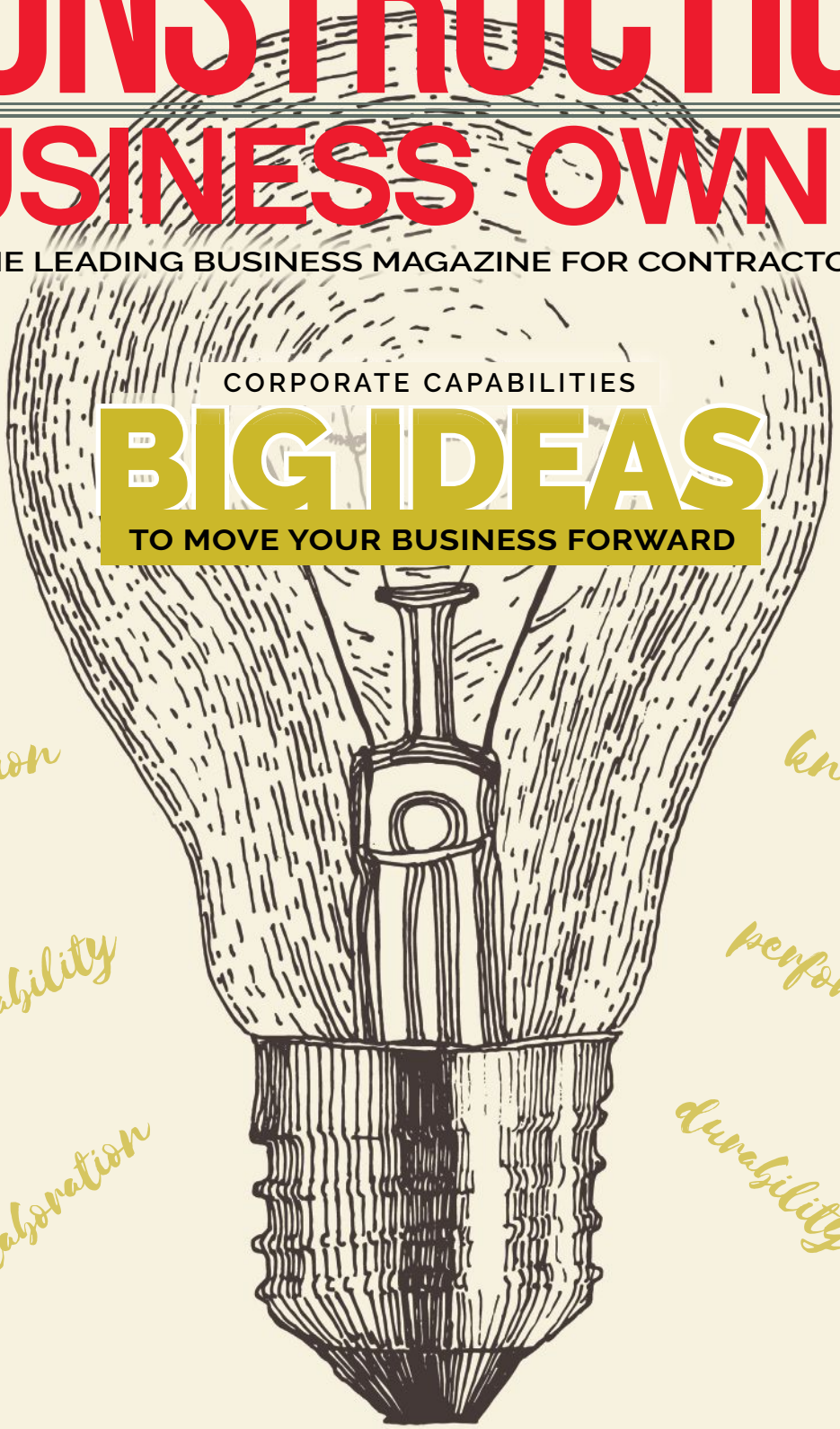
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CONSTRUCTION BUSINESS OWNER

THE LEADING BUSINESS MAGAZINE FOR CONTRACTORS



CORPORATE CAPABILITIES

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TO MOVE YOUR BUSINESS FORWARD

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10 TIPS FOR ADTS

RETHINKING EQUIPMENT
PAGE 24



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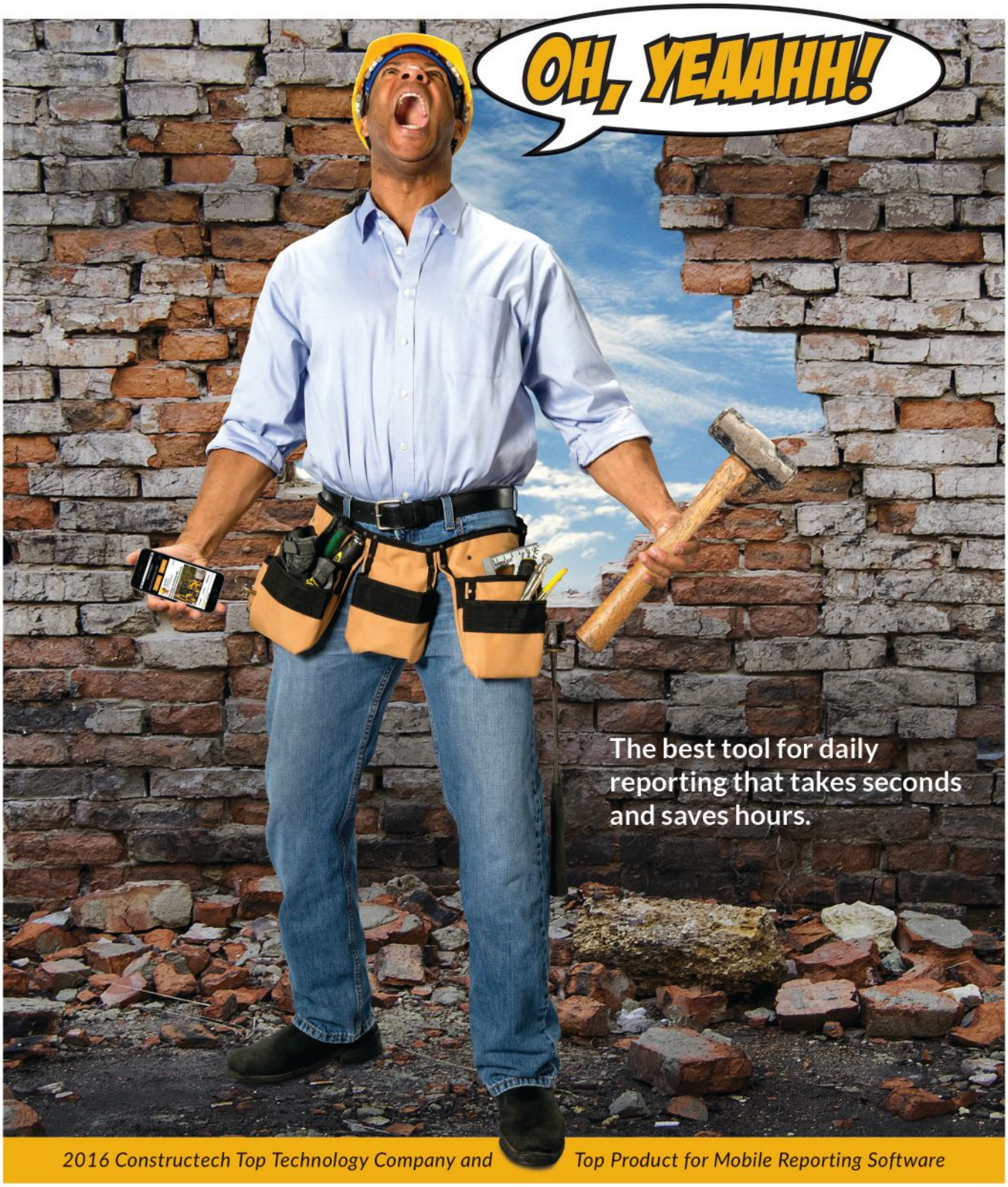
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FROM THE EDITOR | Kathy Wells

It's time again for *CBO*'s annual Corporate Capabilities special company profile section. This section is designed to introduce and familiarize readers with industry partners who have big ideas to move your business forward. Beginning on page 30, we are excited to share 49 pages of profiles highlighting these industry leaders and their histories, products and services. Whether your business is looking to reduce costs, simplify workforce collaboration or enhance fleet management, it's important to continually explore your options. If you are seeking to change up your processes or find a new solution to an old problem, we encourage you to take the next step and find out how these vendors can help you. Every page includes a website and contact information for each company, so please feel free to reach out with your questions.



In 2017, our editors want to hit the dirt. If you're working on an innovative project or jobsite, *CBO* wants to be there to cover it. Send a tweet to @KathyWellsCBO or @EManningCBO with the details of your 2017 project, and you might get a visit from the *CBO* team.

In this month's cover series, our authors focus on rethinking equipment. Beginning on page 24, author Amber Reed dives in to the reasons contractors rely on smaller machines for substantial versatility and utilization. In her article, "Big Productivity Comes in Small Packages," look for key insights from Gregg Warfel, compact division sales manager of Terex Construction Americas. Next, "The Case for Well-Worn Jobsite Soldiers," begins on page 26. In this article, Christopher Mellott, vice president of aftermarket sales at JLG Industries Inc., explores why reconditioning is the affordable solution for fleet maintenance and growth. Finally, wrapping up the cover series on page 28, author Liz Dorland helps readers discover the right portable generator for their jobsites in "I've Got the Power," with expert advice from Dan Roche, the director of marketing for Briggs & Stratton portable power division.

This month, we're highlighting mobile communications in our Spotlight section on page 90. The article, "The Tough Solution," contributed by Dr. Muzibul "Muzib" Khan, an expert at Kyocera, studies methods for building efficiency and cost savings with rugged mobile devices. Stay tuned on constructionbusinessowner.com for some exciting news from *CBO* about an upcoming partnership with Kyocera.

Have you stopped by our website lately? We post online-exclusive articles and interviews daily. Turn to page 8 to check out a quick summary of some of the content only available on constructionbusinessowner.com.

Kathy Wells

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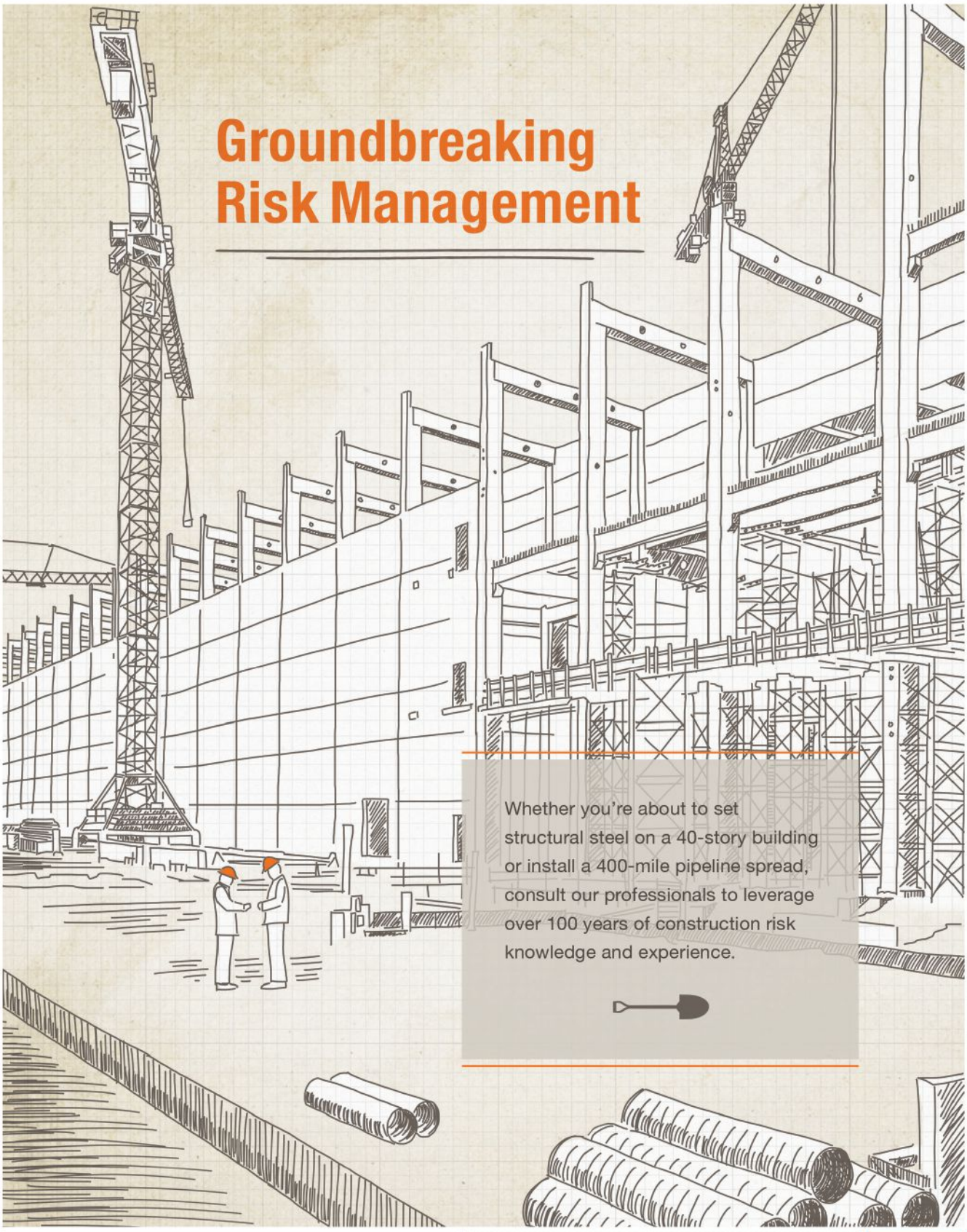
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Kawasaki Names Director of OEM Sales


Kurt Forrest

The Engines Division of Kawasaki Motors Corp., U.S.A. has announced the appointment of Kurt Forrest to head the company's OEM sales efforts. As director, OEM sales, Forrest will be responsible for oversight of KMC's relationships with the OEM community. Prior to joining Kawasaki, Forrest spent several years in the contract furniture industry, including a broad background in distribution channel development for Herman Miller North America. He has also served in leadership positions with related industry brands. The Kawasaki team reporting to Forrest consists of four OEM sales managers and a sales support and coordination team. Visit kcmcorp.com.

Hyundai Names District Sales Manager for South Central Region


David Vicha

Hyundai Construction Equipment Americas announced the appointment of David Vicha as district sales manager, supporting the company's authorized dealers throughout Texas, New Mexico, Colorado, Kansas, Oklahoma, Arkansas and parts of Louisiana and Missouri. Vicha has 21 years of experience in retail management. He spent the past 5 years in the equipment industry. Visit hceamericas.com

General Chipping Names Safety Consultant


Oscar Zamarron

General Chipping announced Oscar Zamarron has joined the team as safety consultant. Zamarron will aid in implementing an accident prevention program that focuses on training, compliance and strategic measures. Zamarron brings 17 years of experience to General Chipping. His past work includes safety leadership and training positions. He maintains several certifications across a range of specialties, including confined space and trench rescue, industrial hygiene and electrical standards. Visit generalchipping.com.

