves early but still draws the same compensation. One partner could resent micromanagement from the other. Rather than building a business, the two of you could become mired in disputes, leading to business failure and a broken friendship. There are proactive ways to avoid common pitfalls, though. Implementing these steps can help lead business owners to a rewarding, long-term partnership.

To start your new business on a solid foundation, consider the following key areas and develop a mutually acceptable approach. Your professional advisers can assist in analyzing and documenting these issues to help protect your respective rights. The time and expense spent setting up a proper relationship can save you many times that amount, avoiding expenses you otherwise might incur when difficulties arise. Litigation without a baseline agreement on how to address the issues can be enormously expensive and aggravating.

Communication and documentation are keys to success. Holding regular formal meetings ensures that important items are addressed in a regular and thoughtful manner. Meetings can address important issues, such as business plans, strategic alternatives and employee compensation on a schedule, to make sure attention is given to issues without too much delay.

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Informal communication should supplement those meetings. Discussing an issue when it first arises can help keep it from blossoming into a major problem. Establishing methods to cooperatively resolve issues leads to more productivity and satisfaction. Documenting the agreements of the partners is also critically important. While every discussion need not be reported, creating a record of the most important decisions serves as a reference against the time that circumstances change or memories of those agreements differ.

Documents used to memorialize the agreements include the organizational documents, shareholder's agreements, resolutions, company policies, employment agreements and emails. Take the time to think through issues and address how future contingencies will be handled so that you have a common basis for navigating those issues as they arise. The following are some of the common issues partners should address.

ORGANIZATION & GOVERNANCE

How will you structure your company? Will you have an equal say on all matters or will one partner have authority on certain issues? How is ownership to be divided? Will ownership and voting rights be the same, or will the votes be allocated differently from the ownership percentages? Does the tax structure of your company work for both of you?

The answers are unique to each company, and they may evolve as the company grows and experience levels and skills become even more apparent. Owners should plan to re-examine those issues periodically to see if the previous arrangements remain appropriate.

The company's organizational documents should establish fundamental roles and authorities and provide a governance structure for how important decisions should be made. They should provide a method for changing those terms as circumstances evolve. Companies can implement policies establishing authority levels by function and/or amount.

COMPENSATION

How will compensation be established and adjusted as circumstances change? Initial compensation arrangements are often established before the partners understand the effort and experience of the other, and may be based on inaccurate assumptions or expectations.

Owners should be willing to reassess these arrangements as the relative contributions of each become more apparent. Failure to do so may lead to the partner who feels underpaid to quit or engineer a breakup of the company. Mutually acceptable arrangements should be implemented for deciding which expenses should be reimbursed by the business.

RESOLVING DEADLOCKS

If the partners have an equal voice on an issue, how will they break a deadlock? It is much easier to reach agreement on how to resolve potential conflict when the parties are working together cooperatively, rather than when they are enmeshed in conflict. Methods of resolution can range from leaving the status quo in place to more formal methods of resolving a tie, like giving one partner an extra vote or bringing in a third party to decide the issue. If the partners find they cannot agree on a sustained basis, they may wish to permit one owner to buy out the other, as discussed below.

SEPARATION & TRANSITION ARRANGEMENTS

The partners should address how they would separate ownership should they decide to part ways. This includes dealing with death, disability, relocation or simply a desire to separate. Establishing a method up front for how those buyout arrangements will be implemented, including valuation of the ownership interests, can help to avoid protracted disputes or negotiations at the time of the buyout.

Many methods exist to allow this to happen. The company's documents can establish a procedure on how to value the interests of the departing owner and for how the other partner or a third party may purchase those interests. The company or the other owner may have a first right of refusal to purchase the interests of the departing owner.

If the remaining owner does not want to do so or is not in a position to do so, the partners should decide whether the remaining partner has the right to consent to the sale of the interests of the other to a new purchaser. Transition issues also often include transferring business interests to a spouse or one or more of the owners' children. Would you be comfortable being in business with members of your partner's family? And if they replace the original partner, should the voting and operational arrangements remain in place?

Your counsel can recommend methods to answer these issues, help identify other issues to be addressed and document the agreements of the parties. Establishing robust communication and documenting the agreements of the partners is a critical factor in helping friends and business partners maintain a healthy personal and working relationship throughout the life cycle of their business. Ultimately, addressing issues at the front end, when the parties want to work cooperatively, is the most cost-effective method of resolving any potential disputes that may arise. **CBO**

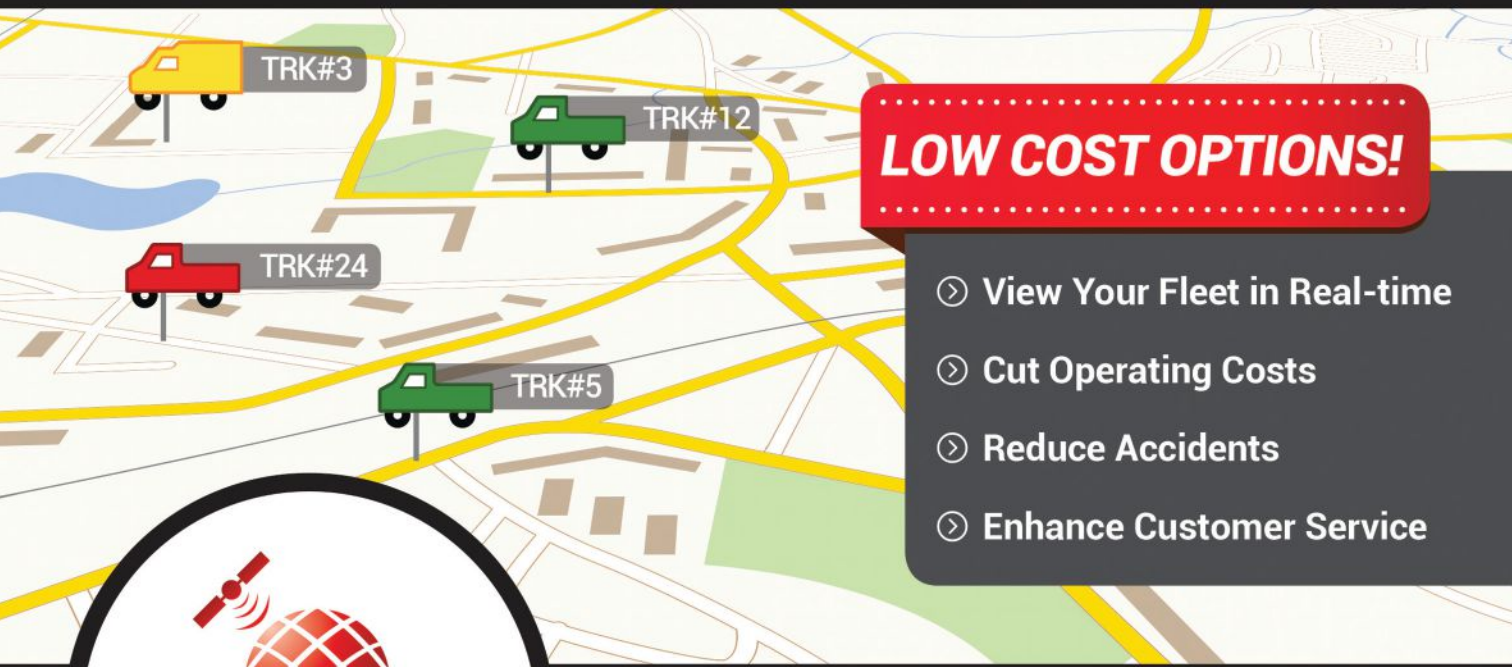
Richard Lieberman is chairman of Jennings, Strouss & Salmon's Corporate, Securities and Finance Group. He has extensive experience in business law issues such as mergers and acquisitions, securities, corporate governance, finance and banking, employment, executive compensation, bankruptcy and corporate restructuring, litigation and legislation. Visit jsslaw.com.



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Owning Better End Results

Determine your company's training needs with a job task analysis

BY PRESTON INGALLS

It is a constant struggle to provide training for employees. To address this, managers must place training in the proper perspective. The old adage is appropriate here: "What if we train them and they leave?" Worse yet, what if you don't train them, and they stay? Another though to consider: If you think training is expensive, try ignorance. The Gallup Polling organization developed 12 questions often used in surveys to find out the engagement and satisfaction of employees, which yielded Gallup's Q12 survey.

The survey results offer insight from more than 25 million employees across 189 countries. Engagement extends beyond an assessment of the happiness of employees. It also reveals whether that happiness demonstrates itself in superior performance on the jobsite.

Although multiple factors affect the degree of engagement and satisfaction of employees, several of the questions deal with training and development.

In other words, an investment in the employee's development not only ensures a more competent and confident employee, it shows him/her that the company is concerned with their development and growth. This affects his/her level of



engagement and overall motivation. In order to develop the best targeted training, you need to find out exactly what training your people need. If you want them to perform well, what tasks are you requiring them to perform? The best way to do that is to identify the tasks they are responsible for performing and determining how well they can perform them.

So, how do you identify those needs for multiple people in a department or division? A skills assessment called a job task analysis (JTA), also referred to as a job analysis (JA), has been around for many years. JTAs help to:

- Define and describe the tasks that the person will perform
- Determine the gap between what they are able and unable to perform
- Specify the skills needed to accurately perform the tasks
- Identify the tools and equipment the person needs to operate or use

A JTA identifies specific job tasks with the associated competencies. The tasks are organized by specific areas and then rated by importance.

The JTA is the most widely accepted process for determining valid job content and employment requirements. JTA establishes the basis for job descriptions, training courses, promotions, compensation levels and new employee direction. Training-related applications of a JTA include:

- Selecting appropriate learning outcomes for instructional development
- Prioritizing and sequencing tasks
- Identifying the steps within each task and the correct method to present them
- Determining instructional tactics that facilitate learning
- Selecting appropriate media and learning environments
- Developing performance assessments, tests and evaluation

Several methods exist that may be used individually or in combination, such as: job location, complexity of the job, number of jobs and geographic restrictions. These methods include: Delphi method, expert panels, task inventories, observation by experts, surveys, close-ended and open-ended questionnaires, check lists and incumbent interviews.

A job task analysis establishes the basis for job descriptions, training courses, promotions, compensation levels and new employee direction.

If we examine the last one, incumbent interviews, a typical method of JTA would be to give the job incumbents or subject matter experts (SMEs) a simple questionnaire to identify duties, tasks and responsibilities. A JTA breaks a job down into a hierarchy of elements.

One method of creating a JTA is to use a panel of incumbents and then have it validated by supervisors.

Another method is to have the supervisors develop the tasks list and have it validated by the incumbents, in other words, switching the order of the JTA.

The advantage to the latter method is that the supervisors are often much more aware of what the employee is supposed to be doing while the employee may not list all those tasks. Through brainstorming and consensus building, the team develops a sequential list of tasks.

Following this process, the team determines which tasks should be trained. A facilitator educates the group or panel over a series of multihour sessions until the group feels the tasks are completely identified. Next, the group rates task frequency, consequence and difficulty on a five-point scale. These numbers are then multiplied to produce a "Criticality Factor."

A draft of the identified job duties, tasks and responsibilities would be reviewed with the supervisor for accuracy. The list should always be validated by others who are knowledgeable about the tasks but not members of the panel.

Remember, not all job tasks are of equal value. Each task would be identified by how critical and essential it is to the supervisor(s). A particular task may either be so infrequently performed, or of such low importance that it is not reasonable to consider it "critical and essential."

The next step would be to develop a survey and have all those performing the job rate their skills on each task. Their supervisor would then perform the same skill rating on each employee independently.

The two surveys (self and supervisor) are compared and needs/gaps are identified. Once the gaps are identified, the "Importance Factor" (Frequency x Consequence x Difficulty) would be used to determine the order of training.

Additional elements to add would be: equipment and tools needed to perform, skills and knowledge for each task and work conditions. The following are tips for an effective JTA:

1. Start each task with an action verb. It should be a resulting action that is measurable and observable.
2. Follow each action verb with an object. The object is the target or recipient of the action.

3. Don't list tasks that overlap. Tasks should be clearly separated.
4. Use brainstorming to identify tasks.
5. Don't break down tasks to the step level during the initial brainstorming. This can be determined later in the process.
6. List as many tasks as possible. You can always add to the list later.
7. Use other examples, as it is often easier to add to a list than to start with a completely blank page.
8. Validate with non-panel members.
9. Make sure the supervisor has an opportunity to add or delete tasks. Supervisors will see things differently than the actual performer.
10. Take the time to rate each task because the higher numbers will be targeted for training more so than the lower ones.

The following verbs will help properly place a responsibility into a category:

- People verbs: advises, administers, briefs, communicates, coordinates, conducts, consults, counsels, critiques, delegates, demonstrates, directs, explains, facilitates, guides discussions, implements, informs, instructs, interviews, manages, mentors, negotiates, notifies, plans, participates, persuades, promotes, provide feedback, organizes, sells, speaks, sponsors, supervises, teaches, trains, tutors, welcomes
- Data verbs: analyzes, arranges, audits, balances, budgets, calculates, compares, compiles, computes, designs, determines, documents, estimates, forecasts, formulates, identifies, lists, monitors, obtains, predicts, prepares, selects, surveys, tracks
- Object verbs: activates, adjusts, aligns, assembles, calibrates, constructs, controls, cooks, cuts, develops, disassembles, drives, grows, inspects, lifts, loads, maintains, maneuvers, monitors, mixes, operates, paints, packs, repairs, services, transports, writes

The end result is a training program that is based on the actual needs of employees, rather than assumptions and opinions. There will be more ownership and buy-in from increased employee participation. If you want your employees to own the end result, saturate it with sweat equity. **CBO**

Preston Ingalls, president and CEO of TBR Strategies, has led maintenance and reliability improvement efforts across 30 countries for Shell, Occidental Petroleum, Skanska, Bayer, Exxon, Lockheed Martin, Unilever and Monsanto. He holds two engineering degrees and a master's degree in organizational development. Visit tbr-strategies.com.





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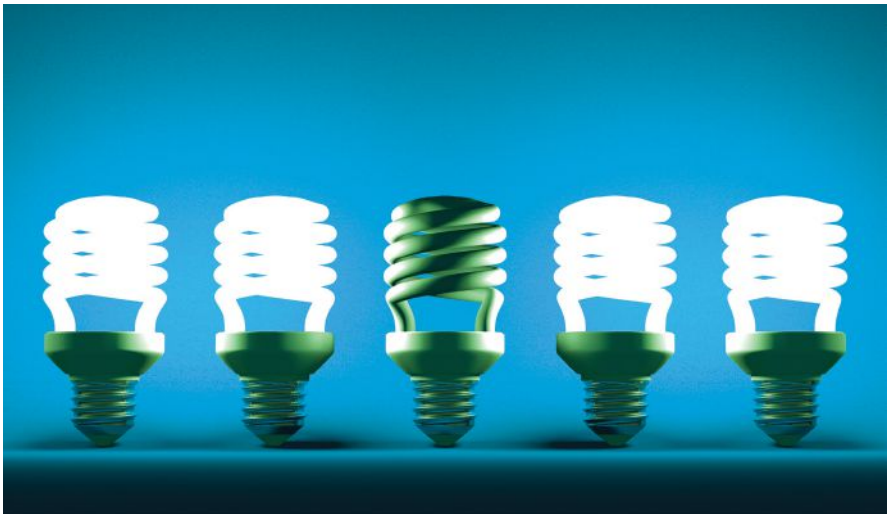
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Bad Ideas in Good Times

10 sure-fire mistakes that can lead to contractor failure

BY MICHAEL BALTER

Now that the economy finally appears to be headed in the right direction, many contractors are thinking about hiring talent, acquiring bonding and raising capital to help complete their growing backlogs. Many of those business owners with large backlogs are taking an optimistic view that the new construction economy is half full and are quickly forgetting the lessons of the recent past. For contractors showing over-exuberance in this current market, the following list includes some of the top mistakes that can lead to contractor failure, even in an expanding economy.



1. GROWING TOO FAST

Growing backlogs are generally a positive indicator. However, it is important to recognize how growth will impact other areas of your business. Often, growing too quickly creates problems with cash flow, lack of talent and communication strains due to everyone being so busy. Focus on growing profits and plan for potential pitfalls.

2. OBTAINING WORK IN A NEW GEOGRAPHIC REGION

Being successful in a new geographic region is a tough accomplishment. There are many factors to consider, such as transportation costs, availability of talent and the risks inherent in a newly established relationship with a subcontractor or general contractor. Consider establishing a joint venture with another firm that has already conducted business in the region and knows the local landscape. Wait until you have some experience there before you consider going it alone.

3. TAKING ON A JOB TOO BIG

Unfortunately, many contractors fail when they decide to take on a new job substantially larger and more complex than any other contract they have handled previously. If you are channeling all your resources into managing that job and it negatively impacts your bottom line, your other profitable jobs will likely not be large enough to sustain your business. In addition, working on a larger job requires working with a larger general contractor, which tends to bring more complexities than you may have experienced in the past. While there is risk in every new relationship, with proper planning and budgeting and the assistance of experienced advisors, many risks can be reduced and managed.

4. OBTAINING NEW WORK OUTSIDE YOUR EXPERTISE

This should be self-explanatory. Unfortunately, on many occasions, entrepreneurial contractors look at an opportunity

and fail to recognize the potential exposure. When a company performs work outside of its core expertise, it should do so both cautiously and slowly.

5. HIGH EMPLOYEE TURNOVER

A construction business is particularly susceptible to inconsistent teams come with inefficiencies. It is important to keep turnover to a minimum by offering fair compensation, facilitating open communication and providing opportunities for advancement.

6. INADEQUATE CAPITALIZATION

It is crucial to have a CFO and/or controller who fully understands the construction industry. Employ the benchmarking statistics by the Construction Financial Managers Association (CFMA) to compare capitalization ratios with other best-in-class contractors.

7. POOR ESTIMATING & JOB COSTING

The estimating and job costing process is the baseline for every contractor. It is essential to have open communication among the estimators, project managers and accountants in order to avoid unexpected overages in the job budget.

8. INEFFECTIVE ACCOUNTING SYSTEM & LACK OF CASH FLOW ANALYSIS

Invest in a proper construction-related accounting system. There are many useful management reports provided by an effective accounting software program that can be highly valuable in helping you make appropriate decisions about running your business profitably.

Remarkably, the reason most contractors fail is because they run out of cash. Perform weekly cash flow projections to avoid any surprises and to secure necessary funding when needed.

9. BUYING ITEMS NOT RELATED TO THE CORE FOCUS OF CONSTRUCTION

Remember to stick to what you do best and what has brought you success in the past. All construction companies should have "rainy day funds" for the leaner times when backlog lags. Contractors should not own yachts, jets, bars or restaurants as assets in the company, but they should feel free to build them for customers.

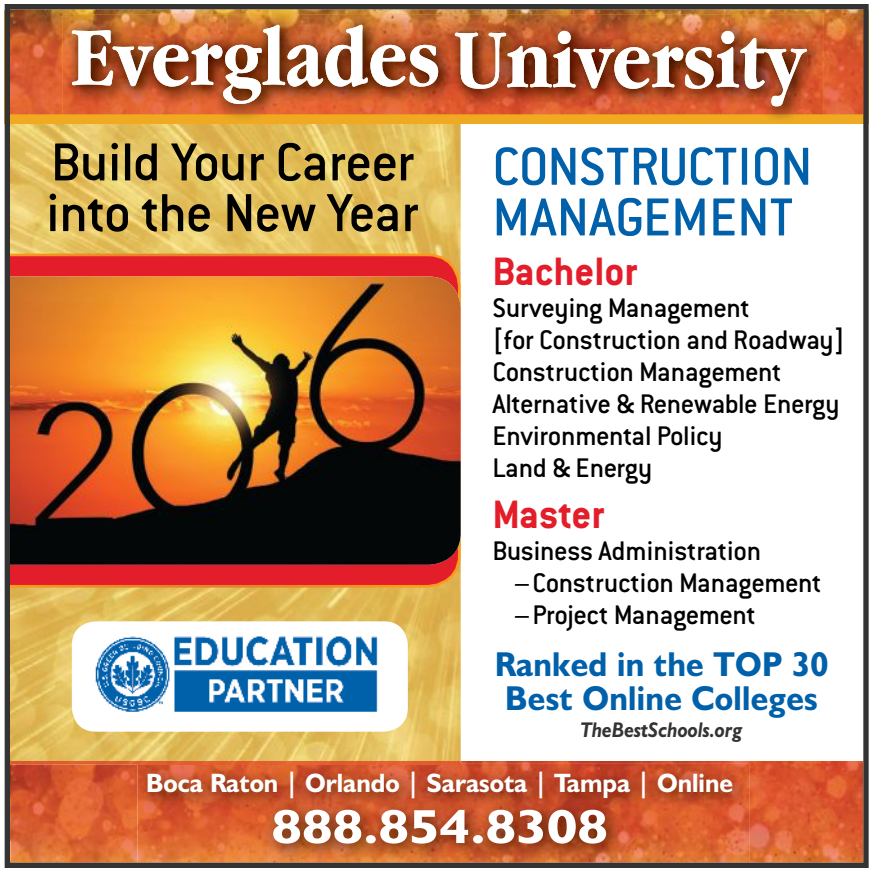
10. NOT BEING SURROUNDED BY PROFESSIONALS WHO UNDERSTAND THE BUSINESS

The construction industry has the second-highest industry failure rate. It is critical to the mission that you have a banker, bonding agent, CPA and attorney who have construction industry experience. Once you have the right people, be sure to hold regular meetings with them. Their insight and experience can be instrumental in helping you avoid failure.

There may be other potential risks that can lead to a contractor's demise, but this checklist is a sound starting point to help protect you and your company. Refer to it frequently, but use it especially when times are good. CBO

Michael Balter is partner-in-charge of Marcum LLP's Florida Region, partner-in-charge of Florida Assurance Services and a member of Marcum's executive committee and National Construction Industry Practice group. Balter is a member of the American Institute of Certified Public Accountants (AICPA) and the Florida Institute of Certified Public Accountants (FICPA). Visit marcumllp.com.





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How to Strengthen Digital Marketing

6 resources to streamline & enhance your in-house operations

BY LINDSEY BEDNAR

Before the Internet, the main way brands reached consumers was through advertising in newspapers, magazines, television commercials, billboards and on the radio. While traditional marketing channels are still prevalent, they are not always an option for most businesses because of high costs. Digital marketing is cost effective, easily measurable and can reach a global audience. You should be spending something on either an in-house or an outsourced marketer for your business. If you choose to do it in house, the following marketing tools will save you a lot of time and headaches.



CONTENT MANAGEMENT SYSTEM

A Web content management system (WCMS/CMS) is a software system that provides website authoring, collaboration and administration tools designed to allow users with little knowledge of Web programming languages or markup languages to create and manage website content with relative ease. Virtually anyone can make and maintain a professional website with the help of a CMS. All you need is a domain name, hosting, a theme and a bit of training. While there are many free themes available on the Internet, purchasing one is recommended, as they offer more customization. There are three main options in the marketplace—WordPress, Joomla and Drupal.

EMAIL MARKETING PLATFORM

Email marketing is one of the top forms of digital marketing, even though many believe it to be outdated and ineffective. In reality, it is the exact opposite. According to the Direct Marketing Association (thedma.org), email marketing yields an average 4,300 percent return on investment for businesses in the United States. There is no question as to whether email marketing should be part of your business development strategy. You must use an email marketing platform, such as MailChimp, Emma or Constant Contact. Once you have a platform in place, create an email template and import your entire, existing email list. There should be a clear area on your site for your prospects to sign up for your newsletter list, which should be linked with your email marketing platform so that it will automatically add prospects to your list.

SOCIAL MEDIA MANAGEMENT

The social media channels your business

should use will depend on your customer profile. In order to save time and headaches, create and schedule your social media posts ahead of time. A social media scheduler, such as HootSuite or Buffer, will allow you to schedule your posts days in advance. You should share information that is useful and interesting to your target market, as well as your own content. In order to increase interactions on social media, share photos and videos and post during peak hours.

CUSTOMER RELATIONSHIP MANAGEMENT (CRM) SOFTWARE

CRM software, such as Salesforce, Infusionsoft and Microsoft Dynamics, houses customer and prospect data like phone numbers, addresses and emails. CRM software also allows for input of other pertinent information like the date of the last phone call, what was discussed last, where the contact was referred from and when someone needs to follow up with them. Studies have shown that CRMs can increase sales by up to 29 percent if used correctly. Your CRM is only as effective as the information put into it, though.

GRAPHIC CREATION & EDITING

It is important to create and share custom-made graphics on your social media accounts and your website. While Adobe Photoshop and Illustrator offer the most robust system for editing and creating graphics, these programs are very complex and may be too complicated for a beginner. That's where sites like Canva, Picmonkey and Easelly can be useful. Use these sites to create branded graphics, promotional ads, infographics and more.

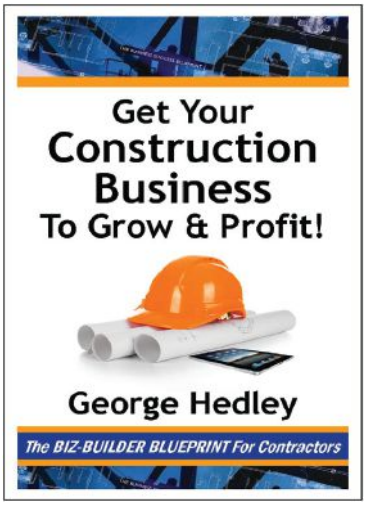
FREE STOCK IMAGE WEBSITES

For quality digital marketing, having access to high-quality, high-resolution images is a must. Research free stock image websites, unless you want to spend $200+ per month on subscription fees. Some examples include freeimages.com, Google Search (you must use the advanced search and change the usage rights to commercial) and Flickr (you must use the advanced search and change usage rights as well). Just be careful to thoroughly review the license details of all images you plan to use, as some may require a link back or may not allow any modifications. CBO

Lindsey Bednar is the director of marketing and operations at Blue Cloud Solutions, an accounting and business consulting firm for construction companies. Bednar specializes in Web design, social media, blogging and SEO. Contact her at lindsey@bluecld.com or visit bluecld.com.



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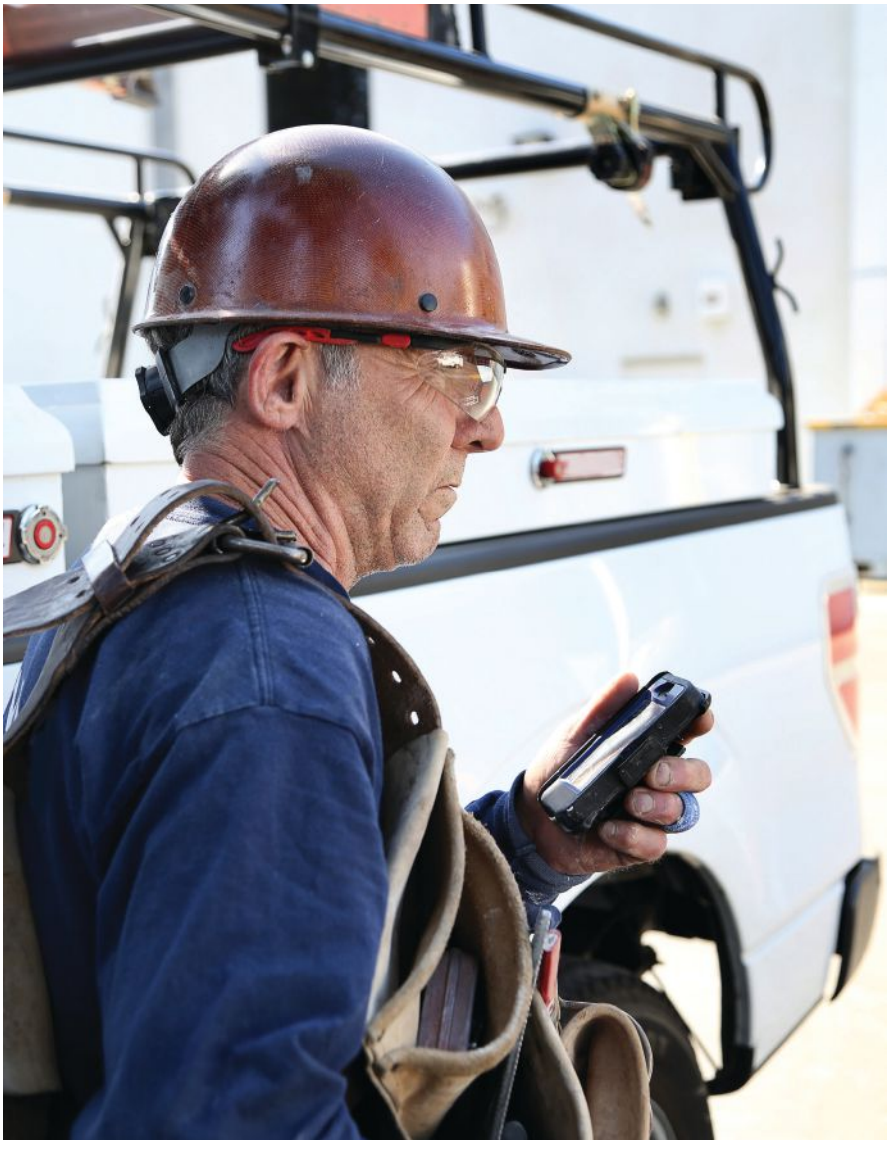
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Put the Right Tools in Your Belt

4 reasons why tech should be a part of every construction business

BY TOFFER GRANT

Construction business owners aren't always on the top of the list for the most tech-savvy entrepreneurs. Many people still believe that if you equip a construction worker with a hardhat, a set of tools and blueprints, they have everything they need to get the job done. But times have changed and so has the industry. Over the past few years, many construction business owners have increasingly expanded their arsenal of work tools to include the latest business software and mobile devices. The benefits of embracing this disruption in the construction industry are plentiful. The following tips can help every business owner looking to gain a competitive edge and streamline their business operations.