Minnich Manufacturing Adds Utility Sales Representative

Minnich Manufacturing announced the hire of Rick Gramoll as utility sales representative. The addition of a dedicated utility salesperson strengthens Minnich's commitment to the gas industry and continues the company's growth. Gramoll joins Minnich through a partnership with MBW Inc., where he serves as national sales manager for the utility division. For Minnich, Gramoll will focus on United States and Canadian sales of The Hornet utility drill. Gramoll has worked in MBW utility division sales for the past 3 years. Visit minnich-mfg.com.

Cavignac & Associates Appoints Risk Control Advisor


Chris J. Malicki

Chris J. Malicki, CHST, OHST, has been appointed to risk control advisor for Cavignac & Associates, announced Jeffrey W. Cavignac, CPCU, RPLU, CRIS, principal and founder of the San Diego-based risk management and insurance brokerage firm. Malicki brings to Cavignac & Associates more than 20 years of safety experience, as well as expertise as a general industry workplace safety consultant.
He is charged with evaluating clients' operations and developing effective risk and safety management programs for each. His primary focus is on identifying risks to workers and helping management implement corrective action. Most recently, Malicki served as a safety manager for the SMART Safety Group in San Diego, California, where he was employed for approximately 4 years. His industry knowledge stems from having been principal of Southwest Civil Contracting in San Marcos, California, and, before that, director of operations for Merritt Construction, also in San Marcos. Malicki is certified as an Occupational Safety & Health Administration (OSHA) outreach instructor. He holds accreditations as a Construction Health and Safety Technician (CHST) and Occupational Health and Safety Technologist (OHST). He is president of the American Society of Safety Engineers (ASSE), San Diego Chapter. Visit cavignac.com.

Tadano America Appoints Ingo Schiller Executive Vice President

Houston, Texas-based Tadano America has hired Ingo Schiller as executive vice president, reporting to Yo Kakinuma, president and COO. Schiller is positioned to take over as president and CEO, effective April 1, 2017, after Kakinuma returns to Japan. Most recently, Schiller served as senior vice president in product management for Manitowoc Cranes. Prior to that, he worked in sales for Liebherr Cranes. Visit tadano.com.

Terex AWP Names Genie Vice President of Commercial Strategy & Operations


Adam Rimmer

Adam Rimmer has been appointed to the position of Genie vice president, commercial strategy and operations for Terex Aerial Work Platforms (AWP). In this newly created role, Rimmer is responsible for marketing, product management, customer care, service, used equipment and AWP information technology (IT) of the Genie brand. Rimmer rejoins the company after serving in other roles within Terex. Previously, he led the Genie parts, service, used equipment and customer care organizations of the Americas. Rimmer assumed his position full time in July. Rimmer is based at the Genie corporate offices in Redmond, Washington. Rimmer transitions to this new role from his previous position as Terex vice president, global IT. Visit terex.com.

Lackmond Products Inc. Appoints Director of Customer Service

Lackmond Products Inc. has named Russell Ayers director of customer service, overseeing the company's inside sales strategies and operations for both the Lackmond Products and Lackmond Stone divisions. Ayers joins Lackmond Products after 38 years of experience working with UPS. During his time with UPS, Ayers worked in sales, operations, marketing and strategy. He also worked directly with many large accounts on growth and efficiency strategies. Visit lackmond.com.

ALL Promotes Richard McDermott to National Service Manager


Richard McDermott

The ALL Family of Companies announced the promotion of Richard McDermott to national service manager. McDermott is based in Chicago, Illinois, where ALL operates as Central Contractors Service. He started with Central in 1991 as a crane mechanic

and erector, traveling the country to service and assemble/disassemble equipment on the road. In 2001, he was promoted to service manager and equipment superintendent of the Chicago location. As national service manager, McDermott will be in charge of creating and implementing a cohesive approach to the proactive maintenance and prompt repair of all equipment across the company's 38 North American branches. The new position was created to help identify best practices that enhance the ALL Family's culture of service. With McDermott as the central point of contact for teams across the branches, ALL will have solid leadership to maintain the service model for which it is known. Visit allcrane.com.

Dexter + Chaney Announces Executive Team Promotions

Dexter + Chaney announced two additional promotions among the company's executive team. Scott Rosenbloom has been named the company's vice president of strategy. In his new role, he will oversee all product direction and management, as well as manage the company's third-party partnerships and technology integrations. Rosenbloom will continue to work at improving features and functionality within Dexter + Chaney's flagship Spectrum suite, while pairing those features with external technologies, services and integrations. Curt Westberg has been named vice president—customer. His duties will include managing client relationships, delivering customer communication satisfaction and retention strategies, developing client advocacy programs and increasing customer awareness and education of products and services. Westberg will be fostering client best practices and programs throughout the company's departments. Both Rosenbloom and Westberg will report to Dexter + Chaney President and CEO Norbert Orth. Visit dexterchaney.com.

SafeWorks Hires Vice President of Global Engineering

SafeWorks LLC welcomed Vishnu Irigireddy as vice president of global engineering. He will be based at the corporate headquarters in Seattle, Washington, and will report directly to SafeWorks' CEO Scott Farrell. Irigireddy is responsible for all product-related engineering functions, including new product innovation and development, technology road-mapping and management of intellectual property. He brings more than 16 years of senior leadership experience in engineering and strategic growth, most recently serving as director of global research and development at Apex Tool Group. Irigireddy is a certified Lean Six Sigma Black Belt and champion of the continuous improvement philosophy. Visit safeworks.com.

New Day Underwriting Managers Names Senior Account Manager in Real Estate Group



Cara Giquinto

New Day Underwriting Managers LLC has named Cara Giquinto as a senior account manager in the Real Estate Group. She will work directly with New Day's broad national client base to identify environmental risk management strategies designed to provide ongoing protection from pollution and construction-related, professional liability risks. Giquinto joins New Day with nearly 20 years of insurance industry experience. For more than 15 years, she held management positions at the Borden Perlman Agency in Lawrenceville, New Jersey. This included negotiating new business ranging from small to large lines and guiding the organization's marketing efforts. Prior to these positions, Giquinto also handled and investigated claims at the Medical Inter-Insurance Exchange and Penn-National Insurance Company. Visit newdayunderwriting.com.

Volvo Construction Equipment Appoints President of Sales Region EMEA



Carl Slotte

Carl Slotte has been appointed president of sales region EMEA (Europe, Middle East, Africa) at Volvo Construction Equipment. Slotte has over 20 years of experience in the construction industry, including senior positions within Volvo CE's global functions, the sales organization and within the dealer network. In his new role, Slotte will be responsible for meeting the diverse needs of customers in the strategically important EMEA region and strengthening Volvo CE's market position. Slotte has held a number of leadership positions at Volvo CE, including senior vice president for global key accounts, vice president of hub North within sales region EMEA, managing director of Volvo CE Russia (Volvo Vostok ZAO) and managing director of owned dealer Volvo CE Finland OY. Slotte succeeds Tomas Kuta, who was appointed senior vice president of global sales for Volvo CE in June 2016. Visit volvo.com.

Takeuchi Hires Product & Training Manager

Takeuchi-US has announced the appointment of Michael Shebetka to the position of product and training manager. The move follows the promotion of David Caldwell to national product manager. Shebetka will be in charge of product information and training for both dealers and field representatives. Additional responsibilities include performing the role of product trainer at Takeuchi's national training events at Pendergrass, Georgia, as well as out in the field. Shebetka was previously employed by Takeuchi-US for nearly 5 years as the regional sales manager in the Southeast and Western U.S. He moved back to his hometown of Cedar Rapids, Iowa, to be the outside sales representative for Martin Equipment. During his time there, he sold John Deere construction and forestry equipment in an Iowa territory. Visit takeuchi-us.com.

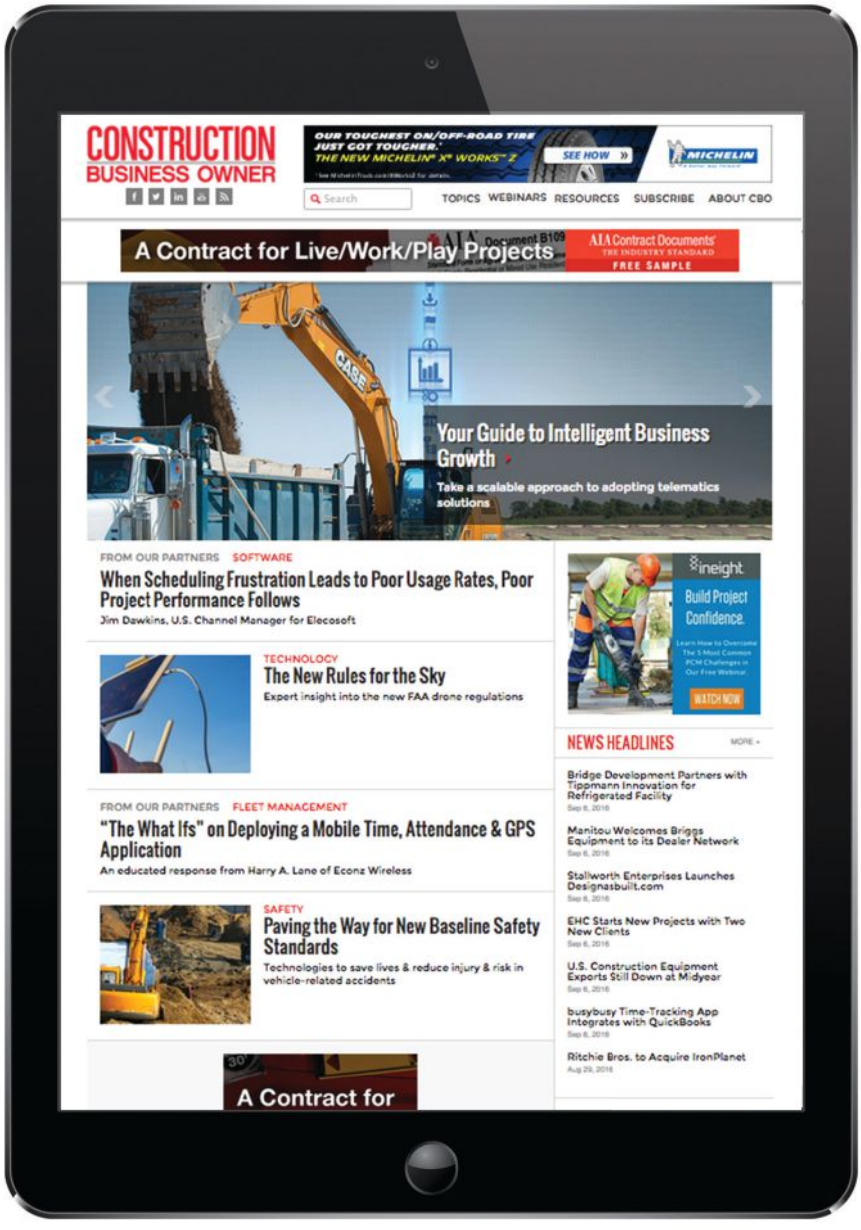
Komatsu America Names VP, GM Mining Division

Komatsu America Corp. announced that Dan Funcannon has been appointed vice president and general manager of the company's mining division. In this role, Funcannon is responsible for the sales and support of Komatsu mining products in North America, as well as Komatsu's 200 ton and larger mining trucks globally. Funcannon joined Komatsu in 1994 as a design engineer, and has held roles of increasing responsibility within the research and development organization. Most recently, he was director of engineering, responsible for all engineering activities for large mining trucks. Funcannon is a member of the Society of Automotive Engineers (SAE) Commercial Vehicle Engineering Congress Executive Council and the Bradley University Executive Advisory Committee for the Dean of Engineering. Visit komatsuamerica.com.

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is the average yield ROI for email marketing for United States businesses, according to the Direct Marketing Association (thedma.org)

LINDSAY BEDNAR
DIRECTOR OF MARKETING & OPERATIONS
BLUE CLOUD SOLUTIONS

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PAMELA HERRMANN & PATTY DOMINGUEZ
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- Stocking Your Sales & Marketing Toolbox
- Get More Online Visibility
- How To Market Your Business Better

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

Risk Management

What is the best first step in building an approach to successfully mitigate risk?



ANN HICKMAN, CPCU, CRIS, ARM
Editorial Director
International Risk Management Institute (IRMI)

"You can't chart a course to get where you want to be until you know where you are right now, so a key first step in establishing a risk management strategy is performing a risk assessment. A good place to start is to ask key members of your company what keeps them up at night. Based on their answers, create a preliminary list of operational concerns to explore. If hiring an in-house risk manager is not feasible, find knowledgeable advisors who can identify deficiencies and concerns to help you craft a plan for managing risk. Because the construction industry is so complex and the risks are so great, it is imperative to find advisors with demonstrable expertise in construction. Select a risk management or insurance advisor with credentials as a construction risk specialist to review your contracts, insurance policies, safety manuals and subcontractor management procedures. He or she can identify gaps between what you are doing and what you have coverage for and suggest strategies for addressing key risks. Also, educate yourself by attending seminars, taking courses and reading up on risk management topics, so you will be better able to understand and act on the advisor's recommendations.



TIMOTHY HOKE
Design Professional
Gould Design Inc.

"First of all, any plan has to be vigilantly upheld by the leadership in the company. Management must teach their employees the why and how of mitigating risk. If someone doesn't understand, teach them. No plan will stand if the leadership doesn't back it or practice it.

Try the Boyd theory, also known as the "OODA loop," which refers to the decision cycle of observe, orient, decide and act. Use thoughtful preparation, observation and awareness. If you don't see the risk, you cannot avoid it. Face the risk; fully identify and vet it. Make a plan specific to that risk. Don't ignore the risk—make a decision on how to handle it. Keep it simple if you want anyone to follow the plan. Once the groundwork is in place, you can act on your plan, while continuing to adapt as new information enters the scene.



SCOTT WOLFE JR.
CEO
zlien

"The construction industry has a trust problem when it comes to risks surrounding the payment process. Typically, when parties analyze risk mitigation tactics to avoid payment risks, they are really looking for ways to shift risk, which just transfers risk from one party to another. Project participants resort to risk mitigation tactics when they don't trust the other parties involved. Mitigating risk by transferring risk contributes to a vicious cycle. Instead, the best approach to lowering risk overall is to create a fair construction payment ecosystem that everyone can trust. The only way to create that ecosystem is to shift the industry paradigm. When confronted with financial risks, parties must take a collaboration-first approach, rather than a protection-first approach. This starts with re-examining how the industry views mechanics lien rights, lien waivers and notices. Viewing these as tools to mitigate individual risk is a misunderstanding. Instead, they should be seen as collaboration tools that promote information transparency and provide communication opportunities at the time of payment or nonpayment. Rather than viewing these tools as protective devices, embrace them as opportunities to empower more transparent, collaborative projects, which will lead to less risk overall.

Supercharge Your Sales Process

10 steps to win higher margin work & grow your business



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 Managing Editor Elizabeth Manning at emanning@cahabamedia.com.

Every construction business owner's goal is to win more work at higher margins against fewer competitors. But contractors are generally too busy working and building projects, and, therefore, leave their sales activity as second priority. After they solve all of the daily issues, field challenges and job problems, they hope to find some time to focus on winning some work. However, when you spend all your time doing work, getting and winning more profitable work never has a chance to happen. To develop a steady sales pipeline filled with high-margin customers and contracts, you must make a commitment to getting and winning work. Review the following 10 steps to supercharge your sales process, win higher margin work and grow your business.

1. FOCUS ON GETTING MORE WORK

Profitable construction business owner dedicate 25 percent or more of their time to the "get work" side of their business. They hold monthly sales strategy meetings, review their sales, award tracking results, focus on building customer relationships, make sales calls weekly and make sure their company sales plan is operating on a continual basis. They also focus on potential, current and recent proposals, estimates and bids. Most importantly, they concentrate on proactive follow-up after submitting every bid and proposal.

2. CREATE A TARGET MARKET CUSTOMER LIST

In order to keep the sales pipeline full, you need to have written customer target list to reach out to on a regular basis. Make a list of your top 20 to 200 current and potential customers, existing clients, new markets and targets you want to go after soon. Look at the jobs you have completed or bid in the last 5 years. Who was the person who might have influenced the decision to hire your company? Make a list of any new or potential targets you want to reach.

3. DEVELOP A SALES ACTION CALENDAR

Now that you have a sales customer target list, do something with it. Start with the customers you already know. Determine how you can you best convince them to hire your company more frequently. Develop a plan of attack for each top, repeat or past customer. Decide what sales activity will potentially improve your chances of winning work with them. Include the specific sales activity for each target and how often you plan to attack them. I suggest a minimum of three times per year per customer. Keep track of your sales activities monthly on your sales action calendar.

4. ESTABLISH LOYAL CUSTOMER RELATIONSHIPS

To supercharge your sales process, where should you invest your time and money?



In the construction business, the biggest sales bang for your buck lies in creating customer relationships with top customers, most desirable potential customers and quality parties who can refer you to lots of work. For most companies, focusing on creating 10 to 20 loyal customers is all it takes to build a highly profitable business. Pick the top 20 best customer targets you want to go after, and work hard to convert them from one-time or past customers to loyal customers who use your company at least 33 percent of the time.

How often will you have to see customers to create loyalty? Think about your best friend. To maintain a trusting relationship, you must spend quality time with them at least once every 2 to 3 months. If you see just two customers a week, every 10 weeks, you will see all of the top 20 on your list and continue to maintain quality, customer relationships with them.

5. BUILD A REFERRAL SALES PROGRAM

When visiting your top customers, make it a priority to ask customers for referrals to people who can use your services. This will ensure a quality target list to use to expand your customer base. After they give you a referral, send them a thank-you gift to show your appreciation for their help.

6. EXECUTE YOUR WEBSITE THE RIGHT WAY

Either build your website professionally and keep it up to date, or don't waste your time. Your website should be a showpiece for what your company does best. It must list out why customers should hire your company and what types of work are your company's specialty. It must also be a resource center to help your customers solve their problems. Include a home page, company profile, competitive advantages, expertise and specialties, client list, corporate team, key management resumes with photos, project progress and completed photos, testimonials and a detailed research center on your site.

7. CRAFT A SUPER SALES PITCH

Don't waste money on 20-page brochures. Develop a presentation to carry with you, and present when you are in front of potential customers. Also, create several small, trifold brochures, flyers or postcards for each of your project expertise niches in which you specialize. The days of big, expensive brochures are over. Spend the cash on your sales presentation instead.

8. GET INVOLVED ALONGSIDE YOUR CUSTOMERS

People want to do business with companies they know and trust. A great way to become well known is to get involved in your target customer's industry, association or community. Volunteer to chair committees, get on a board of directors, lead a golf tournament or annual fundraiser and participate in panel discussions. Decide where you will get the most bang for your buck, and join today.

9. SAVE YOUR MONEY

Don't waste your hard-earned money on giving small stuff to the wrong people. Save it up and invest in season tickets to your local sporting events. Take your top customers with you.

10. ADVERTISE & INVEST IN SOCIAL MEDIA

Advertising has its place for suppliers, specialty contractors and other types of businesses. But don't think advertising will keep your pipeline full of profitable work. You should invest in unique job signs, bright company uniforms, professionally painted trucks, quality video production and other ways to promote your company image in a consistent manner.

The same goes for involvement on social media channels. Invest time and money where you will get a high return and will attract high-paying customers.

To get your sales supercharged, start by making it a priority to target your top potential customers and build relationships. This will give you the biggest return on investment of sales time and money. If you take out two customers every week, it will only cost around $10,000 a year. This is small potatoes compared to making another $50,000 to $100,000 on your bottom line by developing loyal relationships versus winning all your work being the low bidder. Remember, having even the most basic sales process is better than a perfect process that is never put into use. **CBO**

Should We Bid or Should We Go?

How to develop a winning go/no-go project selection strategy & scorecard



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.

All projects look good when relationships are fresh and the money is still in the coffers. Ironically, the projects that garner the most attention sometimes seem to be the ones that have the least statistical evidence to support a firm's strategy. Generally, these are the projects that a particular firm has no business taking on, but because of strong emotional ties, the contractor remains convinced it is a good decision.

Despite however it has been done in the past, today's best-in-class firms are utilizing more of a scientific approach to align the appropriate projects with their firms and their strategies. The use of go/no-go (GNG) project selection tools takes the subjectivity out of finding the right projects and clients and improves a firm's ability to secure higher margin endeavors. The use of these tools also increases the dialogue within the firm to avoid vacuum decision making or misalignment with a firm's strategic and business plans.

THE FRAMEWORK

The framework of a go/no-go tool must blend strategy and historical evidence. For instance, the firm must use criteria that helps define its success, coupled with a blend of factors that enable the firm's strategic plan.

For example, Brand X Construction's "sweet spot" is defined at $7 million in project revenue. This is an important characteristic to understand, as it helps create a picture of the ideal customer or project. Notice this does not say "average project size." It is important to conduct a thorough study of where a firm excels and where it does not.

The strategic growth niches also help define categories that are worthwhile targets. Without them, the firm might acquiesce and simply engage in identical work. While it may be currently profitable, it may also be myopic and fail to include a balance of long-term strategy.

It is also important to note that every firm will have specific criteria that are exclusive to their GNG. Some general GNG categories to consider might include project size, potential margin, size of the bid list, location, client information, market, project delivery method, backlog, estimating backlog and blend/ratio of direct costs.

These categories simply provide guidance on potential areas that might tie to a firm's strategic plan. Within the confines of the list, "potential margin" might provide some level of subjectivity. Assuming a firm has a set pricing policy, the scoring criteria might provide a range. Additionally, the category of "blend/ratio of direct costs" might have scoring that varies based on the percentage of direct labor to subcontractors, or some other metric.

For instance, a firm may perform better when it self-performs specific trades, compared to the work that is brokered to



trade contractors, hence leading to scoring indicative of this comparative advantage.

However your specific categories are comprised, it is important to provide connectivity to both the historical performance and the strategic plan. Furthermore, it is imperative to keep the list manageable. For instance, grading projects across too may parameters will simply dilute the effectiveness of any main category.

THE SCORING

With the categories defined, the firm now must create the grading criteria. Keeping with the theme, Brand X Construction has determined the following categories for its GNG: niche area, project delivery method, location, client and profit potential.

Within each of these categories, the firm creates a specific set of scores for each, with 1 being the lowest/least desirable and 5 being highest/most desirable:

GNG category: Niche area

1. Multifamily
2. Tenant improvement
3. Adult living facility
4. Commercial/institutional
5. Life sciences/health care

The purpose of the framework is to remove subjectivity and develop a decision-making model that aligns strategy and performance. In the case above, the firm has defined the most desirable opportunities as ones within their fields of expertise, as well as potential projects that are defined within their long-term, strategic plan.

Keep in mind, every firm has a finite number of opportunities with a finite number of resources. Chasing every project is not strategic. The following are some additional notes about scoring within the GNG framework.

- Not every category needs to have 5 grades. For instance, it is possible that "location" might default to 1 (out of range) and 5 (within 100-mile radius).
- The grading may change over time. Year after year, firms possess the data to grow to new limits. For instance, margin potential may be altered to reflect more/less competitive markets or improved project performance.
- Within a firm, there may be multiple options. For instance, a firm that has business unit that does work for public entities and private clients may have different scoring criteria. Part of the firm may view a larger bid list as acceptable (public), whereas the other (private) maintains a higher level of scrutiny on their potential targets.
- Not every decision is perfect. Decision making is based on the information available at that time. It is not the fault of the process if a bid list was thought to be three bidders, only to be increased by ten at a later date.

THE GRADING

Grading opportunities allow proper decision making and create objective, fact-based discussion amongst project teams. It is also important to note that a firm should determine the right guardrails. The best way to determine your company's limits would be to examine the last 6 to 12 months of historical data and compare that to actual margin performance.

Grade the historical data with the information available on bid day. Even if 20 bidders showed up, grade it based on what was known at that time.

Secondly, assuming projects were completed, evaluate their final margin at completion. There are probably plenty of underperforming projects that might have failed under the GNG limits. This data will provide potential targets that blend all of the factors together.

Based on this historical analysis, a clear trend emerges. Potential projects that would score 16 or 17 represent a distinct delineation and also a potential correlation between high-performing and low-performing projects.

GNG decision making can be as scientific as it needs to be to best support the contractor. The end game is not to create another piece of paper, generating some arbitrary score. Rather, the intent is to promote companywide decision making to a level that is based on historical performance.

So many organizations sit on project data such as this, but fail to mine it effectively to drive the right decision making.

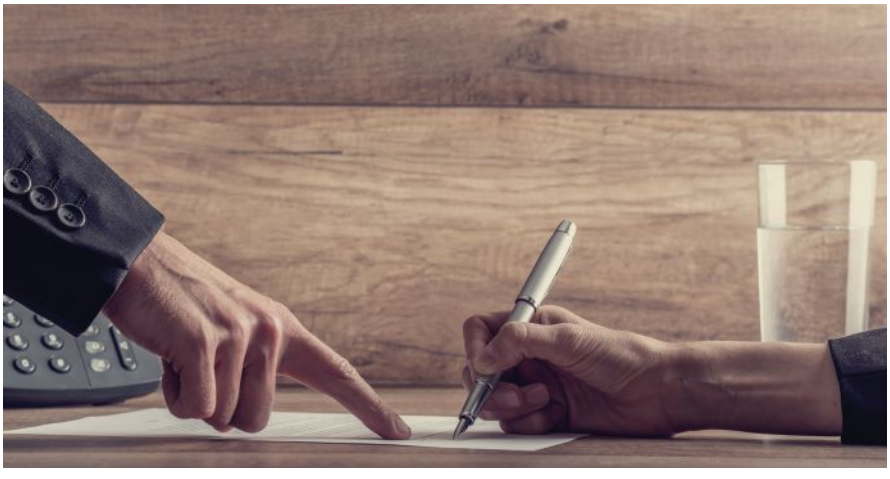
Is your organization mining its projects with the latest technology or a blunt pick ax? **CBO**

Winning the Claim Game

How targeted risk control & claims review can help mitigate litigation costs

BY JOHN CAMPBELL

In today's litigious environment, claims against construction companies are inevitable, and off-the-shelf solutions used to manage liability risks are too often inadequate. Construction defect claims are compounded by the fact that not all are covered by insurance, depending on the carrier and the applicable state statutes. Additionally, when it is not clear whether the damage was due to work product or consequential damage, a disagreement can occur that often results in a protracted and costly nightmare.



GET UNDER THE HOOD

The key to effective claims management begins with having a complete understanding of an organization's claims history. This means getting under the hood to analyze claim trends that adversely affect loss experience and total cost of risk, developing a risk-control plan based on this review and clearly spelling out the financial improvement to be expected by implementing the recommended plan. When done correctly, targeted risk control based on a claim review can help construction companies with low loss activity reduce their premiums by up to five percent, and those with high loss activity by up to 15 percent. This strategy was incredibly successful in a recent case involving a large mechanical contractor that performs work on both public and private projects. A targeted safety program was designed that addressed the specific causes of those claims, including fall protection procedures and minimizing slip and fall exposures. This effort reduced the company's claims by over $350,000 in the first year. The improved claims experience resulted in the company's experience modification rating (EMR) being reduced below 1.0 over 3 years.

CLOSE THOSE CLAIMS QUICKLY

The best way to keep claims costs low is to get them closed quickly. In many cases, the inability to close general liability or workers' compensation claims promptly is linked to an overreliance on the insurance carrier to lead the claims process. However, it is the insured that should be taking a more proactive approach to managing claims.

For example, one construction company conducts its claim reviews with insurance company claim adjustors in person to determine if claim reserves are too high and need to be adjusted downward, or if open claims should be closed based on the circumstances of the claim.

Adopting a hands-on approach for managing claims has proven to be particularly effective at reducing outstanding open claim amounts that, in turn, improves premium pricing. In fact, this process can help companies with loss-sensitive plans reduce their premiums by up to 12 percent, or 7 percent for companies with guaranteed cost plans.

SCREEN BEFORE HIRING

Preventing workers' compensation claims from occurring is highly correlated to the quality and scope of a company's hiring practices. Leveraging loss-control representatives and claims advocates can provide the framework for a pre-employment screening procedure, whereby medical providers evaluate candidates' physical abilities based on detailed job descriptions. With pre-employment screening, employers are able to avoid candidates more likely to be injured on the job. An HVAC contractor was hiring a large amount of unskilled laborers to meet increased contract demands. Unfortunately, the firm also was experiencing a spike in workers' compensation injuries, which were driving its workers' compensation premium up. An analysis of employee injuries revealed several claims that could have been avoided had the company appropriately screened the employees prior to hiring. To further reduce post-hire claims, a more extensive pre-employment screening, including background checks and drug testing, was recommended. The HVAC contractor was able to realize a 20-percent reduction in employee injuries. This resulted in a reduction in its EMR to .96, as well as its OSHA Frequency and Severity Rates. The company also realized premium savings of $120,000 over the first 2 years.

KEEP COMPENSATION IN CHECK

Workers' compensation premiums are driven by an experience modifier that is derived from past loss experience. If losses are not controlled, this modifier increases and premium costs go up. An incorrect EMR can drive premium costs higher and affect additional contracts. To help manage workers' compensation claims more efficiently, construction companies should routinely perform the same evaluation of the experience modifier as regulators to determine accuracy and forecast future financial impact on premium. Inaccurate EMR calculations are typically the result of errors in payroll amounts, inaccurate job classifications, improper claim reserves and open claims that should be closed.