SEARCH FOR SAVINGS

Be sure to seek out browser-based, full-service solutions that integrate important business items like cost, expenses, accounting and project management into your current operations. With the right software technology, companies can easily and efficiently manage critical business processes like accounts payable/receivable, payroll and cash management. These tools help construction business owners and finance managers with:

- Estimating equipment work orders
- Managing inventory and materials

- Automatically attaching photos to a job using GPS coordinates
- Tracking equipment repair history
- Scheduling maintenance on a piece of equipment or for an entire fleet

FLOAT IN THE CLOUD

Deploy a cloud-based app that has a focus on scheduling, service and retention to hit every department in your business. With these tools, your customers can book appointments online, receive appointment reminders via a mobile app and evaluate different aspects of the business. One key feature to look for include the ability to set reminders for customers who need annual service and assistance with facilitating clustering appointments together. This helps reduce travel for service providers and creates historical logs of maintenance so customers can easily rate the service professional. Due to the user-friendly aspect of these apps, many customers are more likely to rate your business, so the value can't be understated.

CANDY CRUSH FOR CONSTRUCTION COMPANIES

There's an app for everything—that's no secret. While consumer-facing apps like Candy Crush tend to get all the love, there are plenty of useful and relevant apps specific to the construction industry. Find them by visiting your app store and search for those that will help your company and employees reduce errors and save time and money. One tool that contractors use every day and is now available on mobile devices is the original mobile device itself: advanced calculators. Having one on your smartphone is more efficient than carrying an old school calculator around—you have one less product to weigh you down and it can sync to everything on your phone. There are also apps that have the ability to sync all of your construction plans and help track an individual's credits toward LEED-certified green buildings while allowing access to all of your project documents.

Another important feature include timers that can track the amount of hours spent working on various projects and the option to create estimates for clients on the spot, which is customized from an uploaded list of commonly used materials and rates.

IT'S IN THE CARDS

Corporate card solutions are a good option for business owners looking to enable and streamline employee spending for business purposes. Don't just settle for an old-school card program, though. There are prepaid card options that allow you to control exactly how much and where your employees can use their cards. You can give employees the ability to purchase on your company's behalf while managing those expenditures in real time. Look for an option that provides you with online tools for controlling how much and where employees or contract workers can spend.

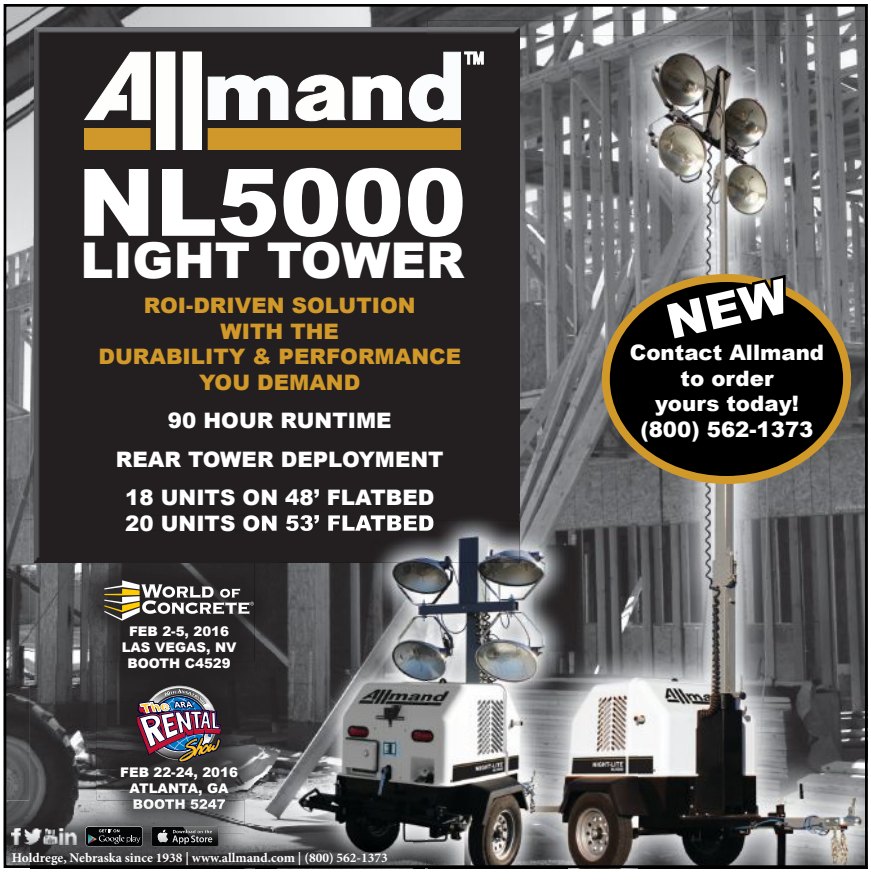
If you are still relying on manual processes and paperwork instead of embracing state-of-the-art technology, it's time to start using the tools that will make your business easier to run and more profitable.

After all, you are no longer using a chisel and hammer to build a new porch, so why use outdated methods and tools to run your business?

Whether it is for monitoring expenses or connecting with customers, the technology options available today from software and mobile devices are abundant. **CBO**

Toffer Grant is the founder and CEO of PEX Card. Grant founded PEX Card when it became apparent that banks and card issuers were ignoring development of prepaid debit card services for small and midsize companies. Visit pexcard.com.





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World of Concrete 2016

Positive industry growth and new technology will drive attendance & engagement at this year's trade show

BY ELIZABETH MANNING

With a construction market that is forecasted by FMI to grow 7 percent in 2016, the annual World of Concrete (WOC) trade show is shaping up to be one of the biggest yet. Held in Las Vegas, Nevada, the trade show will take place Feb. 2-5. Jackie James, show director, said the event is the largest in 7 years, with more than 1,300 exhibitors and over 700,000 square feet of indoor and outdoor space.

"In addition to our existing targeted areas of the show floor, we are introducing a new precast area, which will focus on precast products, technologies and equipment, including coring machines, pipe, manhole and septic tank equipment and more," James said.

WOC officials expect more than 55,000 professional registrants and many more international attendees, James said. With sustained growth in the industry, attendees should come feeling positive about 2016 and ready to preview and test new products, business practices and more.

Exhibitors at the show see several big trends that will affect attendee engagement and booth visits. Bronwyn Gillespie, advertising manager for Allmand Brothers, said low oil prices and high inventory of products in the market could have a negative impact on overall engagement. Allmand plans to counteract those trends with its new indirect fire heaters with "iQ control" and a glare-free light offering.



World of Concrete outdoor exhibit area at the Las Vegas Convention Center

On the other hand, Precision Hayes International sees a growing global construction market as a good sign. "We expect the upward trend to continue, which supports our involvement with these shows," said Paul Hohensee, marketing and new product development leader for the company. "Better quality corrosion resistance and more finely tuned installation of these systems is something we plan to focus on."

For Precision Hayes, this will be the second year as an exhibitor at the show.

"Several of our new products will be unveiled at the show—the [designs] of which are driven by building code requirements and infrastructure improvements, both of which have seen several updates in the past year," Hohensee said.

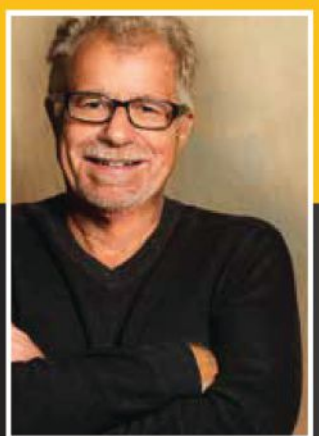
Indeed, infrastructure should be a hot topic at the show, especially with 2016 being an election year. Wayne Newitts, marketing director at Dexter + Chaney, said he expects the presidential race to have a positive effect on the industry.

"Because of the election year, we should see continued growth and investment in

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our overall civil infrastructure, so we can expect increased involvement with our civil contractors who come to the shows," Newitts said.

The new 5-year transportation bill's passing is a change that will certainly affect heavy equipment purchases in 2016, according to Aaron Kleingartner, sales and marketing development manager at Doosan. "Construction spending is at its highest level since 2008, according to figures provided by the U.S. Census Bureau," said Kleingartner. "This is a good sign for equipment manufacturers.

This year, at the show, Doosan will introduce its new high-lift DL220-5 wheel loader and its Doosan DX140W-5 wheel excavator with a power tilting coupler.

One of the most-cited trends expected at this year's show is an increased understanding of technology and the need for different technological innovations.

"Five years ago, cloud computing was a scary term, but it has now reached the tipping point at which it has become an expected and desirable aspect of our world," Newitts said. "The changing of the guard that is currently happening in the construction industry is only facilitating this complete 180 we are seeing with adoption of new technology."

Dexter + Chaney brings a new product to the table that it hopes will appeal to the new generation of construction leaders: Workflow, a part of the company's Spectrum software package that revolutionizes how construction workforces organize their day-to-day processes.

According to Emily LaChapelle, GPS Insight's trade show coordinator, the same is true for GPS tracking.

"Whether attendees are at the beginning stages of implementing a fleet management system and are voicing the crucial features of the product, or they are displeased with their current system, the days of moseying the trade show floor have passed," LaChapelle said. "We are seeing a more educated attendee who has an agenda."

CAN'T MISS AT WOC 2016

- 31 3-hour seminars, including 8 new to WOC 2016
- 50 90-minute seminars, including 29 new
- 8 4-hour certification seminars and examinations offered by industry associations
- 4 hands-on training events, from surveying to a new concrete fundamentals course
- 27 association and industry training courses from leading service professionals

In addition to three products, GPS Insight Standard, GPS Insight Pro and the company's new asset tracking offering, the ST-1100 tracking device, GPS Insight is taking on WOC on the heels of a new partnership with Dossier Systems.

Like Precision Hayes, changes to building requirements is something Minnich Manufacturing expects will affect attendee interest in its product lineup this year. Todd Jurjevic, director of sales at Minnich, said the new requirement in pinning temporary barrier walls influenced the products Minnich will be showcasing heavily. One such product started out as a special design for a contractor, which Minnich then rebuilt to be a standard offering.

"For temp barrier walls in concrete, we designed a drill that will go down through the top of the wall, which allows workers to stay on the non-traffic side of the wall," Jurievic said.

3M Fall Protection will be exhibiting an entirely new line of fall protection for tools.

"Everyone just frankly expects to drop tools, but by bringing some focus, we think we can create awareness and help our customers be safer with their tools as well as themselves," said Jeff Martin, global product director of soft goods at 3M.

For both Martin and Eric Adamson, 3M global product director, the biggest emphasis will be on rescue.

"We want to bring up the conversation about fall protection and the importance of having a rescue plan," Adamson said.

According to Adamson, the best type of rescue is self-rescue, and 3M has the products to enable that. A safety harness called Self+RSQ will also be on display at WOC. The harness features reflective material and a sealed bag device that is fully functional in any temperature or jobsite environment.

With the impending skills shortage, continued education is all the more important for your workforce—and WOC 2016 is set up to provide just that. Eighteen industry association cosponsors and education partner associations will teach attendees about new techniques and innovations, James said.

"Attendees who come prepared to learn and celebrate all the things that concrete means in our everyday lives will come away with a renewed interest in their jobs and the future of their businesses," James said.

In the spirit of education, World of Concrete has raised more than $5 million over the past 10 years through an auction that benefits the establishment and development of the Concrete Industry Management (CIM) program. Both exhibitors and attendees participate in the auction, which will be held Wednesday, Feb. 3, each year.