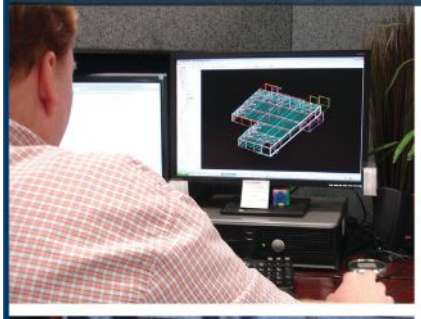
These are only a few examples of how employing smart risk management strategies can help to mitigate the financial effect of adverse loss trends, lead to better managed claims and increase your overall competitive edge in the industry. **CBO**

John Campbell is USI's construction practice managing partner and also serves as the president of the company's wrap-up practice. The construction practice group leverages the USI ONE Advantage with prospects and clients across the country. Contact Campbell at john.campbell@usi.biz or 314-554-9754. Visit usi.biz.



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Human Resources & the Tech Revolution

Following the automation of critical HR functions within the industry

BY CHRISTIAN BURGER

A term often reserved for metals and oil, "precious resources" could currently be used to describe the state of labor in construction. It seems that in a few short decades we have gone from a plentiful workforce to a scarcity of available employees. But that is not the only change tied to personnel. Due to scarcity of the role and the considerable regulations required to maintain compliance, the human resources function has grown from a part-time payroll function that was primarily focused on benefits administration to a professional HR staff and whole associations dedicated to the functions.



As the role of human resources continues to develop, companies often struggle to keep up. There are a number of technologies and solutions designed to support this emerging role. Much like the HR department itself, these technologies must work to keep pace.

The following list reviews a handful of critical HR functions supported by software and technology that your company should consider implementing. Read below to see where each function currently stands on the construction technology front, and where it is likely to head with continued growth.

- *Recruiting*—A number of solutions and services have emerged to handle various recruiting and applicant evaluation processes. They are typically internet-based solutions and provide their own markets. Think of them like Monster or Indeed, but specific to the construction industry.
- *Applicant tracking*—Once applicants have made their way into the organization, the administrative efforts required to get them from a candidate to an employee are considerable. There are many applicant tracking solutions available, which are either part of your enterprise resource planning (ERP) system and integrated with payroll or are stand-alone, but interfaced to payroll. These typically handle all of the I-9 Form tracking for employment eligibility verification, new employee reporting, drug testing and other administration associated with new employees.
- *Benefits administration*—Benefits administration is one of the more important functions that has to be integrated with payroll, but is also best when interfaced with the benefits providers themselves. This means that a change in enrollment for an employee who has become eligible can both update the provider's enrollment, but also update a deduction record in payroll. This capability should be provided through the employee self-service application so HR does not have to maintain those records.
- *Safety administration*—Safety

administration is a critical function for construction companies. Many companies have automated some or all of the administration that goes along with accident and incident reporting, inspections, meeting minutes and safety training. There are several good applications for this function, and a few of the integrated HR applications within ERP have built out this function sufficiently.

- *Training*—In addition to finding good employees, one of the more critical functions of HR is keeping those employees current in all matters related to their jobs. This includes training relevant to safety, equipment operations, software solutions and construction methods. Technology is now available to both provide this training in the form of learning management solutions and keep up with the training taken or needed. This can be very important for some contractors, as some owners don't want employees on jobsites if they have not had OSHA 30-Hour or HAZWOPER training. Consider the mechanic who is visiting a jobsite to repair a crane or an excavator, but needs help. Being able to pull up a training video on a tablet that details the specifics of that repair could be very valuable.
- *Development*—Performance reviews and overall career development have not been the highest priority in construction, but that has been changing in recent years. Software that can track when an employee is due for a performance review, track the results and goals for the next review and manage some of the performance metrics is possible in many contemporary, HR applications.
- *Life safety*—As wearable technology pervades the jobsite and becomes more prevalent among workers, the ability to track the location of workers on the jobsite will be easier. These applications are already in use in large institutional facilities and on industrial sites. Also, it is feasible that the industry will soon have applications that connect to Fitbit-like products and track heart rates and temperatures of workers, and alert a superintendent or safety officer if any data falls outside of a certain threshold.
- *Self-service portal*—Most HR functionality will be delivered by web-based HR portals and solutions within the next few years. Some already exist, but may not have integrations built back to payroll. Employees are definitely more technologically savvy than they used to be, and spouses are engaged with benefit administration at home. So, allowing employees the ability to check available vacation time, health care coverages, 401[k] balances, as well as information about upcoming training classes and scheduled performance reviews, is seen as progressive and efficient for the HR department.

These are just a few of the functions that a typical HR role manages daily. At this point in the game, construction companies should be looking for stand-alone HR applications that can handle the majority of these functions and still integrate back to payroll. Generally, the ERP-based HR solutions will not be able to keep pace in this area, as they have many other priorities. This area is moving quickly, and good point solutions exist. **CBO**

Christian Burger is the president of Burger Consulting Group, an IT consulting firm based in Chicago, Illinois. Burger has worked within the construction industry for nearly 25 years, originally with FMI before starting his own firm in 1997. Much of his work at the firm is focusing on IT strategy and leadership for BCG clients. Burger is also involved in best practices process work during the implementation phase. Visit burgerconsulting.com.





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Understanding Cause & Effect

Get to the bottom of implementing a successful root cause analysis

BY PRESTON INGALLS

Former United States Secretary of State John Foster Dulles once said, "The measure of success is not whether you have a tough problem to deal with, but whether it's the same problem you had last year." Indeed, we deal with the same issues or problems over and over. But why? The answer is simple, but it's not easy: you failed to take the time to either determine the root cause of the problem, or you failed to implement a corrective action plan to prevent recurrence. Either of these will lead to a problem that continues to return. Unlike an extended yo-yo, which requires some skill to return to its starting point, problems don't necessitate any true talent to occur.



The key to a good root cause analysis is truly understanding it. Root cause analysis (RCA) is an analysis process that helps you and your team find the root cause of an issue. RCA can be used to investigate and correct the root causes of repetitive incidents, major accidents, human errors, safety near-misses, quality problems, equipment failures, medical mistakes, production issues, manufacturing mistakes, delivery delays and environmental releases, and can even be used proactively to identify potential issues.

The key to successful root cause analysis is understanding a process or sequence that works. The effect is the event—what

occurred. A cause is defined as a set of circumstances or conditions that allows or facilitates the existence of a condition an event. Therefore, the best strategy would be to determine why the event happened. Simply put, eliminating the cause or causes will eliminate the effect.

First, though, you must weed through the symptoms (a sign or indication of the existence of something). Figure 1 provides an example—a puddle of hydraulic fluid on the floor. The puddle is a symptom of a leak, but the leak could be the symptom of a loose fitting. Wiping up the puddle of hydraulic fluid did not eliminate the actual cause. Therefore, the leak will continue to occur. The key to prevention of recurrence is determining the actual root cause and correcting it. The challenge is identifying the correct cause(s) of an issue.

A contributing factor is a condition that influences the effect by increasing the probability of occurrence, hastening the effect and increasing the seriousness of the consequences. But a contributing factor will not cause the event. For example, a lack of routine inspections prevents an operator from seeing a hydraulic line leak, which, undetected, led to a more serious failure in the hydraulic system. Lack of inspection didn't cause the effect, but it certainly accelerated the impact.

The absence of binoculars in the crow's nest of the Titanic did not cause the ship to sink, but it did contribute to the series of events that eventually led to the ship's demise. In other words, the binoculars would have possibly allowed the lookout to spot the iceberg much sooner than unenhanced vision did for him/her.

All of this stresses the significance of approaching problems in a structured, systematic, logical process and provides a proven methodology to identify, analyze and verify the underlying root causes of recurring failures. The objectives for conducting a RCA are to analyze problems or events to identify:

- What occurred
- How it occurred
- Why it occurred
- Actions for averting reoccurrence that can be developed and implemented

Some basics drivers for an effective RCA include:

- Accepting more than one root cause for a problem or event
- Focusing on corrective measures of root causes as a more effective action than simply treating the symptoms of a problem or event

Problem		Corrective Action
ISSUE:	**There is a puddle of oil under the pump**	**Therefore, clean up the oil**
Why?	Because the pump is leaking oil	
Why?	Because the seal is leaking	Therefore, replace the seal
Why?	Because the pump is experiencing excessive vibration	Therefore, replace the seal & align the pump
Why?	Because the pump has a soft foot	
Why?	Because the pump wasn't shimmed & aligned properly by the technician	Therefore, train the technician in installation & alignment procedures

Figure 1. Problem solving with the "5 Why" method



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- Using a methodical process with conclusions backed up by evidence (facts and data)
- Enacting corrective countermeasures to prevent recurrence of issues, but also following up to ensure their effectiveness is critical

One method that has been around for many years is called the "5 Why" method. It is a simple, problem-solving technique that helps users get to the root of the problem quickly. It was made popular in the 1970s by the Toyota Production System. This strategy involves looking at a problem and asking "Why?" and "What caused this problem?" Often, the answer to the first "Why?" prompts a second "Why?" and so on—providing the basis for the "5 Why" analysis. The objective is to continue asking 'Why?" at least five times, to get to the core of the issue. Here is a simple example:

- *I didn't get to work on time.* Why didn't you get to work on time?
- *Because the car wouldn't start.* Why wouldn't the car start?
- *Because the battery was dead.* Why was the battery dead?
- *Because the dome light stayed on all night.* Why was the dome light left on?
- *Because the kids played in car, and then left the door ajar.* Why did the kids leave the door ajar?
- *Answer:* Because I never stressed the impact of leaving the door ajar and the resulting drain on the battery.
- *Solution:* Explain to the kids what happens to the battery when the door is left ajar for hours at a time.

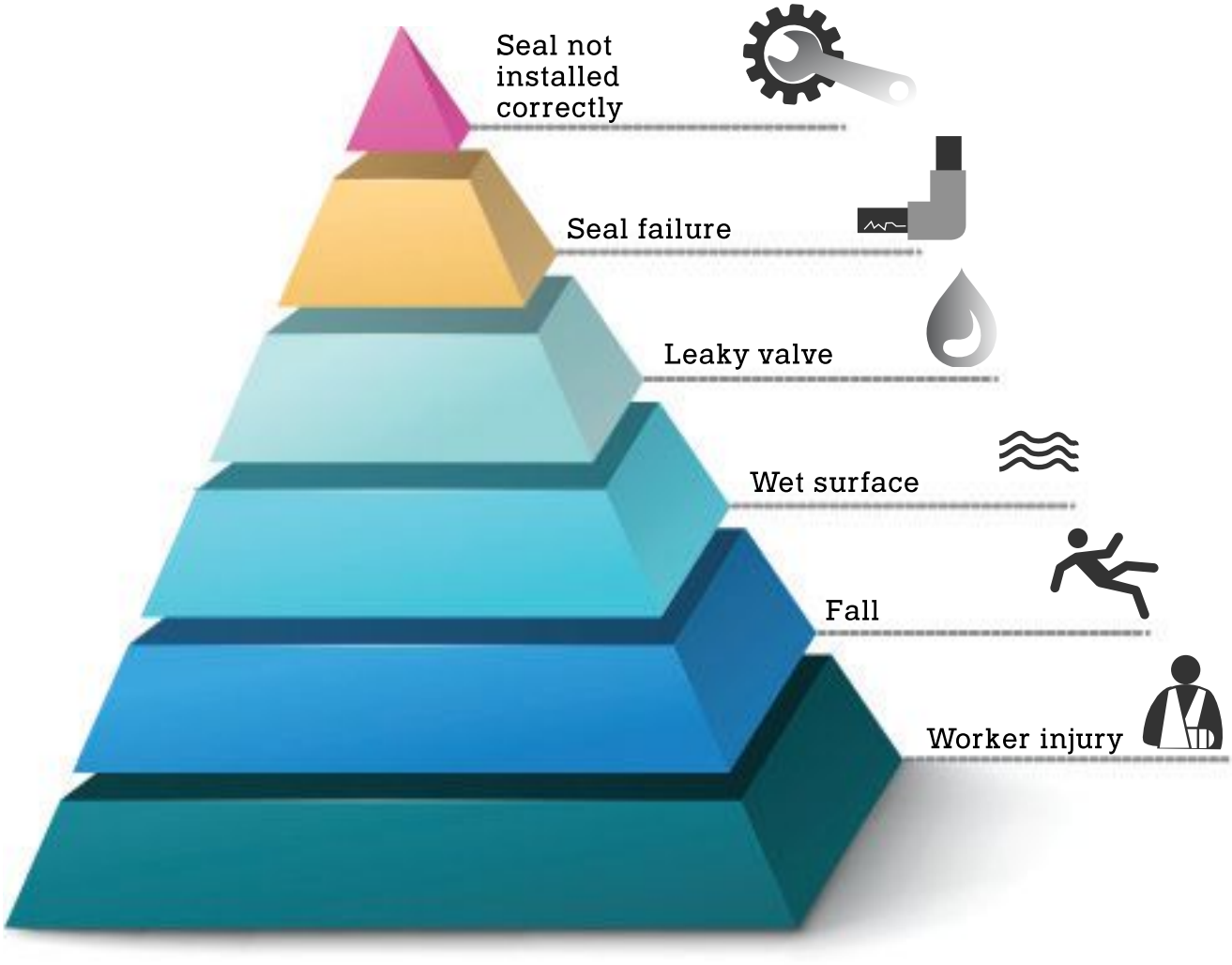


Figure 2. Identifying levels of improvement

Our experiences & paradigms tend to aim us toward certain solutions with limited underpinnings in facts & data. In other words, we rely too much on intuitive decision making & less on rational decision making.

Figure 2 shows how properly identifying the levels of improvement—rather than jumping to conclusions or just treating individual symptoms—can potentially prevent larger problems in the future.

Another issue in root cause analysis is jumping to conclusions too soon. We are often predisposed to the end results, whether or not they are valid. We jump to a conclusion without answering the fundamental question, "What is causing that to happen?"

Our experiences and paradigms tend to aim us toward certain solutions with limited underpinning in facts and data. In other words, we rely too much on intuitive decision making and less on rational decision making. Intuitive decision making is not baseless, but it relies less on analytical methods and more on experience and gut-level feelings.

Rational decision making uses facts and evidence, while intuitive decision making may be less grounded and more speculative. These types of feelings are instinctive and rely on intuition rather than actual facts.

In fact, intuition is the ability to have a grasp on a situation or information, without the need for conscious reasoning. People often use this type of decision making when facts are unavailable or when decisions are difficult. Some of the challenges in conducting an RCA include:

- Incomplete problem definition (too vague or broad)
- Lack of key participants on RCA investigation team (limited perspective)
- Missing key evidence (limiting on-site examination)
- Quickly focusing on solutions before understanding the root cause
- Limiting findings to one cause, when multiple ones may be the source
- Not finding the underlying or direct causes of an issue.
- Failure to investigate deep enough (need to keep asking why)

The bottom line is the problem will not be completely solved until the root causes are identified and the corresponding level of improvement is implemented. **CBO**

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





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Monitoring the Unseen Risk

The dangers of cybersecurity in construction

BY TROY CARLSON

Most of us have emails filling our inboxes throughout each workday. Often, it seems like a job in and of itself just to keep up with them. When an invoice comes across your desk, you typically review it, approve it or reject it, and move on. Imagine your surprise when you receive an email from a client you have been working with, confirming that they have paid their invoice.

Confused, you respond that you have not invoiced them, yet they are able to forward you an email that looks like it is from you. You check your inbox—did someone else create and send an invoice? It sure looks like it came from you, until you look at the account number. Shocked, you realize that you don't recognize the account. Ask yourself, how well do you know the account numbers for each client?

Most of us don't pay attention to those details. After frantic phone calls back and forth, it comes to light that your system has been hacked, and your client just sent thousands of dollars to the hacker, which they will likely never be able to retrieve. You have now put your own financial future at risk, as your biggest client wonders what you are doing that exposed you to such risk. So now what?

Unfortunately, this is a very real scenario that plays out daily throughout the United States. A majority of construction clients who haven't been faced with a situation like this often think cybersecurity doesn't apply to them. If they do, they have a policy to cover it, yet they have little to no idea about what the policy includes.



CYBER RISK IN CONSTRUCTION

With the growing use of digital technology, the construction industry is more vulnerable than ever to cybersecurity threats. With the amount of work now completed online and on computers or tablets—from building information modeling (BIM) to invoices, building automation services and everyday correspondence about projects—construction companies are opened up to innumerable cybersecurity threats and liability. If a company is not adequately protected against exposure, the associated costs can be financially crippling.

DON'T BE LEFT UNPROTECTED

Cyberthreats expose companies to liability risks constantly. For example, if you unknowingly send someone a virus that attacks their system and gives a hacker access to sensitive information, that would come back as a liability claim against your cyber liability policy.

This is why cyber liability insurance is an essential part of doing business in the 21st century. Before a cyber incident or data

breach occurs, ensure that cyber incidents are endorsed on your crime insurance policy or that you have comprehensive cyber coverage.

Some elements to look for in your cyber coverage include:

- *Data breach/privacy code*—This should spell out who is responsible for expenses related to the management of an incident, such as the investigation, remediation, data subject notification, call management, credit checking for data subject, legal costs, court attendance and regulatory fines.
- *Multimedia/media liability*—If your employees are posting to social media on the jobsite or taking photos and videos, there is always the possibility of them getting footage of injuries or safety violations. In addition to having a social media policy in your employee handbook—including how the name of the company can be used in social media—you can also customize your insurance policy to cover any potential liability. Third-party damages covered can include specific defacement of website and intellectual property rights infringement.
- *Extortion liability*—This will address losses due to a threat of extortion and professional fees related to dealing with extortion.
- *Network security*—This will detail third-party damages as a result of denial of access, costs related to data on third-party suppliers and costs related to the theft of data on third-party systems.

Some of these elements may overlap with coverage from existing products, including those for business continuity, third-party supply chain issues and professional indemnity.

Work with your insurance broker to ensure that even if an overlap exists, your cyber liability policy will ensure identified cyber risks are covered.

CONSIDERATIONS FOR CYBER LIABILITY INSURANCE

Cybersecurity is such a complex issue that it takes a number of players with different specialties to fully protect a company. When you are looking to create or renew an insurance policy, find an insurance company that specifically addresses cybersecurity. No carrier is the same, just like no business is the same.

The following basic considerations will guide you in your decision-making process:

- *Determine what costs or expenses and what types of incidents you would like to have covered.* Discuss this list with key members of your team, making sure to get any information you need from third-party suppliers and partners. List both your own costs (first-party costs) and the costs others may attempt to claim from you as a result of an incident (third-party costs).
- *Getting the right broker is important.* The right broker will understand your company and the unique risks you face in the construction industry. They will save you time, bring you up to speed on the latest risks and help you determine what is right for your business. Keep in mind that this may not be the broker you are currently using for your noncyber risks.
- *Share your list of estimated expenses and costs with your broker and discuss exclusions that make sense for your company.* With this information, your broker will be able to place your company with the right insurance company to meet your needs. This is key, as having the right insurance company can be the difference between paying little for coverage that you will never be able to utilize in the event of an incident or having cost-effective coverage, where the insurer understands the implications of a breach and the costs associated with it.
- *Selecting the right policy for your business can be a very complex exercise, which is another reason why a broker is important.* They are likely to know the best products to suit your needs. It is also important to understand the support you receive as part of your coverage. Some policies provide a point of contact who will handle everything from the moment the insurer has made a claim, whereas others will let you manage the incident and decide which services you want to use from their list of suppliers. If your company does not have the people or experience to manage a data breach incident, a third-party supplier can often be a better route to take.

No two companies are the same when it comes to cyber risks. It is essential to understand the cyber risks your business faces, have a plan in place for when a breach occurs and ensure your cyber policy is tailored to mirror those risks and work with your plan. Doing this will help mitigate the potential losses your company could face in the event of a breach.

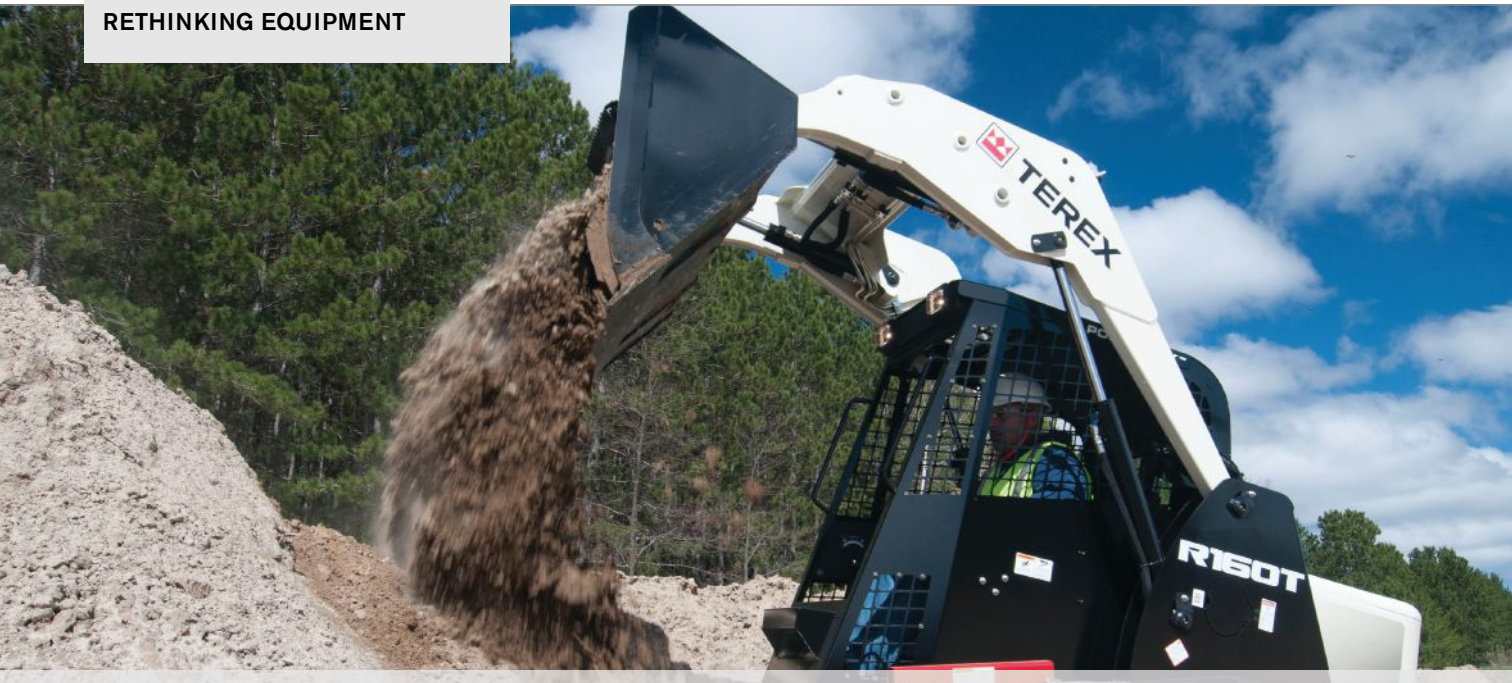
UTILIZE AVAILABLE RESOURCES

Any type of cyber breach can cripple an organization by causing downtime or reputational damage. Now that the big corporations have so many tools in place and full-time IT departments to combat cyberthreats, hackers are going after smaller businesses and contractors without those available resources.

Align yourself with the right risk management and IT team, and you will be less likely to fall victim to these attacks. **CBO**

Troy Carlson is a strategic risk advisor for McClone. He is a certified Construction Risk Insurance Specialist (CRIS). He is involved with Construction Financial Management Association (CFMA Fox River Valley), serves as membership involvement committee chairperson for Associated Builders and Contractors of Wisconsin and is an associate board member for Associated General Contractors of Wisconsin (AGC). Contact Carlson at troy.carlson@mcclone.com or visit mcclone.com.





BIG PRODUCTIVITY COMES IN SMALL PACKAGES

Contractors rely on smaller machines designed for substantial versatility & utilization

BY AMBER REED

With all the legislative and economic uncertainties influencing the industry right now, it is no surprise that construction business owners are looking for methods to keep their companies productive and lucrative.

Versatility and job diversification have become the main goals of many contractors looking to keep their businesses profitable. Many continue to evaluate their current strategies to develop new ways to grow while saving money.

Contractors' go-to tools are the ones that will help them do their jobs more efficiently—speed and ease can translate into greater profitability. Because of this, many rely heavily on the smaller equipment in their fleets, including skid steer loaders and compact track loaders, as these machines are designed for versatility, ease of use and the ability to do more with what they already have in their fleet. Whether it's for light construction, infrastructure work, road work or demolition, compact loaders are an option for contractors looking to make improvements on the jobsite, or to the company's bottom line.

"Contractors are savvy when it comes to using this type of smaller equipment," said Gregg Warfel, compact division sales manager of Terex Construction Americas. "Contractors have limitless utilization opportunities with compact loaders because their main applications and utilization are tasks related to loading, picking and carrying, back dragging or material-removal jobs."

Warfel said compact loaders are difficult to beat for grading work and for working on and around existing landscapes, because of their low ground pressure.

"These loaders are also extremely stable on slopes or uneven ground and have excellent traction in many types of ground conditions. The narrow profile of the machines also helps operators to gain access to tight, space-restricted jobsites," Warfel said.

That said, Warfel said that the trend in the last decade has been the increasing popularity of larger units with more capacity, faster speeds and longer, wider wheelbases.

Owner/operators demand production, higher bucket capacities and improved lifting capabilities, because these specifications are directly related to how much they can get done in a day.

SPECCING COMPACT LOADERS FOR BIG PRODUCTIVITY



A compact loader's ability to lift higher and reach further are a few of the key changes in the last decade. The capability to lift higher gives the operator the ability to do more tasks, as well as in a shorter amount of time. Additional reach capabilities enable operators to better center-load a truck, as well as to place pallets on scaffoldings.

To compensate for both additional reach and lift capacities, wheelbases on these loaders have also increased. The wheelbase is the distance between the center of the rear axle to the center of the front axle. A longer wheelbase helps to give the operator a more stable platform when lifting weight to full height.

Joystick controls are another change in the past 10 years, said Warfel. They have become popular in larger class compact loader units. The joystick control option requires less force input, while still enabling precise control.

"We polled a variety of different customers and found that many of these attributes are important during the buying decision process because they contribute to higher productivity and a lower cost of ownership," said Warfel. "We continually research, design, develop and test products to maximize two key factors: the machine's productivity and the ownership experience."

Other attributes that manufacturers have specifically incorporated into smaller loader lines to help maximize customers' productivity and these machines' durability are higher ground clearance, for pushing through rugged underfoot conditions; high tractive effort to push harder and make the unit more productive; and load-sensing hydraulics to ensure that fuel and energy are not wasted on surplus hydraulic power.

FROM COMPACT TO HEAVY

Specing a loader for maximum jobsite productivity is not as simple as choosing the loader the biggest model available.

"Size does matter when choosing a loader," said Warfel. "In space-restricted areas, operators will need to choose a smaller machine. If the operating area is open, a larger wheeled or track loader is an option."

Horsepower and the operating capacity of the loader are two other important factors. Higher horsepower offers more dynamic force for pushing and production, but also translates to a heavier machine. If there are weight restrictions on the jobsite, the contractor should opt for a smaller horsepower unit. And, specing a loader with higher travel speeds can increase productivity. The more miles per hour it can travel, the quicker the cycle times an operator can achieve. Boom speeds also influence cycle times. "Contractors need to know the loader's operating capacity, including tipping load and lift capacities, when specing the unit for a job," said Warfel. "They need to make sure the loader can handle the materials being moved. The weight of the material and how quickly it needs to be moved will also influence the size of the bucket needed. To get the quickest cycle times and the best productivity, contractors need to match the loader to the job.

"The first question they need to answer when choosing a loader is: What type of work will it be doing?" said Warfel. "To get outfitted with the right loader, the contractor will need to analyze the specifications of the project: What type of material is being moved? What is the density of that material? How much material needs to be moved? Are there any space restrictions on the jobsite?"

The answers to these questions will help determine the size of loader a contractor will need. Selecting the right loader is based on the amount of material (measured in cubic yards) that needs to be moved per hour, the weight of the material and the area in which the loader will operate. It is important to know how the loader will get the material, how quickly the material needs to be moved and where the material needs to go.

"It's time to graduate up to midi- or full-size loaders when there is a need for higher payload and larger bucket capacity," said Warfel. "The size of loader is based on application and utilization." CBO



Amber Reed is a communications consultant with Signature Style PR + Marketing, specializing in serving clients in the construction industry, focusing on their content marketing needs. Visit signaturestylepr.com or terex.com.



THE CASE FOR WELL-WORN JOBSITE SOLDIERS

Why reconditioning is the affordable solution for fleet maintenance & growth

BY CHRISTOPHER MELLOTT

Maintaining a fleet of telehandlers and aerial work platforms that will meet customer demands during busy construction seasons is not always easy. Experience helps the fleet owner know the number of pieces and types of equipment that should be available. But experience cannot raise the capital required to purchase this equipment. To avoid large capital outlays, many fleet owners are taking advantage of alternatives to buying new, including the least expensive option—used, "as is" equipment. Other options are progressively more expensive and vary from one provider to another.

NOT ALL RECONDITIONING IS CREATED EQUAL

However, not every piece of reconditioned equipment on the market can be labeled "like new." That's because the reconditioning process varies from one provider to another. As a result, the scope of work can be as simple as applying a fresh coat of paint and installing new tires, or as complicated as tearing the machine down to its frame and rebuilding it to the original equipment manufacturer (OEM) specifications.

This is why it is important for equipment owners to carefully consider the provider as they shop for reconditioned equipment or look for a company that will provide reconditioning services. They should begin their search by asking for a detailed description of the scope of work that was or will be performed, thus setting expectations of what they will be purchasing. Related questions include:

- Will the machine be completely disassembled?
- What percentage of the machine will be replaced as new?
- What will not be replaced?
- What items in each of the following four areas—electric, hydraulic, engine and structural—will be replaced, rebuilt or repaired?
- If parts of the machine are being rebuilt, are they being rebuilt by an OEM or to OEM standards?
- What is the life expectancy of the reconditioned equipment? If it is advertised as "like new," will it have the same life expectancy as a new piece of equipment?

Another important consideration is the extent to which the provider will stand behind its work. Will the company provide a 90-day,

6-month, 1-year or 3-year warranty? The warranty is a testament to the confidence that the provider has in its work and should instill confidence in the buyer as well.