Make sure to stop by the *Construction Business Owner* booth, Booth C4333, while you are in Las Vegas. Pick up a magazine and let our team know what you are learning while at World of Concrete 2016. Connect with us on social media for live updates from the show floor, and make sure to hashtag your tweets with #CBOWOCTalk. Enjoy the show! CBO

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

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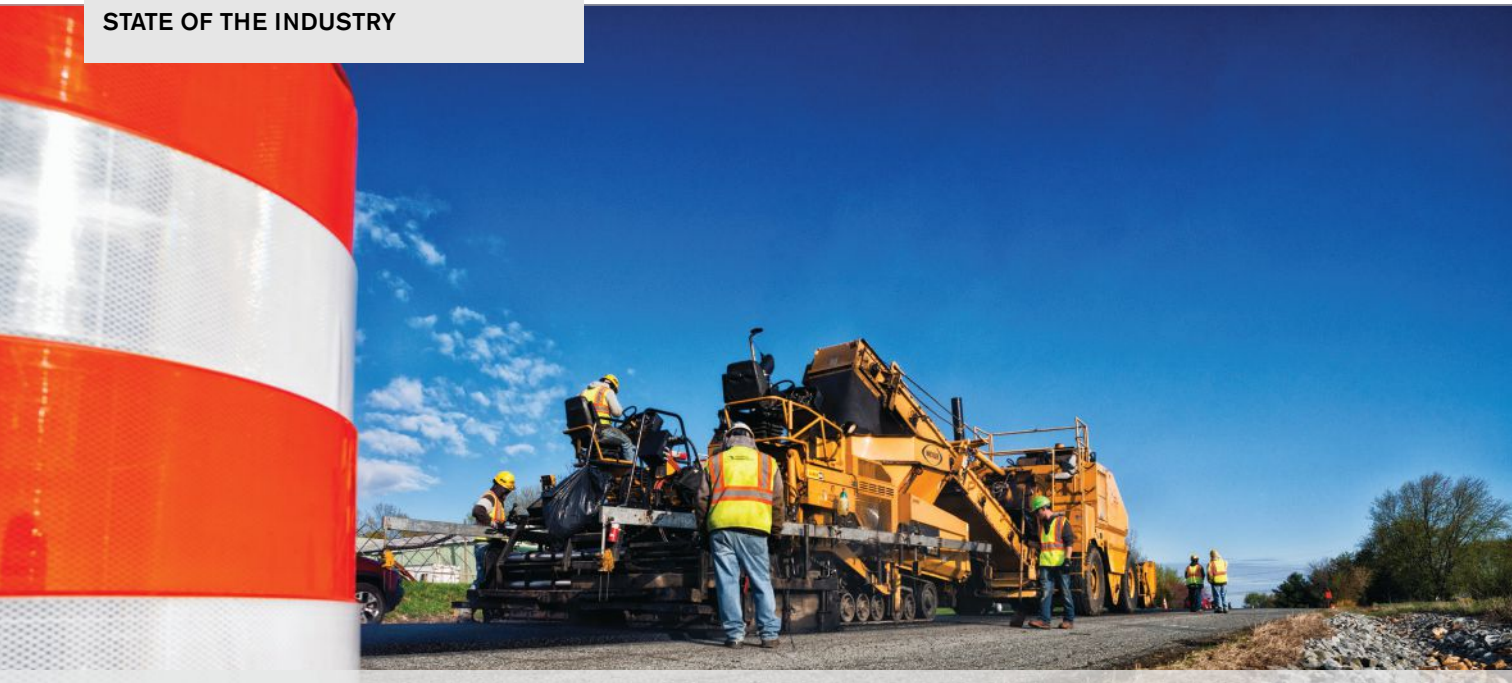
Presented by Gregg Schoppman
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Schoppman is a consultant with FMI, management consultants and investment bankers for the construction industry. Schoppman specializes in the areas of productivity and project management. He also leads FMI's project management consulting practice.

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PLANNING FOR THE WORK AHEAD

Expert insights on 2016 market trends in construction finance and equipment

BY KATHY WELLS

On the heels of last month's congressional final passage of a much-needed $305 billion measure to fund infrastructure, the construction industry continues to climb toward recovery and is more than prepared to literally hit the road.

The 5-year surface transportation act, dubbed the Fixing America's Surface Transportation (FAST) Act, is the nation's largest transportation package in more than a decade and will provide about $225 billion for highways, $61 billion for public transit, $10 billion for railways and $5 billion for highway safety programs.

Passage of the bill also provides state and local governments the opportunity to line up some major construction initiatives and financial security for programs that work to sustain our nation's roads, bridges and railways.

There is no doubt that this bill will continue to be a hot topic for contractors for years to come, and *Construction Business Owner* will share updates as the progress of the bill begins to takes action. All parties are eager to see how this will shape the industry and explore the potential for more projects and jobs than we've seen in recent years.

At the start of every year, the most pressing questions for contractors center on their businesses, what to expect in that new year and how to face the challenge. With this in mind, *CBO* interviewed industry professionals to collect some insight. In the following paragraphs, construction finance and equipment experts provide their views on what contractors should watch for in 2016.

CONSTRUCTION FINANCE

According to Construction Finance Management Association (CFMA) President and CEO Stuart Binstock, the general concern from a financial standpoint is that, while there is work available, the profit margins are thin and not getting any better as more contractors chase work. "This is exacerbated by the fact that shortages in skilled craft labor continue to challenge everyone in the industry. Finding people is a problem, but supply and demand would suggest that a lower supply will also negatively impact a contractor's costs," said Binstock.

Dixon Hughes Goodman is a certified public accounting and consulting firm serving clients in 12 states. According to assurance





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partner and leader of its construction group, Mike Trammell, "As we move into 2016, there appears to be an abundance of opportunities for most construction contractors. With few geographic exceptions, the pent-up demand and low finance rates have finally overtaken owner/investor/developer uncertainty in the marketplace. Contractor backlogs appear to be rising quickly and margins seem to be finally seeing an uptick."

Fred Ode, president of Payroll4Construction.com, a payroll service provider specifically for the construction market, said, "Companies are seeing that this isn't a one-time uptick, but the return of a more stable market." And with progress comes flexibility, said Ode. "The roles of financial advisors, industry-expert CPAs, solid job-costing practices and reliable financial reporting is going to be extremely important. Use of those resources are what will help determine growth, creating the ability to make smart moves in a challenging market."

Of course, this emerging market does not come without constraints. One of the industry's most talked-about constraints is the lack of an available and trained workforce. "This is certainly no secret and is being experienced in every level of contracting companies. From operations executives to PMs to estimators to field superintendents to craft workers, many have left the industry and it will take time to replace them. This results in higher salary and wage demands in the marketplace," said Trammell.

Trammell adds that construction business owners need to "take a good, introspective look at contractors operations, at all levels, and operating smartly." Lack of company infrastructure in this emerging marketplace is also a concern. "During the recession and the lean years immediately thereafter, construction firms learned to do more with less. They had to. And that is a good thing. And typically, "full steam ahead" executives had to learn to operate more conservatively," Trammell said. But how does that shift now? "Accounting, finance and operations support staff endured layoffs and cutbacks, and multi-tasking became a way of life. At what costs? Did good internal control practices, both from fraud and risk management standpoints get set aside, and perhaps aren't being replaced, even as volumes and backlogs increase? Are companies more at risk for fraud or poor reporting or contract failure due to accounting, estimating or PM staff being too lean?" Trammell added.

The role of technology will continue to impact the market and play a part in helping businesses grow. New technologies appear daily on the jobsite and in the back office. Ode, whose construction software offers payroll services to contractors in all 50 states, said, "Mobile technology has shifted the demand in the market by promising greater efficiency, but the task remains to seamlessly integrate these applications directly with software in the office. On the horizon is increasingly robust integration to smooth the flow of data while providing needed safeguards and advanced encryption technology."

Enterprise resource planning (ERP) systems continue to become more sophisticated and meet more of contractor's needs. "While the industry has lagged in investment in technology, many contractors have seen that increased efficiencies can be met by an increased investment in technology. And the millennial generation expects the most advanced technology at their work. If construction companies don't understand this, they will lose out in attracting the best and the brightest," said CFMA's Binstock.

HOT TOPICS IN 2016

- ACA compliance
- Millennials in the workforce
- Finding skilled labor
- Technology updates
- Fraud protection
- Cybersecurity risks
- Construction-specific apps
- Tier 4 Final regulations
- Increased operator safety

CONSTRUCTION EQUIPMENT

The construction equipment landscape in 2016 looks to remain positive. "We've talked to a lot of contractors who have work on the books and increased confidence as a result of the new highway funding," said Todd Jurjevic, director of sales at Minnich Manufacturing, an Ohio-based manufacturer of concrete dowel pin drills, concrete paving vibrators and vibrator monitoring systems. "Temporary highway funding has been a constant challenge, so I'm encouraged by the long-term highway bill that was recently signed into law. With some added confidence that construction jobs will be there, contractors can begin investing in new equipment again," said Jurjevic.

Al Cervero is vice president of construction, mining and utility for the Association of Equipment Manufacturers (AEM), a North American-based international trade group representing the off-road equipment manufacturing industry. According to Cervero, "From a technology standpoint, each year we see more companies owning the Tier 4 products and the impact of transition and use of the technology. Looking ahead, an AEM priority is industry harmonization of Tier 4 engine emissions regulations with the far-reaching European proposals for so-called Stage 5, or Tier 5." AEM has a lot in the works regarding technology. There is no question that tech is transforming the industry—with telematics becoming an integral component of the connected worksite. AEM-AEMP's telematics standard is intended to help large and small contractors as achieve real efficiencies in data gathering and analytics across mixed fleets.

"We are nearing completion of the International Organization for Standardization acceptance process as a global standard, so companies are assured it can be used across markets. developing a manufacturer data verification system and test database so companies are assured they can access the correct data under the new standard format," said Cervero. CBO

Kathy Wells is the editor of Construction Business Owner magazine.

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MANAGING EMPLOYEES IN TODAY'S CONSTRUCTION INDUSTRY

Getting ready for the big shift from talent training to people engagement

BY SABINE HOOVER

Labor shortages are becoming more prevalent in today's construction industry, and companies need to focus on corporate culture, engagement and work-life quality to attract and retain good people. It has been a long and arduous stretch, but it's now safe to say the Great Recession is a thing of the past for the construction industry. The recession still resounds in the market and the minds of those who experienced it, though. In FMI's recent talent development survey, 86 percent of respondents reported that their companies were experiencing skilled labor shortages. Two years ago, only 53 percent of respondents faced this challenge.

So, how are employers responding to this dilemma? The truth is, they are treating the people problem like a construction project and trying to solve it with a hammer-and-nail solution. Specifically, companies are putting big dollars into training programs focused on sharpening employee skills and competencies.

Training is important and definitely has its place. But if it is not offered as part of a well-designed, individualized career development program, then training is simply a way of paying attention to human "doings" rather than considering employees as human "beings." Ken Wilson, founder of FMI's Talent Development Group, said, "Many companies just seem to want to check off the (training) initiative from their list and convince themselves that they are making a commitment to their people."

With millennials (individuals born between 1980 and 2000) now making up 34 percent of the nation's workforce—a number that is expected to grow to 50 percent by 2020—construction companies are faced with the even greater challenge of attracting and retaining a dynamic, young workforce.

These young people are looking to add value, make an impact and find meaning in what they do. They also want to learn, improve and advance quickly through an organization and understand available career advancement opportunities.

This is particularly relevant for companies in the construction industry, where many firms lack well-defined career tracks, comprehensive talent development programs and effective leadership platforms. According to FMI's 2015 talent development survey, only

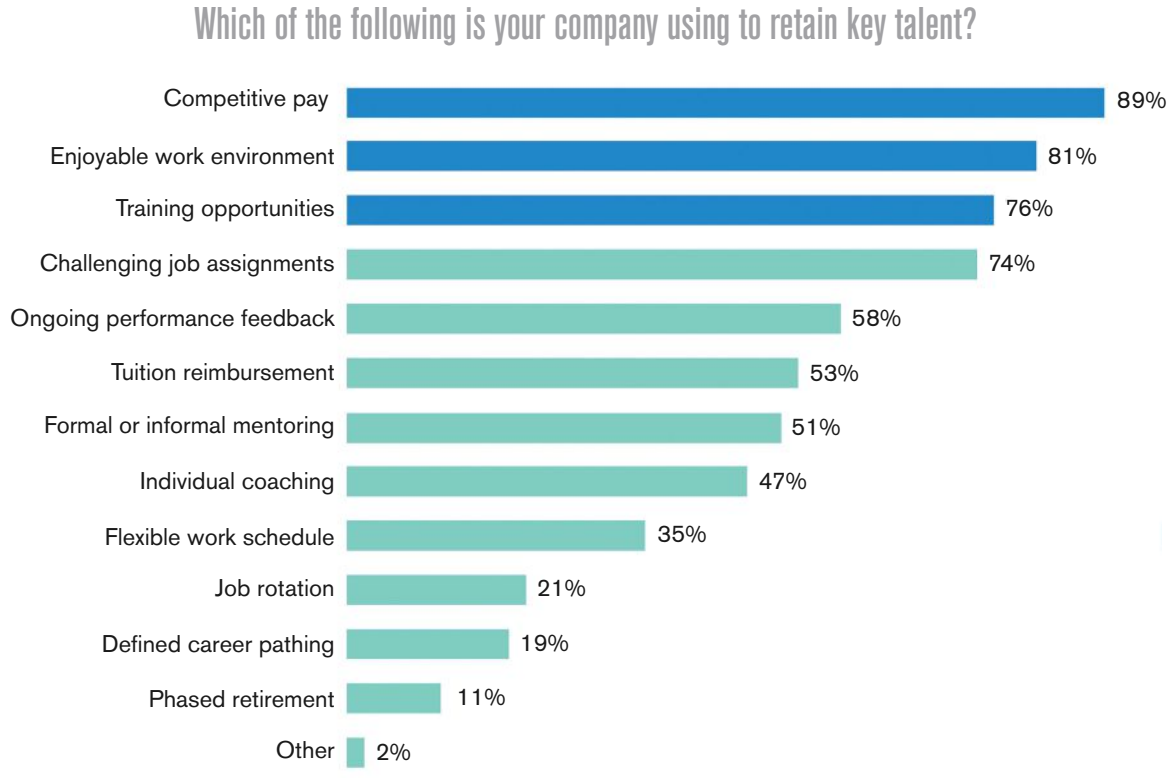


Figure 1. Methods for retaining key talent in the construction industry

19 percent of respondents define career paths for their employees—a human capital area that has been neglected for far too long in the construction industry.

"The young people in this industry are eager to contribute and participate," said Barbara Jackson, director at the Franklin L. Burns School of Real Estate & Construction Management at the University of Denver. "Oftentimes, standard job descriptions and policies stand in the way of them contributing at a level that would bring real value to the companies that they work for. This can result in frustrations, and ultimately people move on to more progressive firms and industries."

MISSING THE MARK ON EMPLOYEE ENGAGEMENT

According to FMI's talent development survey, competitive pay, enjoyable work environments and training opportunities are the top three methods that survey respondents use to retain key talent in the construction industry (see Figure 1). Conversely, when we asked millennials in the industry how they stay



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engaged, they listed competitive pay, work-life balance and personal development as their top choices.

Are employers missing the mark when it comes to employee engagement in the construction workforce? Offering competitive pay is important—perhaps even a prerequisite in today's tight labor market—but beyond that, companies must present opportunity to their employees in a strategic and compelling way. If that training isn't part of a well-planned career development program, then it quickly becomes an expensive and time-consuming exercise for everyone involved.