SEEING IS BELIEVING

Shopping for a provider of reconditioned equipment or the reconditioning process should also include a trip to the provider's facility. Is the facility a brand-certified reconditioning center, which holds strict guidelines regarding the facility, its procedures and its staff? Is the facility dedicated to reconditioning? Is work performed in a single bay or on a production line that closely resembles lines in a manufacturing facility? Is the staff fully trained in the reconditioning process? It is important to note that technicians certified for annual inspections are not necessarily equipped to perform tasks in the reconditioning process.

It is also important to consider the experience of the provider. How long has it been reconditioning equipment? How many machines has it actually reconditioned? How frequently does it recondition equipment? Can it provide several references who will attest to the quality of the work? If it does, be sure to contact them. Will it provide service after the machine is purchased or reconditioned?

KNOW WHAT YOU ARE GETTING

In any transaction, it is always a good idea to clearly articulate your expectations and confirm that the provider is able to meet them. In the case of reconditioning, some providers will allow their customers to customize the process based on budgets. While some steps in the process can be enhanced to upgrade machines to the newest technologies, none of them can be scaled back or eliminated. Doing so would invalidate the warranty.

When sharing expectations, machine owners should include how much they intend to use the machine. For example, if the machine will be used every day, it is important that the engine is rebuilt.

> The scope of work can be as simple as applying a fresh coat of paint & installing new tires, or as complicated as rebuilding the machine to the OEM specifications.

However, if the owner is not planning to use the machine as much as reconditioning would allow, it might behoove the owner to consider purchasing a certified used piece of equipment rather than making the larger investment in a reconditioned machine whose full potential will never be realized.

RECONDITIONING IS NOT FOR EVERYONE

This raises the question, is every machine a candidate for reconditioning? In the case of an older machine, will it be difficult to find parts, both for the reconditioning process and for later repairs? In most cases, if a machine is still in production, parts will be available. However, when a machine is no longer in production, a limited volume of replacement parts will likely drive up the cost of reconditioning and future repairs. In this case, it may make more financial sense to dispose of the asset and consider another price point. Even a certified, used piece of equipment might be newer than the old asset, and still cost considerably less than a new piece of equipment.

In addition to age, major structural damage or other problems may make reconditioning too costly. That's why a good reconditioning program involves two levels of inspection. The first begins with a thorough inspection of the frame and all readily visible components. A second inspection, after teardown, completes the view of all needed repairs, including any that are above and beyond what is considered routine for the reconditioning process. Armed with this information, owners can make informed decisions on whether reconditioning makes sense.

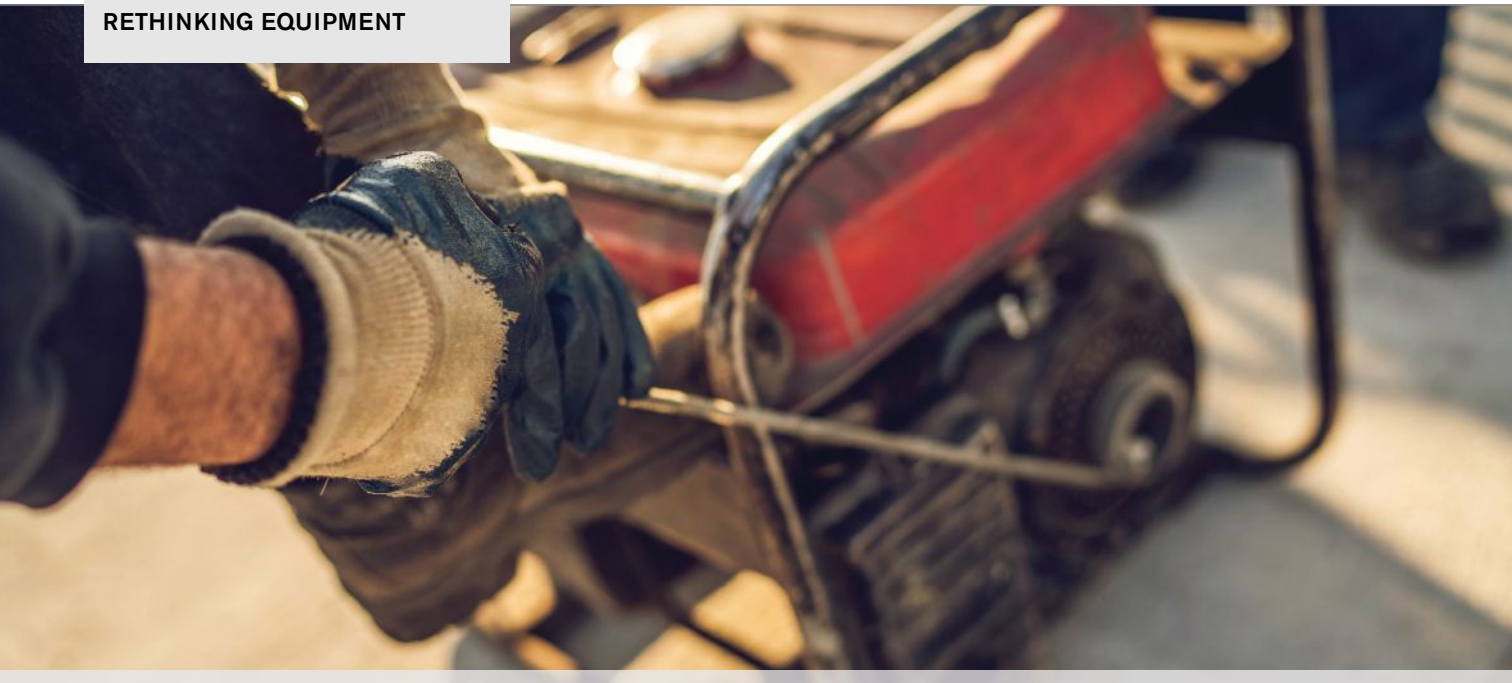
In the event that reconditioning makes sense, what can an owner expect in terms of time involved in the process? The schedule varies from one provider to another. For example, at JLG Industries, the machine is delivered to one of three reconditioning facilities 7 to 10 days before the reconditioning process begins. At this point, the machine is inspected, and a report is sent to the customer. The process itself takes 10 to 14 days, so that a customer will be without an asset and its associated revenue no more than 30 days.

LESS COST, LONGER LIFE

For many, the decision to recondition equipment is a financial one, saving an equipment owner as much as 50 percent over the cost of a new piece of equipment. At the same time, the process can extend the useful life of the equipment as much as 80 percent, while ensuring the equipment looks and runs like new and reducing maintenance expenditures. It is an affordable way to maintain and grow a fleet that will ultimately increase overall satisfaction on the jobsite. **CBO**

Christopher Mellott is vice president of aftermarket sales at JLG Industries Inc. He is responsible for revenues in the Americas, including parts, used equipment and reconditioning. Mellott joined JLG in 1995 as a sales trainee. Since then, he has served as regional vice president - Midwest; vice president, sales North America; vice president, global ground support; and vice president, sales, marketing and customer support - the Americas, before assuming his current role in 2010. Visit jlg.com.





I'VE GOT THE POWER

Discover the right, hardworking portable generator for your hectic jobsite

BY LIZ DORLAND

Finding the right portable generator to power the toughest jobsite—while also meeting Occupational Safety and Health Administration (OSHA) requirements—can be a challenge.

"Jobsite managers need to find a portable generator designed to handle the varying power demands of a construction site that is also compliant with OSHA regulations," said Dan Roche, director of marketing for Briggs & Stratton portable power division.

Some jobsites are also far away from fuel stations, so fuel efficiency is important. Perhaps the job is very large, so the generator will require a higher wattage unit. Other locations have a rough terrain, so stability and larger wheels may be a higher priority. Additionally, some jobsites, such as one in a neighborhood, may require certain noise restrictions, making a quality muffler important. Whatever the demands are, there is a generator that will work hard and fit that need.

"Construction site managers expect work crews to deliver high-quality, dependable work, no matter what," said Roche. "Those expectations should be no different for the portable generator that's powering a construction site."

Quality jobsite generators need to be hardworking, long-lasting and safe for the crew operating the unit. Having the right portable generator will help to decrease downtime and maximize productivity.

WORK ETHIC

It may go without saying, but the higher the wattage, the higher the production capability. "Running watts" is the continuous wattage produced to keep items running, while "starting watts" represents the maximum current that can momentarily be supplied when starting a motor, multiplied by the generator's rated voltage. Units that have a higher wattage output will use more fuel than ones that run at a lower wattage output. Look for a unit that can operate for long periods of time without running out of fuel. A generator with at least a 7-gallon tank should ensure plenty of runtime for even the longest work days.

Units that come with a fully protected ground fault circuit interrupter (GFCI) panel are recommended. Having multiple outlets enables a user to power more tools, while protecting against overloads and ground faults. Commercial grade engines, such as Vanguard engines,

are fast-starting, dependable engines equipped with advanced features that extend life, minimize maintenance and dampen noise. To help mitigate the loss of productivity hours, purchase a portable generator with an oil alert system. Some portable units on the market will shut down when the oil gets too low.

DURABILITY

Jobsites can be dirty. From sawdust to grease and mud, things can get messy. Having a generator that can take dust and dirt without clogging up the engine is important. To mitigate any damage due to the accidental abuse with the generator, look for features like the following:

- Steel frames
- Premium, extra-large, all-terrain wheels
- Lifting handles

A solid-built, steel frame will not only protect the engine, but will also ensure the unit won't quit if someone bangs into it with a bumper or a tire. According to Roche, "Tires may not be top of mind when choosing a portable generator, but they should be. All-terrain tires will help to ease maneuverability over the roughest terrain." Depending on the generator, the unit and weight can be difficult to manage. Make sure the handles are built to help the user get from point A to point B.

SAFETY

Keep safety top of mind when purchasing a new generator to help keep job progress on track and meet completion deadlines. Any portable generator needs to include safety features on it to limit hazards, such as shock or tipping of the unit. A big safety hazard around portable generators is carbon monoxide. A colorless, odorless poison called carbon monoxide (CO) is produced when a generator is running. To prevent the toxic gas from drifting indoors, always place the portable generator as far away as possible from doors and windows. Because portable generators sit in one place and run for an extended time, it is important to place the unit downwind and point the engine exhaust away from people. Never run a portable generator inside a building or a house. Takeyourgeneratoroutside.com has a helpful printout that can be posted as a reminder to your construction crew.

"The overall goal is to help construction site managers find a durable, safe unit to power any jobsite," Roche said. CBO

Liz Dorland is a public relations associate for Swanson Russell, based in Lincoln, Nebraska. Prior to joining Swanson Russell, Dorland worked for the American Red Cross as a communications officer in Nebraska and Kansas. Dorland earned several awards for reporting during her time at KMTV - TV in Omaha. Visit briggsandstratton.com.



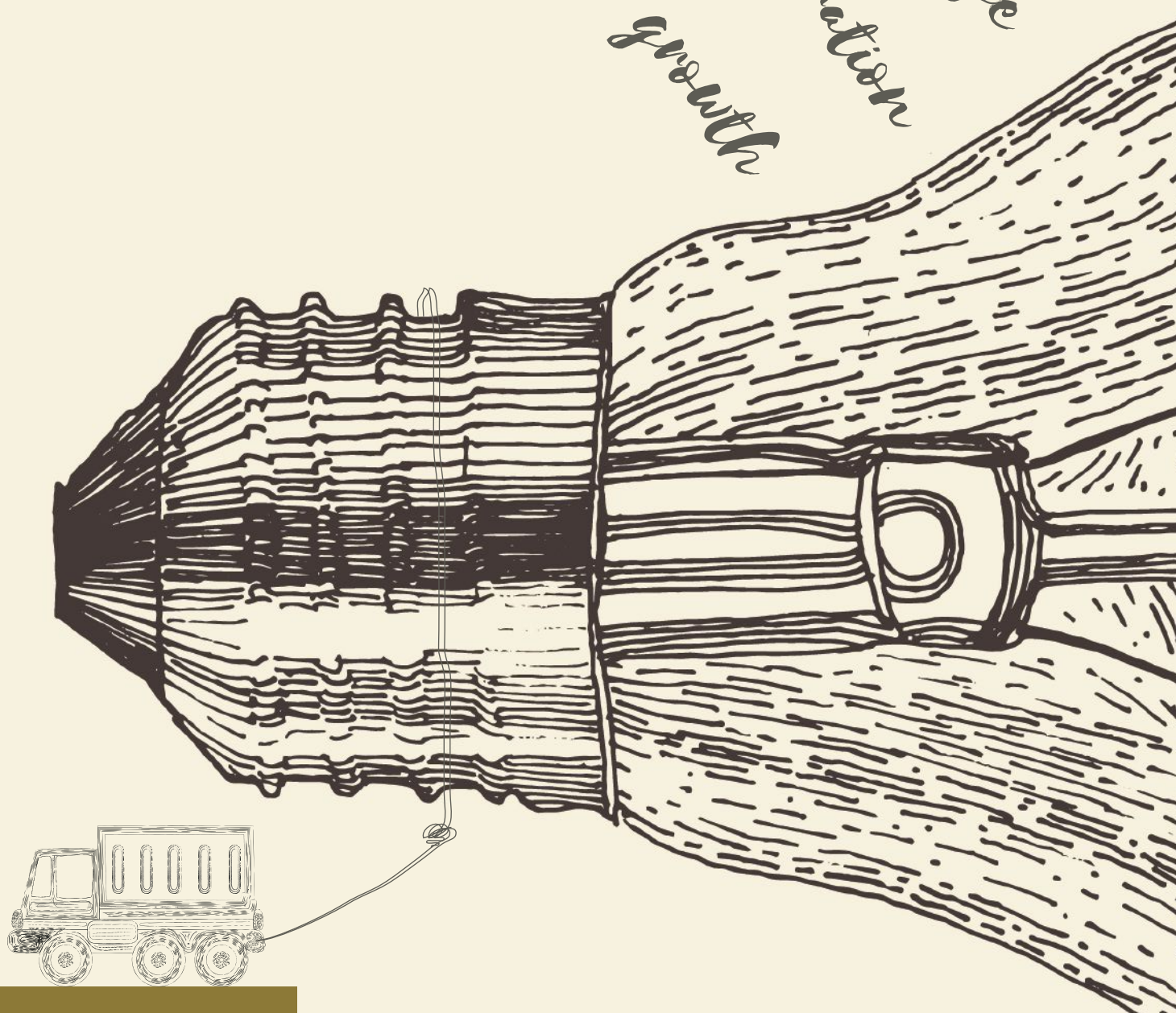


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BIG IDEAS

to move your business forward

The vendors featured in the following pages offer resources to help your company get ahead. Whether your business is looking to reduce costs, simplify workforce collaboration or enhance fleet management, it's important to continually explore your options.