Findings from FMI's 2015 millennial study confirm this notion. Of the respondents indicating that they understood their career paths and opportunities within their firms, 81 percent expected to stay more than five years at their company. Conversely, of those respondents not expecting to stay more than five years, one-third were unsure of their responsibilities and expectations in their current roles. It seems that aspirations—more than age—determine why people remain with their companies or move on to new ones. It is evident that millennials care as much as older workers about career opportunities and getting ahead.

Rather than focusing on outdated stereotypes, employers in the construction industry should take the opportunity to develop workplaces where top talent across all generations can shine and thrive.

ENGAGEMENT STARTS AT THE TOP

Culture and engagement have become strategic priorities in today's competitive business landscape. According to a recent Deloitte study, 87 percent of organizations cited culture and engagement as two of their top challenges. It's no secret that leaders set the tone for engagement in the workplace.

This fact was confirmed in FMI research, where employees (both millennials and non-millennials) who perceived senior management's commitment to their well-being were more engaged and planned to remain long term with their companies (compared to those who didn't feel appreciated or valued by their leaders, seen in Figure 2).

In the construction industry, where employee turnover is notoriously high and cyclical due to economic fluctuations and local market conditions, company leaders must build corporate communities that truly inspire and engage employees long term and across all generations. The generational workforce gap may not be as wide as some may think. According to a recent IBM study, much like their predecessors, millennials are interested in job security and stability. Despite popular belief, they aren't poised to switch jobs as soon as another opportunity presents itself. However, these younger workers come from a connected generation that truly values collaboration, teamwork and social opportunities. The question is, how can company leaders create a culture that leverages these strengths, while also engaging older workers and staying true to core missions and aspirations?

The answer to that question lies in the development of sustainable cultural structures that enable organizational connectedness and strong employee engagement. It's not enough to simply purchase a high-end espresso machine for the break room or host a weekly happy hour on Friday evening.

The work environment as a whole must embody daily collaboration that encourages millennials to tap into their connectedness, share new ideas and offer solutions to client problems. Senior leaders must also evoke an established commitment to the workforce's wellbeing by creating a culture of ongoing learning and feedback.

For example, millennials like receiving feedback on a continuous basis because it enables them to understand the impact of their contributions on the organization. It was noted that, "Being noticed for the hard work you are doing is a big deal in the construction industry. When an executive tells you they appreciate your hard work, it really goes a long way."

The construction industry is well-positioned for an infusion of millennial workers. Indeed, the timing is perfect, particularly with the new virtual design and construction tools and integrated project delivery methods requiring higher levels of collaboration among project teams.

Having new, young people focused on a common purpose, effective processes, excellent communication and solid relationships will help engage workers of all ages and transform the industry over time. Other key findings from FMI's survey include:

- Companies in the construction industry lack processes to develop and promote high-performing employees.

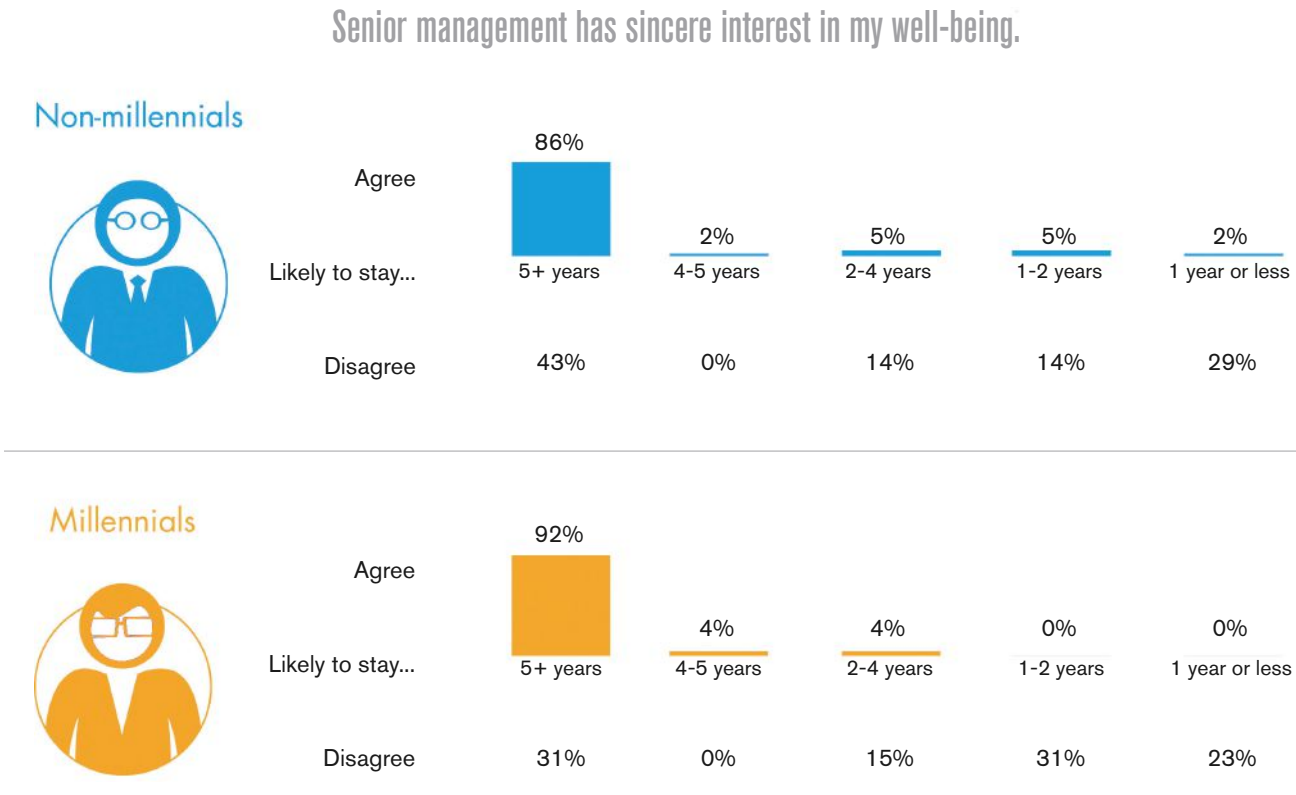


Figure 2. Senior management's commitment to people is reflected in engagement levels and company loyalty.

- Executives and field manages are expected to have the highest attrition rates over the next five years.
- The majority of firms don't connect training expenditures and performance management metrics.
- Annual performance reviews are a top priority for increasing employee performance and development.
- Having a defined and well-communicated vision is critical to retaining key talent, regardless of age.

WHAT'S NEXT?

Looking ahead, the construction industry must redefine the role of human resources to a much broader approach that gives top human capital executives a seat at the senior leadership table. This will require new tools, metrics and analytical capabilities that translate qualitative workforce information into the quantitative language of growth and profitability.

Tomorrow's human-capital leaders will find ways to combine the strategies, practices and processes needed to overcome obstacles and create a sustainable competitive edge for their organizations. From hire to retire, employees should be aligned with the organization's overall strategic goals. Developing and engaging employees—as well as managing their performance—are critical steps, especially for millennials who want to do more than just punch a clock and take home a paycheck. These individuals are looking to add value, make an impact and find meaning in what they are doing. Construction firms can leverage these realities by ensuring that younger workers have a clear sense of purpose and an understanding of their roles within the larger plan.

So, rather than focusing on outdated stereotypes, employers in the construction industry should take the opportunity to develop workplaces where top talent across all generations can shine and thrive. Starting with a clear and inspiring vision, leaders can pave the way for long-term employee engagement and weave both multicultural and multigenerational human capital strategies into the construction industry workforce. Now is the time to capitalize on each other's strengths, instead of focusing on obsolete stigmas. CBO

Sabine Hoover is the content manager for FMI's consulting group. Hoover has worked for over a decade in the engineering and construction space. Specific project work includes assessing research requirements, designing research methods for data acquisition, conducting primary and secondary research, and synthesizing, analyzing and documenting research results. Visit fminet.com.





U.S. CONSTRUCTION INDUSTRY FORECAST

Key statistics about residential and nonresidential building growth in 2016

BY AMIT NADIV

The United States construction industry is viewed as a key indicator of the strength of the American economy, consumer confidence and unemployment trends. As the unemployment rate declines, investment in both residential and commercial U.S. construction tends to increase, signaling improved consumer confidence and the spending that accompanies that confidence. This spending pumps money into the economy and creates demand for consumer goods and services, which eventually leads to investment in capacity increases in the commercial sector, such as manufacturing facilities, office space and retail establishments.

We are now seven years removed from the start of The Great Recession in 2008, and although we have yet to see sustained momentum in gross domestic product (GDP) growth, which has ranged between +0.6 and +4.3 percent for four straight quarters through June 2015, the unemployment rate reached a seven-year low of 5.1 percent in August 2015 (remained unchanged for September 2015). This gradual economic recovery has provided the residential construction industry with +9 percent growth in 2015 and an expected growth of +8 to 9 percent in 2016. Nonresidential construction grew +7.1 percent through H1 2015, but is expected to only grow +5 percent for the full year, as contraction in power-related, water supply and public safety projects continue.

CITIES DRIVE REGIONAL GROWTH

The U.S. Census Bureau reports that there are 10 U.S. cities with 1 million or more residents. California and Texas alone contribute three cities each: Los Angeles, San Diego and San Jose for California and Houston, San Antonio and Dallas for Texas. These population estimates are based on the year-ended July 1, 2014, with results generally published about one year later.

With the exception of New York City, which added the most residents last year, Texas led the category with its increase in housing units. Texas cities gained the most new units (+141,625), followed by California (+77,510), Florida (+67,208) and North Carolina (+39,855). However, given the nearly one-year information lag, additional factors are needed to accurately evaluate current and near-term trends.

Construction job growth is published monthly by each U.S. state. Florida's figures provide a good example of the nationwide trend of strong, recent employment gains that have begun to slow dramatically this year. Looking back at June 2014, Florida added 2,260 jobs to support the 67,000 new housing units it added in the 2014 fiscal year. However, June 2015 saw a considerable slowdown in those job numbers, with Florida adding a meager 100 jobs.

WORKER SHORTAGES

A portion of the slowdown in hiring is explained by worker shortages across the country in this sector caused by construction worker flight. The housing crash that contributed to the recession forced many current and potential construction workers to leave the industry in search of other work or to leave the labor force altogether. Though the shortage is now causing a decline in hiring, it has bolstered overall employment figures in the industry.

The Associated General Contractors of America (AGC) reported in July 2015 that construction employment totaled 6.38 million, the highest figure since March 2009, representing a +4.2 percent year-over-year increase. Unemployment in the construction sector had hit a peak of 27.1 percent in February 2010 but was down to 6.3 percent by the end of the first half of 2015.

Political uncertainty played a part in the diminished labor force participation rate in the construction sector, as federal funding for transportation projects, such as highway and bridge repairs, earlier this year was low and unpredictable. The steep decline in crude oil prices is also a contributor, as projects in the energy sector have been cut back. Moody's Investors Service projected in Q1 2015 that oil exploration and production companies (E&Ps) would reduce capital expenditures by 41 percent in 2015, which we estimate will remove roughly $280 billion from the market.

Because construction trends are highly dependent on regional projects, they must be evaluated from a geographic perspective. Seattle added the most construction jobs between May 2014 and May 2015 at a rate of +15 percent (+11,300 jobs). New Orleans, however, recorded a -10 percent decline in construction jobs (-3,200 jobs) as new construction contracts declined by -89 percent to $107.6M in September 2014 versus September 2013, primarily due to a slowdown in nonresidential construction.

HEADWINDS FACING THE INDUSTRY

Residential construction is expected to continue to grow between +7 percent and +8 percent through 2015 and 2016, with the potential for slightly lower growth and the possibility of higher interest rates.

Interest rates have been kept near zero by the Federal Reserve System since December 2008. Millennials are one of the largest groups of potential homebuyers in 2015, and an increase in rates may further discourage these first-time homebuyers who are already faced with high down payment requirements, strict lending standards and high levels of student loan debt.

Depressed demand for first-time home purchases limits the ability of their sellers to step up to their next home, which can have a domino effect. Furthermore, the pace of median rent growth of +4 percent has eclipsed median home value growth of +3 percent in 2015, which may further hinder buyers' ability to save for a down payment.

Although the pace of home price growth has slowed from over +10 percent in 2013, data available as of Oct. 1, 2015, still reports a +4.7 percent trailing twelve months increase according to the S&P/Case-Shiller Home Price Index.

This increase is mainly due to low mortgage rates and the expectation that rates will rise, given signals from the Fed for a potential interest rate hike in the coming year. As of Oct. 1, 2015, 30-year mortgage rates remain below 4 percent at an average of 3.85 percent. Higher rates will begin to slow the pace of home price growth in the next 12 months to +4 percent to +5 percent.

Based on Trulia's analysis of median wages for an individual with a college degree saving 10 percent of wages annually towards a down payment, it would take more than 10 years to save for a home purchase

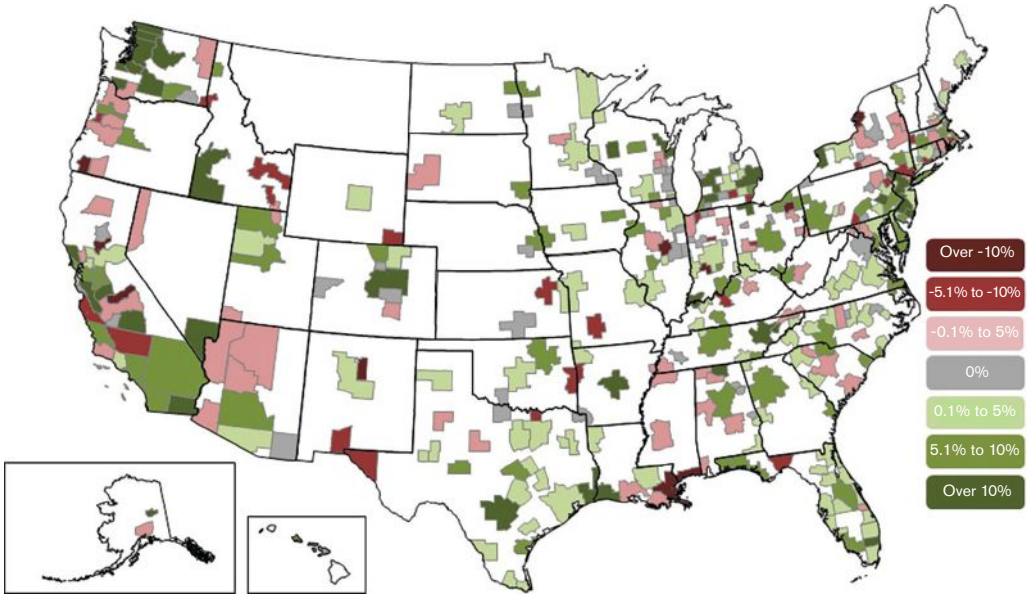


Figure 1. U.S. construction jobs growth

in expensive cities such as Denver, Colorado, Portland, Oregon, or Oakland, California.

Some relief may be found through new bank programs for first-time homebuyers that are beginning to surface. For example, TD Bank in Florida allows for down payments as low as 3 percent with no mortgage insurance to qualified buyers. Awareness of these programs remains low and banks report little traction thus far.

NONRESIDENTIAL CONSTRUCTION GROWTH REVISED DOWNWARD

A combination of headwinds has tempered the growth outlook in nonresidential construction. Growth in the near-term will be curbed by energy-related spending

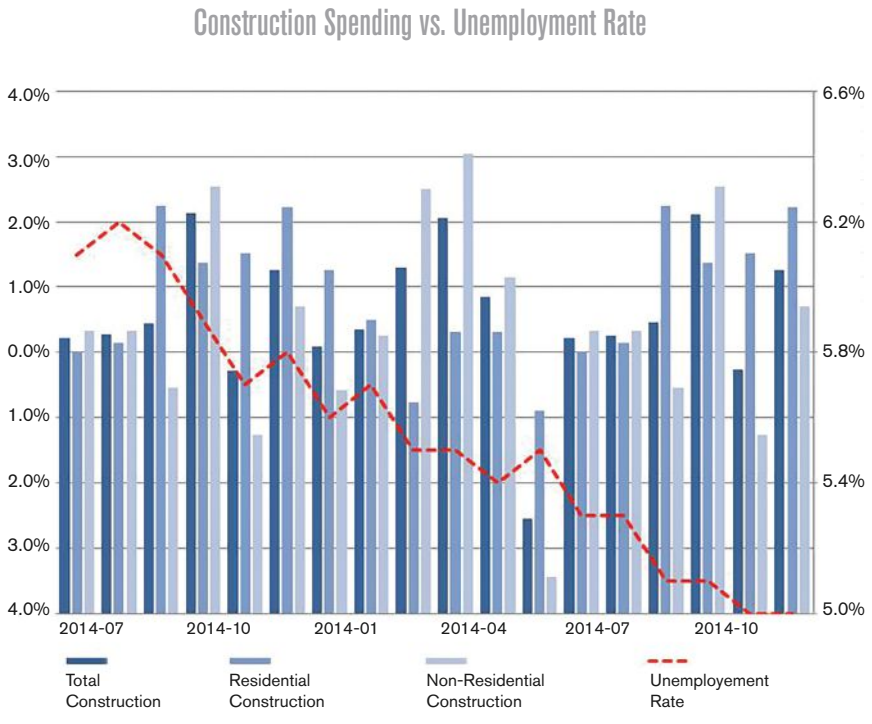


Figure 2.



The growing construction worker shortage and minimal public sector growth of just 1 to 2 percent will also impact growth expectations.

cuts precipitated by the roughly 50-percent decline in oil prices since June 2014 and new restrictive legislations affecting the coal industry. The growing construction worker shortage and minimal public sector growth of just +1 to +2 percent will also impact growth expectations. As a result, the full 2015 growth forecast for nonresidential construction is expected to soften from +8 percent to +5 percent. Depending on the oil price recovery, mid to upper single-digit growth for 2016 is likely.

INCREASE IN BUILDING PERMITS IN THE NORTHEAST

The Northeast held the lowest volume of new building permits by region in 2014 but surged +122 percent between July 2014 and June 2015 to 4.42 million. Meanwhile, the Midwest took the bottom spot, as it grew modestly at +7 percent. The Southern and Western regions nearly grew in tandem at +13 percent and +11 percent, respectively.

The Northeast region's growth in new building permits signals a significant opportunity for the building materials sector, potentially tempered by the looming shortage of construction labor.

Total construction spending has increased +13.7 percent for the similar time period, slightly lower than the +15.5 percent growth in new building permits, which may be partially explained by the skilled labor shortage. CBO

Amit Nadiv is vice president, credit analyst manager at Euler Hermes and is responsible for monitoring the company's manufacturing portfolio within information and grading. Euler Hermes is a provider of trade credit insurance, with its North American company protecting and insuring over $100 billion of regional trade transactions annually. Visit eulerhermes.us.





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Moving Beyond Buckets

5 attachments to expand your excavator or wheel loader's versatility

BY RON HADAWAY

Heavy equipment may be more versatile than you think, especially when paired with the right attachments. If you are just using buckets, you may be losing out on revenue growth opportunities by not considering attachments as a way to increase equipment versatility.

Instead of only owning basic attachments, such as buckets for your excavator or wheel loader, you should consider purchasing or renting unique attachments. Moving beyond buckets can help expand your business year round, such as replacing less efficient machines, lowering operating costs and increasing productivity.

Power tilting couplers, hydraulic breakers, clamps, snow pushers and multipurpose buckets are five of the most popular excavator and wheel loader attachments that offer a low initial investment with a high rate of return. These five attachments can provide a more cost-effective alternative than adding other dedicated machines on your jobsites.



1. POWER-TILTING COUPLERS

Investing in excavator attachments can help you adjust to changing market segments. Power-tilting couplers may replace multiple attachments, coupled with manual labor, on a jobsite. When paired with an excavator, a power tilting coupler can be angled 90 degrees left or right for up to 180 degrees of flexibility. Increased attachment flexibility can help your operators save valuable time because they may not need to reposition the excavator as frequently while working or stop to change attachments to perform certain tasks. This is especially beneficial when operating a hydraulic breaker to help demolish concrete or when working under or around objects. This attachment can be most useful for those working in general excavation, underground utility and grading and erosion-control applications.

2. HYDRAULIC BREAKERS

If you are running a dedicated excavator only for heavy digging applications, you may be missing an opportunity. For instance, some harder applications require a more reliable attachment to optimize productivity. Nitrogen-powered breakers are equipped with an upper/lower suspension system that isolates the power unit from the housing, making it an ideal fit for a variety of demanding applications. In addition, many manufacturers offer breakers with two-speed controls that can be manually adjusted between low- and high-frequency settings. This allows the operator to match the breaker impact rate to the working conditions for better productivity.

Hydraulic breakers also offer a variety of tool points, so it is important to match the right tool point to the application for maximum jobsite production. Four common tool points include:

- *Moil tool point*—Everyday demolition applications
- *Chisel tool point*—Provides more breaker control when a breaker is being used for general excavation or cutting concrete
- *Blunt tool point*—Breaking and fracturing large pieces of concrete or block in heavy construction applications
- *Pyramidal tool point*—Breaking hard, abrasive material in demolition applications

Additionally, some manufacturers provide an automatic lubrication system for their hydraulic breakers that delivers a constant flow of grease and eliminates manual greasing intervals.

3. CLAMPS

Hydraulic and pro-link wedge lock clamps can expand excavator versatility when paired with multiple bucket widths and lengths. Clamps enable precise movement and positioning and help secure material for superior loading and material-handling applications. When not in use, the clamps can be retracted, making the attachment prime for demolition, site preparation and land-clearing.

4. SNOW PUSHERS

Transform your wheel loaders into all-season machines when paired with a snow-pusher attachment. This attachment can be mounted directly to general purpose or light-material wheel loader buckets, depending on the manufacturer, to help easily clear parking lots, driveways and roadways. If your wheel loaders sit idle in winter, consider renting a snow-pusher attachment.

5. MULTIPURPOSE BUCKETS

Multipurpose buckets can add versatility to wheel loaders. They can load, carry and dump granular materials; grab irregularly shaped objects and doze, level or spread soil and fill. Many manufacturers offer multipurpose buckets with reinforced mounting plates for longer service life and reduced maintenance.

Attachment connection systems and auxiliary hydraulics allow many sizes of crawler or wheel excavators to be effective tool carriers for a wide assortment of attachments. Additionally, wheel loaders offer machine-specific attachments that have turned these heavy-duty machines into all-season assets. These attachments can help you expand your business beyond earthmoving projects and produce a higher return on investment. CBO

Ron Hadaway is a product manager with Doosan Infracore Construction Equipment America. Hadaway oversees product development efforts relating to the performance and function of the company's lines of excavators, wheel loaders, articulated dump trucks, attachments and accessories in North America. Visit doosanequipment.com.



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Get the Skills to Save Yourself

Learn the importance of incorporating self-rescue into your fall protection plan

BY CHRIS COYLE & SHAWN CHERRI

The first thing fall-protection trainers ask when they go to a jobsite is, "What will you do if someone falls and is left suspended in their harness at height?" The immediate response is almost always, "Call 911." This answer is okay if the fire department has the equipment and the training, but not all firefighters have the ability to perform an at-height rescue.

According to a study published in the Journal of Occupational and Environmental Hygiene, the median time required for a fire crew to complete a confined-space rescue ranged from 48 to 123 minutes. When hazardous materials were present, the median range increased to 70 to 173 minutes.

The American National Standards Institute (ANSI) recommends a fall victim be rescued in less than six minutes. Even the quickest emergency response team might not be able to arrive that fast—much less safely complete the rescue.

PROMPT RESCUE IS CRITICAL

If a worker falls and his fall protection gear saves him, it is too early to breathe a sigh of relief. A worker may have fallen because of a medical condition or because he was struck by a dropped object.

He may also have collided with a structure during his fall. Without prompt rescue, the worker is at a greater risk of sustaining medical complications.



Suspension trauma, also known as harness-induced pathology, harness hang syndrome (HHS) or orthostatic intolerance, occurs after a fallen worker is suspended for too long in his harness and the harness straps restrict his blood flow, causing blood to pool in his legs.

This reduces the flow of oxygenated blood to his heart, brain and kidneys. Although every individual reacts differently, research indicates that suspension of a worker in a fall-arrest device may result in unconsciousness, followed by death. There are many factors that affect the onset of suspension trauma, including the following:

1. *The health of the individual and any pre-existing medical conditions*—For example, if a worker has a pre-existing cardiac condition, he could be at greater risk of suspension trauma.
2. *The type and fit of the harness*—An ergonomically designed and properly fitted harness may help alleviate pressure on the femoral veins and arteries.
3. *Immobility*—If the worker is not able to move his legs, he is at greater risk for suspension trauma.
4. *Age*—The elderly are most at risk due to less responsive arteries and veins and a less robust heart.
5. *Dehydration and exhaustion*—Both of these conditions increase the chance and speed of suspension trauma occurring.

With that said, determining exactly who will be affected by suspension trauma is impossible to know. This means that every suspended worker should be rescued as if he is going to have complications—hence ANSI/OSHA's prompt rescue guidelines.

THE IMPORTANCE OF SELF-RESCUE

If you are an at-height worker who has suffered a fall, you don't want to worry about how long it might take for others to get you down safely. If you work alone, you definitely don't want to be stuck wondering how long it will take before someone finds you and then alerts those responsible for your rescue. That's why self-rescue is an important part of any fall protection program. In fact, self-rescue is an easy but often overlooked means of rescue.

A wide variety of self-rescue equipment can easily be incorporated into a fall arrest system and used to complete the entire rescue. If a person working at height has properly selected and used his or her fall protection equipment, 90 percent of workers will be able to perform a self-rescue. Self-rescue should include the following steps:

1. Climbing back up to the level from which he fell.
2. Returning to the floor or ground to be evaluated for possible medical attention per OSHA.
3. Removing all components of fall arrest system impacted by the fall event from service and documenting the components with name, date and activity at time of fall and giving the equipment to management.

Self-rescue devices attach to your safety harness and allow you to lower yourself to the ground or raise yourself to your starting position.

Because a self-rescue device is your number one resource to turn to in the event of a fall, make sure it gives you a smart, efficient escape that minimizes risk to you and your coworkers, as a rescue can be just as dangerous for the rescuer as it is for those needing rescue.

YOUR RESCUE PLAN

Companies that have not reviewed or revised their rescue plans recently should take action now. To help expedite the process, free rescue plan templates specifically designed to help you comply with OSHA and ANSI guidelines are available at http://ow.ly/Vy5UU.

All rescue plans should address what should happen immediately after a fall has occurred, and outline a strategy or procedure for safely retrieving a person who has fallen from an elevated work surface and is suspended in a full-body harness.

They should also be individualized to all locations where personnel are employed to work at height. In situations where a rescue can be planned and anticipated, the best approach is almost always the simplest. The four basics of rescue are:

1. Keep it simple.
2. Keep it safe.
3. Do not use knots.
4. Do not use knives.

When developing a rescue plan, the first things to consider are:

- If a fall occurs, where will the worker be located after the fall?
- Can a rescuer safely access the worker's anchor point?
- Are there safe anchors available for the rescuer and the rescue system?
- What resources are already available? Are there aerial lifts or cranes with personnel baskets on the site?

Next, address the hierarchy of the rescue plan, which should be mapped out in the following order:

1. *Self-rescue*—The first and best approach to rescue is always self-rescue. If a worker is suspended and uninjured and can climb down or up by grabbing onto an existing structure, that is ideal.
2. *Assisted self-rescue*—The second best approach is assisted self-rescue, which is an intermediary step that is used when a fall victim cannot reach a nearby structure. In this scenario, a worker deploys suspension trauma straps or steps on a ladder to help reduce suspension trauma while others work to retrieve him.
3. *Mechanically aided rescue*—The next best approach is a mechanically aided rescue, which employs an aerial lift or a crane with a personnel basket or specialty rescue equipment to retrieve a suspended worker who has fallen.
4. *Pick-off rescue*—The final approach to rescue, which should only be used by highly skilled rescue personnel, is a pick-off rescue. This is a technically challenging method that involves rappelling down to a fall victim, hooking up to him, then rappelling down together to help lower the victim to safety.

Safety is a culture that must be engrained in how employees work every day. Too often, companies only invest in proper fall protection equipment and training after a tragic event occurs.