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AIA Contract Documents

Avoid renegotiating contracts for each scope of service

Contractors across the country are simplifying the contract process and saving countless hours of redundant negotiations by using AIA's Master Agreements to streamline ongoing business relationships with owners. Imagine an owner who is responsible for multiple apartment buildings, which all require routine maintenance and renovations. That owner isn't likely to hire a new contractor every time he/she needs work done. Instead, he/she is going to hire a contractor that he/she knows and trusts. One week, the owner might need the contractor to install new kitchen fixtures in some of the rental units. The next week, it might be the removal of a wall or the replacement of a floor. That is where AIA's master agreements come in. An owner can have a standing agreement with a contractor they trust, so they don't have to renegotiate each time work needs to be done.

"The major benefit is that you can establish a working agreement with an owner, and then engage in multiple projects for that client, without the necessity of negotiating a new contract," said Joshua Ballance, Esq., senior manager and counsel, AIA Contract Documents. "Instead, you can determine what you will be paid and what has to be done, and then begin the work."



The Master Agreement establishes the fundamental terms and conditions of the contract between the owner and the contractor, but does not identify the specific scope of work or services. They can use an AIA Master Agreement to solidify general contract provisions like insurance requirements, waivers of consequential damages and stipulations for working with hazardous materials and more. Whenever a new project arises, the contractor and owner can simply add a work order under the umbrella of the original agreement. The work order specifies the scope of the work, compensation and any provisions unique to that scope of work—everything else is already covered by the Master Agreement. AIA Contract Documents offers the following Master Agreement and work orders for use between an owner and a contractor:

- A121–2014, Standard Form of Master Agreement Between Owner and Contractor, where work is provided under Multiple Work Orders
- A221–2014, Work Order for use with Master Agreement Between Owner and Contractor

Using a Master Agreement with an owner you work with repeatedly will save you time and hassle on contract negotiations and let you focus on your work. Get free samples of the AIA Master Agreement at aia.org/contractdocs/index.htm.

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A company committed to lifelong customers & leading-edge technology



Founded in 1981, Seattle-based Dexter + Chaney supplies the construction industry with construction software for business and operations. Today, Dexter + Chaney has thousands of clients using its software to manage all aspects of their businesses, from accounting to project management. Throughout its history, the company has been committed to two principles: customers for life and leading-edge technology.

As technology has improved, the company has remained agile, applying new technologies to its software without sacrificing functionality. With Spectrum Construction Software, Dexter + Chaney became the first construction company to deliver complete construction enterprise resource planning (ERP) software via a true cloud-based platform with an intuitive, web-browser interface.

Customers no longer need to load or maintain any client applications, and can access their software using any internet-connected device with a browser from anywhere they are working.

Dexter + Chaney's applications all work together to provide a contractor with everything he/she needs to manage his/her work and business—from the office to the field, from accounting to operations and from preconstruction to closeout.

Spectrum Construction Software provides complete business management solutions for contractors, including applications for job cost accounting, project management, document imaging, equipment management, service management, purchasing, inventory and more.

SPECTRUM DELIVERS UNMATCHED EASE OF USE

There is nothing easy about running a successful construction business. That's why Dexter + Chaney designed Spectrum Construction Software to be as user friendly as possible—so you can spend time running the business, not figuring out how to run the software.

With Spectrum, there are no complex menus to master and memorize. Start from the interactive Spectrum Dashboard, which you can customize to fit your needs, and dive into detailed information and the work you need to get done. As you work, a responsive InfoBar is always present, giving you one-click access to tasks and data related to what you are doing.

TOOLS TO COMMUNICATE & COLLABORATE

Wherever work takes you, documents or images associated with your work are available through an image pane on the Spectrum desktop. View purchase orders, contracts, submittals, work orders, RFIs, jobsite photos and virtually any type of file associated with your task at hand. Adding a new document or image is as easy as dragging and dropping the file onto the image pane. Spectrum applications and mobile apps are completely integrated, giving you a complete view of your projects. Metrics, such as work in progress, cost to complete, over/under-billing and earned revenue, are all available on a single screen.

Spectrum also helps ensure that everyone you work with—owners, architects, subcontractors, vendors—all have access to the latest information. Spectrum's Project Management gives you a cloud-based platform to share documents, send, receive and track communications and maintain an audit trail of all project activity and correspondence. Applications for all parts of your business, tools to streamline your operations, technology that delivers information when and where you need it … Spectrum is powerful construction software made easy.

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Doosan Infracore Construction Equipment America

Providing rugged construction equipment for nearly 80 years

Founded in 1896, Doosan is a strong, global company with a long legacy in infrastructure support. Its history in equipment manufacturing began in 1937. Doosan is quickly becoming a global force in heavy construction equipment. Since 2005, Doosan has grown to become the fifth largest construction equipment manufacturer in the world.

Doosan heavy construction equipment includes a full range of crawler excavators, wheel excavators, log loaders, material handlers, wheel loaders, articulated dump trucks (ADTs) and attachments for excavators and wheel loaders.

Excavators, log loaders, material handlers and wheel loaders are manufactured at Doosan factories in Incheon and Gunsan, South Korea, while articulated dump trucks are built at a Doosan factory in Elnesvagen, Norway. Doosan has attachment factories in North America and Europe to supply attachments for its excavators, wheel loaders, log loaders and material handlers. Doosan dash-5 crawler excavators, wheel excavators, wheel loaders and articulated dump trucks feature strong performance, operator-focused comfort, fuel efficiency and unmatched durability.

FUEL SAVINGS

Smart Power Control (SPC) is a selectable feature for Doosan crawler and wheel excavators to help reduce fuel consumption. It consists of two systems—Variable Speed Control and Pump Torque Control—that work together to improve machine efficiency, while maintaining productivity and reducing fuel consumption. Crawler and wheel excavator owners who use SPC can expect to see improved fuel efficiency by up to 3 to 7 percent. Additional features of



dash-5 excavators include the following:

- 7-inch LCD screen with rearview and/or sideview camera image
- Antiskid plates for easier engine access for machine maintenance
- Auto belt tensioner, fan and air conditioning simplify maintenance
- Components are simple to access, so equipment maintenance takes less time to complete
- Easy operator access to the emergency engine stop
- Upgraded alternator delivers improved power for electrical components

LIFT & CARRY SPECIALISTS

Doosan wheel loaders are dependable machines that lift, carry and dump materials on construction jobsites. Doosan wheel loaders are designed with cab comforts in mind, such as an adjustable steering column to provide more leg room, ease of operation and more floor space. Also inside the cab, a fuel consumption gauge informs operators how much fuel the machine is using in real time. Updates to the keypad on the dashboard make it easier for operators to review, adjust settings and clean and maintain it. Overall, visibility within the cab and around the machine has been improved, too.

160+ DEALERSHIPS

Products are marketed through more than 160 dealerships throughout North America. Doosan services this dealer network from its headquarters in West Fargo, North Dakota. Doosan also has a facility in Suwanee, Georgia, that focuses on service and sales training, as well as a parts distribution center in Chicago, Illinois, for parts support within the United States and Canada. At a facility near Tucson, Arizona, called The Real Operation Center (The ROC), dealers learn about new equipment, and equipment owners can perform hands-on testing of Doosan heavy equipment.

Doosan's market segments include agriculture, construction, forestry, mining, processing and manufacturing, rental and utilities.

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FLD Inc.

A leader in the fleet remarketing space for more than 30 years

The technology behind your remarketing strategy can be the difference between whether your program succeeds or fails, so it is no surprise that more companies are seeking intelligent solutions to integrate into their workflows. FLD has been on the front line of technological innovation since its inception. The company continues to lead the pack in offering comprehensive services to its partners.

AGILE INNOVATION

In 1990, FLD was the first company to use a fax machine to send and receive condition reports, accelerating the remarketing sales cycle. In 1995, it provided fleet managers with digital cameras, allowing them to capture photos of the condition of their fleet. Shortly after, in 1997, FLD released WebAccess, a fleet management tool that allows managers to access and monitor their vehicles around the clock. Tracking, sales history, condition reports and market evaluations are just a click away, providing all of the information needed for a refined remarketing strategy.

> As a partner, FLD works to execute solutions specific to your company's best interests.

TAILORED SOLUTIONS

FLD has expanded into mobile application development as well. OnceOVR Pro



(Online Vehicle Remarketing) is the fruit of that labor. The app is an electronic, condition-reporting app for your smartphone or tablet, compatible with both Apple and Android products. The app lets users capture an asset's data value points in real time from the field.

The app will then retrieve fair-market value assessment, allowing you to gather accurate, legible and timely information about an asset's real-time condition. These convenient condition reports help you quickly determine how well your vehicles are being maintained and whether they should be redeployed, allowing you and your crew to make smarter, more informed remarketing decisions.

The self-service functionality of OnceOVR Pro is what makes it such a powerful tool. You are able to get the information you need, when you need it, boosting efficiency in the remarketing cycle from the very first step. And when it comes time to get those assets off the books, you can turn to FLD's Sell It program. With Sell It, FLD is the direct buyer of your end-of-term fleet, eliminating risk and additional carrying costs and allowing you to be confident about taking your assets to market. FLD's proprietary, online, fleet-management tool WebAccess can serve as a central location for all of your remarketing needs.

These tools reflect the current interest in self-service apps and quick results, and are only some examples of how FLD creates solutions to match a dynamic market. As a partner, FLD works to execute solutions specific to your company's best interests. FLD optimizes new opportunities in the marketplace, strives to gain a comprehensive understanding of a problem and is always looking for the best value. Contact FLD today to see how your fleet management process can benefit from FLD's tailored remarketing strategy.

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Foundation Software

Keeping your field & your office in sync



Picture a mobile app in your workforce that builds directly into your accounting software as you work. It's the end of the day, and the last thing Dave wants to do is fill out paperwork, decrypt scribbled timesheets and go back to the office to turn it all in. The last thing the accounting manager wants is to get late, incorrect timecards with questionable data. The last thing his/her boss wants is out-of-date reports. Fortunately, Dave takes out his field log and logs in from his tablet.

Using his GPS location, he pulls current weather conditions into Foundation mobile, enters notes and jobsite events and records usage for a couple of dozers that put in a full day's work. For his crew's hours, it is even easier. He opens a grid timecard for his whole team and marks hours for their multiple trades, pay codes and cost codes, even logging a mileage reimbursement.

Once Dave clicks "Submit," his boss receives an email letting him know Dave's timecards are in. After a quick review on his phone, he can see that everything looks good and sends them directly to Foundation construction accounting software.

In the office, Sue receives the same email and opens Foundation to see Dave's timecards, equipment usage, inventory transfers, quantities complete and daily log. Overtime is automatically calculated for payroll that can print in minutes, and job-cost reports are ready to be run with up-to-date data. In the end, it looks like Dave's tablet saved hours of time.

Sure, mobile is the standard on today's jobsite, and construction accounting has to move at the speed of a 4G signal—field and office in sync. And that means contractors need a software partner that's not only on pace with the latest technology, but also has a solid foundation in the uniquely complex business of construction. Foundation Software has independently been developing its own on-premise, cloud and mobile applications for contractors for over 31 years, fueled from the beginning by organic growth that remains always responsive to its clients constantly shifting needs. Every innovation ties back to its flagship product, Foundation, because in construction, everything has to tie out. Because Foundation Software has a singular focus on construction, its clients can lead their industry in:

- Job costing
- Certified payroll
- Project and document management
- Scheduling
- Service dispatch

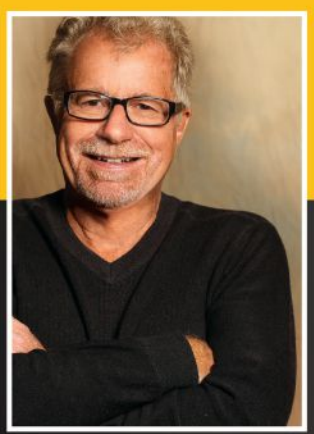
See why Foundation is America's No. 1 construction accounting software by visiting foundationsoft.com or calling 800-246-0800 to schedule a live, personalized demonstration.

Foundation Software
800-246-0800
info@foundationsoft.com
foundationsoft.com

WWW.FOUNDATIONSOFT.COM | 800.246.0800

AMERICA'S #1 CONSTRUCTION ACCOUNTING SOFTWARE.®





FRED ODE
CEO / CHAIRMAN / FOUNDER

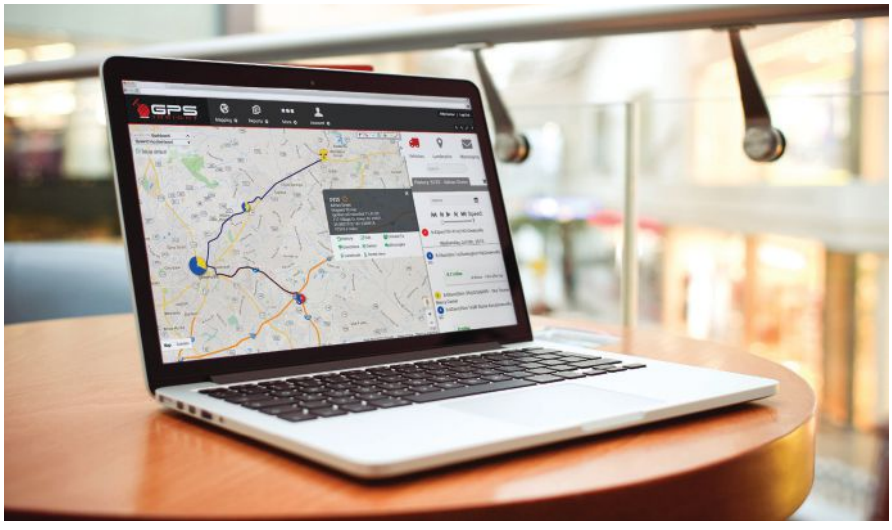
TRUSTED BY CONTRACTORS SINCE 1985

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GPS Insight

A fresh take on fleet intelligence for construction businesses

GPS Insight is the top technology provider of fleet tracking software for construction businesses like yours. Using a GPS tracking system makes it possible for your fleet to manage your mobile assets like never before. GPS Insight will offer your construction business much more than just dots on a map and breadcrumb trails. It gives you the power to fully transform the way you and your team manage your fleet operations.



Maximize your ROI & ensure that you are happy with the service you are getting.

4 REASONS WHY GPS INSIGHT IS WORTH LOOKING INTO

1. *Consultative sales approach*—GPS Insight will not pressure you into buying. The GPS Insight team takes a consultative approach to first figure out if the company is a good fit for your business needs, and then it works with you to teach you about its products and show you the ROI you can expect from its solutions.
2. *Customizable features*—GPS Insight understands that every business is unique. You face different challenges and have different needs in order to succeed at what you do. That is why it tailors its fleet-tracking system to meet your exact business. GPS Insight gives you the information you need, when you need it, the way you want to see it.
3. *Top customer service*—GPS Insight's United States-based customer service and support teams have received numerous accolades for their dedication to customer success and problem solving. Partnering with a GPS tracking provider that focuses on customer success will maximize your return on investment and ensure that you are happy with the service.
4. *Fine-tuned installation process*—All implementations require careful planning. GPS Insight provides you with a detailed GPS tracking installation plan to help you manage and track progress during each stage, from installations to training. The meticulous process will ensure your equipment tracking rollout is executed smoothly.