Although most companies now recognize the hazards of working at height, the next step is for them to realize that rescue plans are part of the same equation—to be addressed before an incident, not after, so that workers are kept safe at all times. CBO

Chris Coyle is the hard goods product manager at Capital Safety. Shawn Cherri is a rescue specialist at Capital Safety. Capital Safety has over 70 years of accumulated expertise and 17 dedicated safety training centers. Capital Safety provides customers with fall protection systems, fall arrest equipment and rescue and training resources. Visit capitalsafety.com.



Chris Coyle



Shawn Cherri

The Benefits of Cloud Control

A present & future solution for workforce management

BY ROBERT BENSON

In recent years, numerous software and app companies have joined the game of trying to solve construction business owners' mobile workforce management problems. Contractors still using a paper-based time tracking system grapple with questions like, "How do I know when an employee or crew actually showed up to work, and that they are not exaggerating their hours?" Or, "How do I keep track of what I'm spending on various tasks at the jobsite versus what I budgeted?"



It has become increasingly necessary for business owners to use technology in order to stay competitive and compliant with labor laws and regulations. However, the first wave of digital labor tracking required back-end software to be installed on a PC or several PCs in the office. Installation took time and effort, and the program was only accessible on the desktops of one or two individuals in an organization.

These days, with the demands of the competitive market, busier schedules and more spread-out workforces, construction business owners want the ability to access quality, real-time information anytime and on any device, for greater accessibility of information in the field and more control over one of their biggest operating expenses: labor.

With digital workforce management in the cloud, this is possible. Contractors only stand to benefit in an industry where mobility and flexibility are key. Cloud computing means the ability to access software that is hosted on a remote server. There are a number of applications you may use and not realize are actually hosted in the cloud, such as Facebook, Gmail, Yahoo, Pandora and more. Software as a Service (SaaS) just means you're accessing these Web-hosted applications on a subscription basis by paying a regular fee. SaaS benefits include lower upfront costs with no new hardware needed, lower total cost of ownership with no on-site server needed and total scalability.

There are many types of cloud-based applications designed for contractors that are becoming more popular by the minute. Cloud-based estimating and bidding software lets contractors work on bidding new projects from wherever they are, so getting new business falls easily into their workflow. Scheduling software based in the cloud means projects can be scheduled and changed on the fly, by anyone with permission.

Customizable, role-based permission is a huge benefit of cloud computing. But the main benefit of cloud-based computing is that it tears down the wall between

the office and the field, making executive decision-making and the construction site accessible and possible from anywhere.

Cloud-based workforce management solutions consist of software that is stored on a remote server, as well as a field-based data collection device that can communicate with that software, whether it's a rugged clock or an app for your smartphone.

Clock-ins collected in the field are captured by the software, and payroll administrators, management or owners can now access time and cost code records as they are created. This allows them to instantly see their workers' whereabouts using the collection device's GPS tracking, so they can monitor hours and projects as they progress, stop overtime before it happens and handle payroll much more quickly.

Owners may wish for employees to be able to approve their time cards in the field; for supervisors to have more capabilities, such as time card editing from the field; and for HR or payroll administrators to have yet another, more detailed level of access. Essential to security and compliance in a system this open and accessible is for those with appropriate permissions to be able to lock the information to further edits. With a cloud-based workforce management solution, you can accurately track your employees' time and attendance, process payroll more quickly and easily and do so much more to run your business more efficiently at any time, from anywhere.

> Cloud-based workforce management solutions allow contractors the flexibility they so sorely need and ironically returns them to a time before so much paperwork existed.

You can also rely on employees for a greater degree of self-management. This allows contractors the flexibility they so sorely need these days, that ironically returns them to a simpler time before so much paperwork existed, freeing them to get their hands dirty, meet with more customers and do whatever it takes to watch their business grow. **CBO**

Robert Benson is director of product management for ExakTime, a provider of automated time and attendance systems to construction trades in North America. Visit exaktime.com or email Benson at robert.benson@exaktime.com.





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Impacting Your Operation

Select compaction equipment that won't crush company profits

BY DARRELL ENGLE & TIM HOFFMAN

Contractors put a ton of faith into their equipment, tools and crews to complete projects on time and below budget. Whether purchasing or renting, contractors expect that the equipment will perform as promised and come with a relatively simple maintenance schedule. It just makes sense to find the best equipment available to avoid downtime and maximize ROI. This is especially true with compaction equipment.



WHY COMPACTION EQUIPMENT?

Compaction equipment is one of the fastest growing and most diverse product lines, from tampers to plate compactors and trench rollers to asphalt rollers. They compact materials in trenches, around foundations, and in landscaping and roadwork. Additionally, the growing need for housing developments and road construction repairs means more contractors will be looking to replace old equipment to tackle their growing project lists.

SMALL EQUIPMENT, BIG RESULTS

Light compaction equipment is a good addition to a fleet because of its high ROI and the range of projects it can handle, including compacting soil in trenches and asphalt on pathways. Select compactors that are dependable and easy to use and maintain to ensure several years of use with routine maintenance. Such equipment also requires a relatively minimal investment. Look for units with productivity enhancing features that reduce service time and are highly maneuverable.

For forward plate compactors, choose units with integrated water distribution systems that don't require piping. This prevents the plate from collecting asphalt and virtually eliminates the risk of clogged or broken water systems.

When looking for reversible plate compactors for larger pavement jobs, choose models that feature eccentric weights. These types of weights do not require regular oil checks like standard weights, which minimizes downtime. For compaction work in the narrowest of areas, choose a rammer that allows workers to achieve maximum productivity. Lightweight units with narrow tamping feet make it easy for operators to maneuver close to

obstacles. To minimize servicing downtime, some manufacturers incorporate large air filters in the top of the rammers that operators can change without using a single tool.

Contractors should also consider trench rollers, especially if they are assisting with utility projects. Operators can move the units by hand or a remote control. This allows them to compact soil in potentially dangerous areas. Trench rollers feature a smooth or padfoot drum for optimal traction and compaction on the toughest soils. Contractors can also use trench rollers to prep soil before laying concrete. Look for units that have easily accessible engines and components.

BIG EQUIPMENT, BIG POTENTIAL

Light compaction equipment allows contractors to tackle small or midsize projects, but with larger soil and asphalt rollers, contractors can position themselves as a one-stop source for big applications, including city streets and highways.

Cross-mounted engines on soil rollers sit perpendicular to the frame, rather than parallel. This allows technicians to easily reach all necessary components and the hydraulic pump inside the engine compartment, so maintenance is easier and faster. Also, consider features than can prevent unnecessary maintenance altogether.

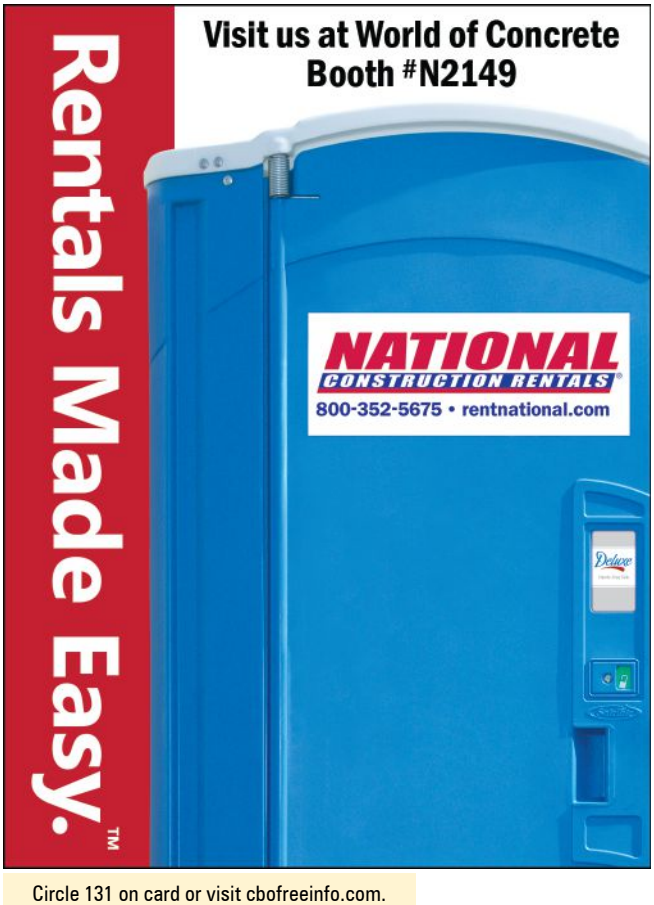
Corrosion-free water tanks and sprinkler tubes on asphalt rollers prevent rust from forming inside and clogging the water system. Some asphalt rollers—51-inch wide drums or smaller—feature self-draining sprinkler tubes and nozzles. During freezing temperatures, these can help prevent ice from expanding inside if water is left in the lines.

Contractors often use soil and asphalt rollers 8 to 12 hours per day, so if the operator needs to strain or bend to see the drum edge and working surface, it could impact their productivity. Choose units with sliding seats and user-friendly controls that move with the operator to provide optimal visibility of the working surface and drum edge and eliminate the need to lean or twist. Also consider what it will cost the contractor to run the unit. Rollers with rpm-management systems can reduce fuel consumption as much as 15 percent by automatically idling the diesel engine after 10 seconds in neutral.

Intelligent compaction (IC) systems on soil and asphalt rollers also enhance operator productivity. Having an IC system optimizes compaction by providing real-time data. Some IC systems use global navigation satellite systems to track the number of completed passes, and drum-mounted accelerometers measure the surface's relative material stiffness. This means



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the operator can review stiffness results to minimize the number of passes almost immediately.

The system also allows the contractor to set project parameters, which alert the operator after achieving optimal compaction levels. Contractors can also use the data from IC systems to prove to regulating agencies, such as state departments of transportation, that compaction standards were met.

This minimizes the risk of litigation or having to restart the project.

When considering IC systems, look for units that offer excellent mapping capabilities, which show missed areas, spots that need additional passes and where overcompaction occurred.

Additionally, look for an IC system that works on both asphalt and soil, allowing the accelerometers to measure the drums' responses to ground conditions about 3 to 5 feet below the surface, not just the asphalt mat. That way, as surface density increases, the frequency response of the drum changes. The accelerometers measure that frequency change, which registers on the display inside the cab.

AFTER THE SALE

As with any equipment, manufacturer support after the initial sale protects the contractor's investment and extends the service life of the machines. Equipment training from the dealer or manufacturer maximizes operator productivity and reduces the risk of premature equipment wear, especially on pavers, soil rollers and asphalt rollers. Most manufacturers include operator's manuals, but look for ones that also post them online.

Consider a manufacturer that offers a wide breadth of products. This eliminates the hassle of sourcing a variety of machines from numerous manufacturers to complete an equipment fleet. Plus, it's more convenient for contractors to order any replacement parts or materials.

CRUSH THE COMPETITION

Selecting the right compaction equipment might seem like an easy task, but taking the time to look at how each feature impacts the overall operation can have big payoffs. From cross-mounted engines to compact footprints, it's these features that will feed a contractor's productivity and profits. CBO

Darrell Engle is the Atlas Copco product manager for light compaction equipment. Tim Hoffman is the Atlas Copco product manager for rollers. Engle and Hoffman both have more than 20 years of experience in the construction industry. Visit atlascopco.com/us.



Tim Hoffman

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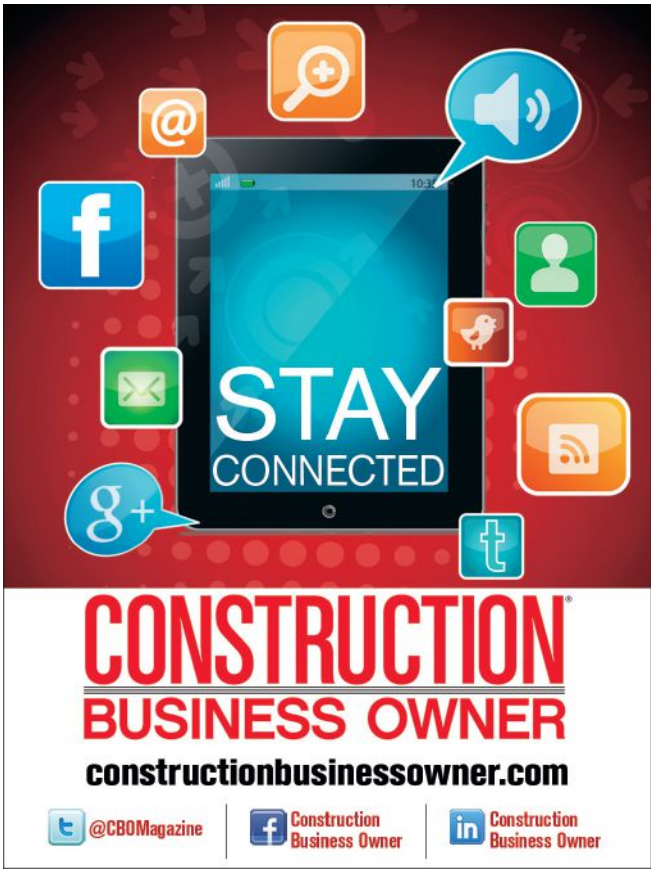
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Top 5 Ignored Maintenance Tips

Don't let your company pay for the costly consequences of neglect

BY SCOTT RAINWATER

A contractor's list of maintenance tips ranges from checking fluids daily and properly lubricating components to contacting your local dealer for support. Learn about what you might be missing from the following compilation of the five most commonly ignored wheel loader and excavator maintenance tips.



WHEEL LOADER MAINTENANCE TIPS

1. *Tires and wheels*—Checking tire air pressure and missing lug nuts should be part of your wheel loader operator's daily routine. Check the angle of wheels compared to axles, as excessive lean can be an indication of worn or damaged wheel bearings.
2. *Drive shaft*—Check the drive shaft U-joint straps and retaining bolts, along with any carrier bearings, for misalignment or lack of lubrication. Poorly maintained driveline components can lead to costly repairs.
3. *Radiator*—Make sure the radiator is clean of buildup to avoid engine overheating in warmer months. Any coolant leak or hydraulic/transmission leak near the radiator can lead to excessive buildup of dirt on the radiator fins, which restricts or blocks airflow, causing an overheat condition that can damage the engine and other components.
4. *Transmission oil levels*—Check levels regularly and be careful not to overfill. Overfilling the transmission can actually cause it to overheat during heavy-use conditions.
5. *Bucket*—Make sure to regularly check bucket edges and flip when needed. Not only will this extend the life of the bucket cutting edge, but it will reduce the effort needed as the machine drives into material to fill the bucket.

EXCAVATOR MAINTENANCE TIPS

1. *Swing gearbox*—Gearboxes require an oil change at approximately 1,000-hour intervals. The swing gearbox oil level is often overlooked and can cause costly damages if ignored. Low levels can mean a leak in the turntable. Operators should always look for any signs of water getting into the reduction gear itself. Water can cause rust and pitting on bearing surfaces.
2. *Hydraulic cylinders*—Always check the condition of the chrome on hydraulic cylinder rods. Imperfections in the chrome will collect foreign materials that will start to eat at the seals in the cylinder gland, causing the cylinder to leak around the rod. New seals fix the problem for a short time, but if the damage is ignored, it will result in another leak.

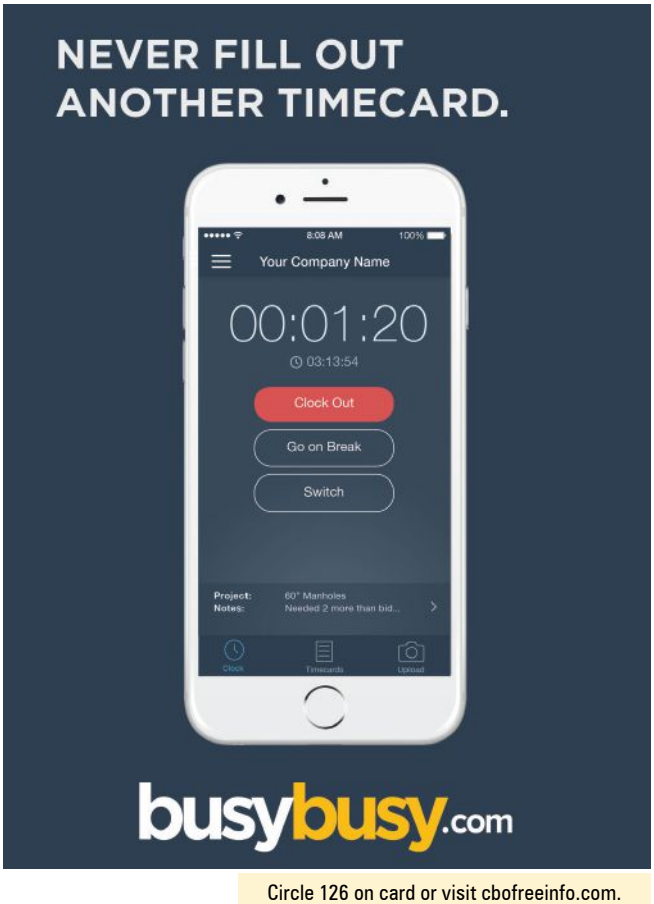
3. *Battery*—A bad cell in a battery can cause unstable electrical faults. Most systems must see at least 18 volts at all times while in operation. At any level below 18 volts, the system becomes unpredictable, which can lead to issues with throttle control, hydraulic functions and false readings.
4. *Undercarriage*—Excavator tracks must be kept properly adjusted to maximize longevity and minimize wear on the track and its components. Track tension should be monitored regularly during the day, as tension will change depending on site conditions and OEM specifications. Correct tension is the biggest factor operators can control that greatly impacts undercarriage life. Check the undercarriage at least once a week and learn how to do a quick undercarriage appraisal. Wear limits that operators need to be aware of should be listed on all the undercarriage components, and include idler and roller wear and bushing wear on the track chain.
5. *Lubrication*—Grease is the lifeblood of all pins and bushings. As a general rule, operators should grease all pins and bushings daily. If multiple operators are using a single machine, you can mark less obvious grease points with orange marking paint around the grease nipple to remind all users to perform this task. Don't overgrease, though. One to three shots of grease is plenty to do the job.

A final, frequently ignored maintenance tip involves the keeping of accurate maintenance records. This applies to all of your heavy equipment. Record keeping may seem tedious, but holding on to service records and invoices for oil, filters and repairs can provide invaluable information in the future when evaluating the service life of your machine. Good service records can help boost resale value and records are also helpful when working with your dealer if any issues should arise.

The consequences of neglect can be severe and costly—it can result in downtime, lost productivity, lost revenue and unexpected costs, such as machine rental and reduced trade-in values. Any one of these factors is a strong argument for a focused effort on these frequently ignored maintenance requirements. CBO

Scott Rainwater is the assistant manager of construction equipment tech support at Hyundai Construction Equipment Americas Inc. He has more than 20 years of construction equipment industry experience. Visit hceamericas.com.





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Doosan Unveils DX140W-5 Wheel Excavator

For applications that require a heavy-duty excavator with rubber tires, the DX140W-5 wheel excavator is a popular choice for customers who regularly drive on finished concrete or asphalt surfaces. The 14.3-metric-ton wheel excavator replaces the dash-3 (interim Tier 4) models with a Tier 4-compliant, 124-hp Doosan DL06 engine and features improved fuel efficiency from a new Smart Power Control (SPC) selectable engine mode. The excavator offers customers multiple enhancements, including improved operator comfort, machine performance and enhanced visibility.

doosanequipment.com

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Metabo Introduces New Flat-Head Angle Grinders

Metabo USA recently added a series of 6-inch grinders into its family of low-profile, flat-head angle grinders. They feature a patented gear drive that allows for an extremely low-profile head, enabling the grinder to fit into angles as low as 39 degrees and into narrow spaces as low as 2 5/8 inches. The new flat head grinders are available in three versions, one with a side locking switch (WEF15-150), a nonlocking paddle switch version (WEPF15-150) and a version with nonlocking paddle switch and mechanical brake (WEPFB15-150).

metabousa.com

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Blastrac Offers Accessory Kit for Dust Collectors

Blastrac now offers an optional accessory kit (CP-10676) for Dust Collector models BDC-112EU and BDC-1216. This wand package is included with Model BDC-1114-PKG, which also includes a HEPA Filter. Accessory kit CP-10676 includes one 13-foot hose, two adapter hose cuffs that fit models BDC-112EU, BDC-1216 and BDC-1114-PKG and one 14-inch bare floor brush with a 54-inch wand. Blastrac Dust Collectors are specifically designed for the rigors of commercial contractor use.

blastrac.com

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Chicago Pneumatic Launches Versatile Light Tower

Chicago Pneumatic has added a new light tower to its lineup with the launch of the CPLT V15. It is Chicago Pneumatic's first model that features a heavy-duty polyethylene canopy for rugged durability that is designed to withstand the most extreme elements and working conditions. With a 28-gallon fuel tank, the light tower features a long fuel autonomy that allows it to run for 50 hours of operation without the need to refuel, helping to maximize productivity and illumination time. A Kubota EPA Tier 4 engine powers four high-performing, 1000-watt, metal halide lamps.

cp.com

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Milwaukee Introduces M12 7.8KP Thermal Imager

Milwaukee Tool expands its M12 offering with the new M12 7.8KP Thermal Imager, featuring the highest pixel density in its class and new dual sense pixel technology for superior definition of hot and cold details within the same image. The imager provides a solution for predictive maintenance or troubleshooting applications, taking high-quality images that rival more expensive imagers on the market in a more compact and easy-to-use design. Dual sense technology allows the imager to individually optimize pixels.

milwaukeetool.com

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E-Z Drill Features New 210B-2 SRA Drill

E-Z Drill's 210B-2 SRA concrete drill maximizes accuracy in concrete drilling projects without disturbing the subgrade. The two-gang slab rider drill is easily maneuverable, making it ideal for drilling hundreds of holes for lane additions, airport work and full-depth repair projects. The compact frame makes the drill well-suited for jobs with cramped worksites that also require drilling slabs with a range of thickness. The 210B-2 SRA can operate within a 4-foot patch and easily drill to the center of thick slabs, while still having enough space for workers to move around the drill.
ezdrill.com
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CAT Announces 307E2 Mini Hydraulic Excavator

The new Cat 307E2 expands the mini hydraulic excavator machine range to include an additional solution for the 7- to 8-metric-ton weight class. The 50.3-hp Cat C2.4 turbo engine and the high-definition hydraulic system, which is load sensing and flow sharing, allows the machine to offer overall operational effectiveness. The 307E2 offers maximum stability, reach and lift capacity with its standard tail swing and fixed boom design. The Compass monitor allows the operator to quickly enable and modify machine features.
cat.com
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Buyers Products Introduces SnowDogg VUT65 Plow

Buyers Products introduced the new SnowDogg VUT65 plow for utility vehicles. The new plow is rugged and versatile, offering operators aggressive snow removal in tighter spaces with more control. Features of the new plow include optimized weight designed to work with most full-size utility vehicles, a simple, rugged design featuring Buyers' signature stainless steel for increased durability, optimal V-plow design with narrow, 60-inch width, a 70-degree attack angle and fast-acting hydraulics, double-acting cylinders provide powerful back-dragging and more.
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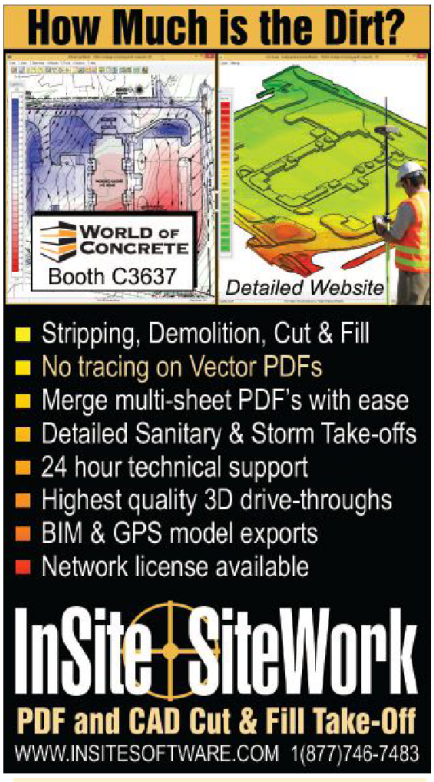
Pettibone Announces Extendo 944B Telehandler

Pettibone introduces the Extendo 944B, the first model in its new generation of telescopic handlers. The Extendo 944B is powered by a fuel-efficient, 117-hp Cummins QSF 3.8 Tier 4 Final turbo diesel engine, featuring electronic control and protection with SCR aftertreatment. A Parker IQAN-MD3 display has been added to provide instant engine and aftertreatment diagnostics. Delivering a maximum load capacity of 9,000 pounds, the 944B provides forward reach up to 30 feet, 3 inches and a maximum lift height of 44 feet, 4 inches.
gopettibone.com
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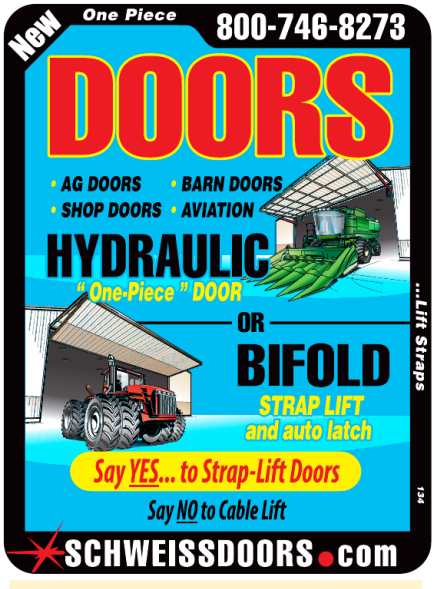


Aluma Introduces New TR-8200-14K Equipment Hauler

Aluma introduce its new 14K equipment hauler. The TR-8200-14Ks are 16 to 22 feet long and come with two 7000-pound torsion axles, 30-inch beavertail ramp, six tie rings, 10K spring-loaded drop leg jack, LED lights and front retaining rail, all standard. The 18-foot aluminum construction weighs 2,350 pounds and guarantees years of maintenance-free use.
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Annual Value of Construction Put in Place

2013/2014/October 2015 Annual Rate Comparison

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

	2013	2014	Oct 15
Total Private Construction	**627,447**	**704,483**	**802,435**
Residential	331,355	349,643	399,036
Nonresidential	296,091	354,840	403,399
Total Public Construction	**271,760**	**280,019**	**304,946**
Residential	5,915	5,566	6,569
Nonresidential	265,845	274,453	298,377
TOTAL Construction	**899,206**	**984,502**	**1,107,381**

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

$1,107,381

OCTOBER 2015 TOTAL ANNUAL VALUE OF CONSTRUCTION PUT IN PLACE

"Allowing for the possibility of occasional and minor backsliding, we expect healthy business conditions for the design and construction industry to persist moving into next year." said AIA chief economist Kermit Baker, Ph.D.

AIA Architectural Billings Index (ABI)

	National		*Regional - Billings				*Sectors - Billings			
Month	Billings	Inquiries	Northeast	Midwest	South	West	Multi-family Residential	Commercial/ Industrial	Institutional	Mixed
May-15	51.9	61.5	45.2	52.3	54.6	49.9	45.9	48.3	55.2	52.5
Jun-15	55.7	63.4	50.4	57.2	54.9	50.7	47.0	51.6	59.1	54.7
Jul-15	54.7	63.7	53.5	58.2	55.7	53.8	49.8	53.4	57.3	56.8
Aug-15	49.1	61.8	46.8	56.1	53.8	50.2	49.5	49.7	53.7	52.8
Sep-15	53.7	61.0	43.7	54.2	54.5	51.7	49.5	50.9	51.5	52.6
Oct-15	53.1	58.5	49.2	52.6	56.2	54.4	52.5	55.1	51.4	54.9

For more information on the index or to subscribe to the complete historical data going back to 1995 for your internal analysis, **please contact James Chu, director of research at the AIA, at jchu@aia.org or 202-626-8045.** The ABI presents monthly construction billings data, using a base score of 50. A score of more than 50 indicates a growth from the previous month, and a score of less than 50 indicates a contraction from the previous month. A score of 50 indicates no change. Source: The American Institute of Architects (AIA), Architecture Billings Index (ABI).

*Regional and Sectoral indexes are three-month moving averages, due to small sample size. All data is seasonally adjusted.

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