WHAT YOUR PEERS ARE SAYING

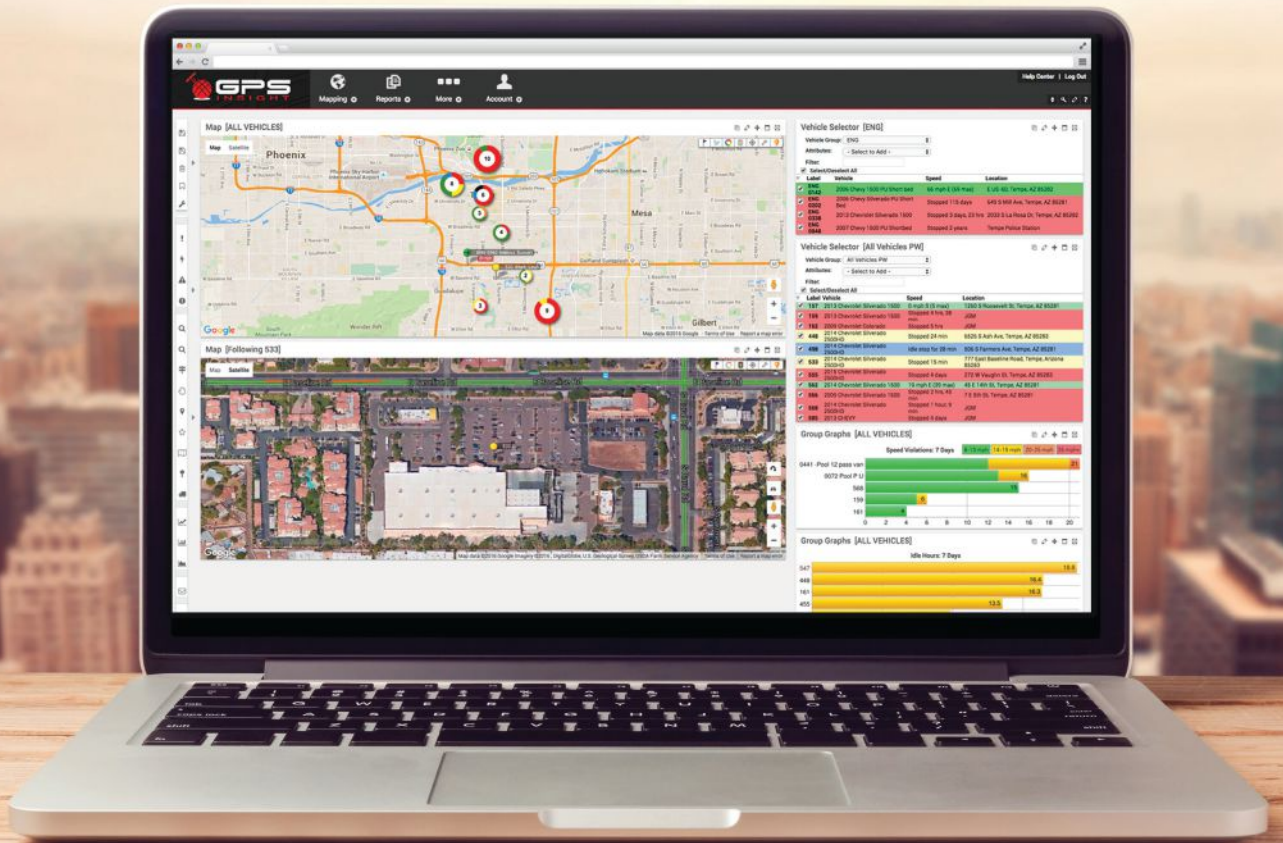
- "I would say that GPS tracking is well worth the investment and to just do it. The savings from payroll alone will pay for your initial investment in a short period of time." - Matt N., Whitton Companies
- "I would advise people to look beyond seeing your vehicles on a map, and understand the added value in reporting, messaging and other features offered that will help the business." - Brad Z., West Coast Sand & Gravel
- "The GPS Insight support staff and sales team are great. They definitely make sure that things are done when they say they are going to be. If you have any issues whatsoever, they will make sure your needs are met to the fullest!" - Stephen V., NuBilt Restoration & Construction

Contact GPS Insight to learn more about how GPS tracking can help your construction business reduce costs, mitigate risk and increase revenue.

GPS Insight
866-477-4321
info@gpsinsight.com
gpsinsight.com

Fleet Intelligence

For Your Construction Business



VEHICLE & ASSET **TRACKING SOLUTIONS**

We have tracking devices for all your needs:

- Light Duty Vehicles
- Heavy Duty Vehicles
- Powered Assets
- Non-Powered Assets

GPS Insight works with Construction businesses that have fleets of vehicles and other mobile assets to solve your unique business challenges through increased revenue, reduced costs, and reduced risk.

GPS INSIGHT

866-477-4321 **GPSINSIGHT.COM**

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Isuzu Commercial Truck of America Inc.

Ideal for construction businesses large & small

Running a construction business is no easy task—moving from location to location, project to project or business to business. That is where an Isuzu low cab forward (LCF) can help. With a low cab forward design, the driver has exceptional visibility, and it is easy to maneuver and park. Isuzu offers regular cab models with three-across seating and crew cab models that seat seven. Buyers can also choose gas with CNG/LPG capable or from two diesel engines. Add that to a variety of wheelbase and GVWR ratings, and you have the perfect work truck to tame even the toughest construction challenges.

Isuzu Motors Limited (Isuzu) is one of the world's largest manufacturers of medium- and heavy-duty trucks. Isuzu has an established heritage all the way back to 1918. Since the beginning, Isuzu has sold over 26 million trucks worldwide. Among its innovations are the first air-cooled diesel engine in 1936, the first two-ton, low cab forward (LCF) truck in 1959 and the first direct-injection diesel engine.

Isuzu Commercial Truck of America Inc. (ICTA), headquartered in Anaheim, California, is the distributor for Isuzu commercial vehicles in the United States. Isuzu Commercial Trucks have been the No. 1 selling LCF trucks in America every year since 1986.

The Isuzu N-Series LCF product line includes class 3 to class 5 trucks, and the only low cab forward lineup that includes two EPA-certified diesel engines and a gasoline engine alternative.



ISUZU TRUCKS PROVIDE ECONOMY & DURABILITY

- Isuzu's class-leading diesel engines provide B10 service life durability of 310,000 miles.
- Isuzu trucks provide support features that help reduce operating costs, improve performance, manage risk and help protect your truck investment.

ISUZU TRUCKS ENHANCE VERSATILITY

- Isuzu's cab/chassis combinations offer standard 3-seat cabs or crew cabs with seating for a 7-person crew.
- Upfit applications accommodate vocational bodies up to 24 feet with the standard cab and 16 feet with crew cab models.

ISUZU TRUCKS DELIVER PERFORMANCE

- Isuzu trucks provide the engine power options you need for GVW's from 12,000 pounds to 19,500 pounds.
- The Isuzu N-Series features a Vortec gasoline engine that is CNG/LPG alternative fuel capable.
- The Isuzu N-Series also offers two diesel engine options, depending on your needs.

Only Isuzu has the reputable history focused on LCF medium duty trucks with the engines, cabs and vocational truck bodies best suited for your business.

Isuzu Commercial Truck of America Inc.
866-441-9638
isuzucv.com

ISUZU TRUCKS

The #1 Selling LCF Truck In America Since 1986

- 32 years of legendary dependability with a lower cost of ownership
- Two diesel engine options and a gas engine that is CNG/LPG capable
- Easy to drive: outstanding driver visibility, excellent maneuverability, and tight turning radius
- 3-seat standard cabs or 7-person crew cabs
- Only Isuzu has a history focused on LCF medium duty trucks with the engines and cabs for vocational bodies best suited for your business



ISUZU TRUCK

Fleet Value®

OE Quality Parts at Competitive Prices



Affordable Quality Parts

Learn more at ISUZUCV.COM

Vehicles shown with optional equipment; some equipment is dealer installed.
Please see your authorized Isuzu dealer for more information.
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JCB North America

Your construction company's heavy equipment partner

Founded in a garage on October 23, 1945, by Joseph Cyril Bamford, JCB has grown to be the world's third largest construction equipment brand, with 22 plants on four continents, including its North American headquarters in Savannah, Georgia.

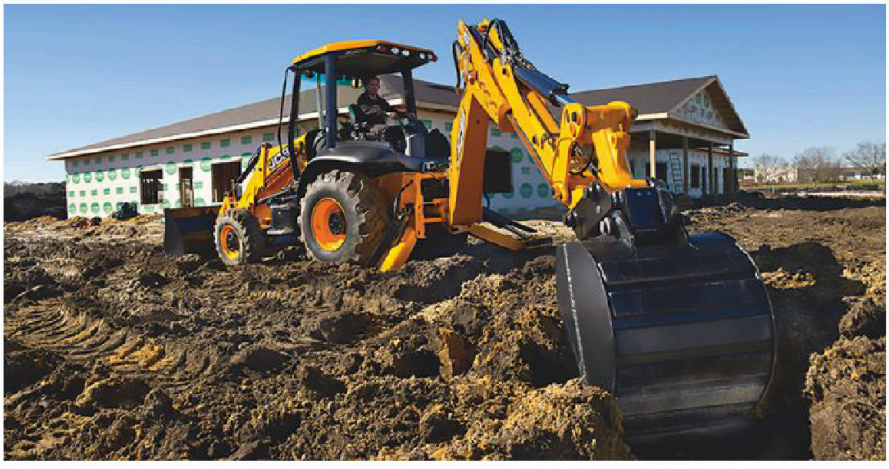
In 1953, "Mr. JCB" created the first backhoe loader, a single machine with both a hydraulic rear excavator and a front-mounted loader. Today, more than 6 decades later, JCB continues to foster that same innovative spirit, manufacturing hundreds of other tough, powerful machines that improve productivity and safety on construction sites worldwide.

INNOVATION AT WORK

JCB is always looking for ways to design, engineer and manufacture equipment that helps customers do their jobs more efficiently and more productively. The quality and customer-friendly features that it builds into every machine are getting attention from contractors and industry experts all over the world.

Drawing upon its heritage, JCB continues to be the world's leading manufacturer of backhoe loaders. But its commitment to innovation doesn't stop there. JCB also pioneered the telescopic handler back in 1977, developing a machine that made material handling on the jobsite faster and easier than ever before. From there, JCB created the world's first and only skid steers and compact track loaders with a single-arm, "PowerBoom" design that allows for an exclusive, side-door entry.

From backhoes, wheel loaders and excavators to telescopic handlers and skid steer loaders, JCB's equipment can handle any construction company's needs—safely and efficiently.



LOWERING COSTS, INCREASING PRODUCTIVITY

JCB continues to push the boundaries in research and development. JCB engineers are developing and implementing new technologies that lower maintenance costs, decrease downtime and improve productivity.

JCB's EcoMax engines over 74 hp meet stringent Tier 4 Final emissions legislation by using a compact, highly efficient selective catalytic reduction (SCR) system that does not require a diesel particulate filter (DPF). Engines less than 74 hp utilize JCB's groundbreaking technology to handle emissions within the engine combustion chamber and require no DPF and no DEF.

Now standard on most JCB machines, LiveLink is a real-time software system that keeps construction business owners in complete control by allowing them to monitor and manage their machines remotely via a computer or mobile device. LiveLink maximizes uptime and provides essential machine operating data, including fuel consumption, GPS tracking and enhanced maintenance reporting.

GLOBAL PRESENCE, LOCAL ATTITUDE

Although JCB now has more than 12,000 employees worldwide, it hasn't lost sight of the values upon which "Mr. JCB" built his company all those years ago.

JCB's growing North American dealer network reflects the company's strong focus on customer satisfaction.

Today, JCB has over 115 dealers with 325 locations across North America, plus an extensive field service team, which allows them to sell and service machines in more locations than ever before. Four North American parts distribution centers provide top-notch parts access for customers across the continent.

Backed by more than 70 years of history and growth, JCB continues to innovate and deliver new products and technologies to the marketplace. JCB's goal is to help contractors get the job done—efficiently, safely and profitably. To learn more or to find a JCB dealer near you, visit jcbna.com.

JCB North America
912-447-2000
jcbna.com

FOR THOSE HARD TO REACH PLACES



Circle 124 on card or visit cbofreeinfo.com.

JCB's 525-60 delivers both power and reach in a compact package.

With its tight turning radius, best in class 20 foot lift height and near 6' square footprint, the JCB 525-60 telehandler is ideal for compact jobsites. Combined with a NO DPF, NO DEF Tier 4 Final Engine Solution, it's a must have piece of equipment for the jobsite.



Find your next level of performance and productivity today with a JCB 525-60. To learn more or find your local dealer visit JCBNA.com.

0% FINANCING FOR UP TO 70 MONTHS

JCB

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Offer valid for a limited time on select new models. Offer may change without prior notice and additional terms and conditions apply. Subject to JCB finance approval. See your nearest JCB dealer for details.

The Knapheide Manufacturing Company

Work-ready vehicle solutions to make your job easier

At Knapheide, you will find a team of hard-working people dedicated to creating the highest quality products—service bodies and equipment—in the construction industry. That same team is dedicated to making the jobs of the customers who use those products a little bit easier, day in and day out, all around the country.

One of those customers is APAC Wheeler in Texas. APAC provides asphalt paving and maintenance services all the way from San Antonio to Austin, and everywhere in between. The company, which was founded as Wheeler Coatings in 1982, employs over 300 people and services almost 69,000 square miles of territory, with maintenance offices in Round Rock, Belton and San Antonio.

"We do aggregate paving, concrete and have large quarries and several plants in Central Texas," said Cory Abernathy, APAC Wheeler construction equipment manager.

"I've had Knapheide trucks for probably 10 years. The trucks and service bodies hold up under pressure," said Shane Dickey, APAC Wheeler field technician. "They're just built well." When APAC Wheeler technicians hit the road, it is usually to fix a problem, which means they could be going to remote locations for long periods of time.

"Our mechanics use their trucks out on jobsites, and whenever they have a call, they'll go out on a jobsite, do the repair on site, and they will use it (the truck) in the shop as well," said Abernathy.

When you are a hundred miles from nowhere, you need to be able to trust your equipment and be sure the tools you use won't let you down. That's why the people at APAC Wheeler choose Knapheide service bodies and equipment.

Since 1848, Knapheide has provided customers with high-quality, work-ready transportation solutions. Today, Knapheide is North America's most popular manufacturer of truck bodies and truck beds. In fact, there are more work trucks on the road today with "Knapheide" stamped on their truck body than any other manufacturer.

"The first thing I think of when I hear Knapheide is 'truck beds'," said Jeff Simmons, APAC Wheeler field technician. "I've been in big trucks and little trucks, brand X to brand Z, but over the years, this one stands alone."

"I drive a 2014 truck with a Knapheide service body. It's just a good, strong body that can handle anything you throw at it," said Dickey. "There is no competition for Knapheide, in my opinion. I've had a lot of different body styles, and Knapheide's been the best in my 21 years of experience."

Never settling for second best: that's what has made APAC Wheeler a successful company over the years. And because it never settles for second best, Knapheide never settles when it comes to the products and services it creates for its customers—products and services that make their work a whole lot easier.

The Knapheide Manufacturing Company
217-223-1848
brichards@knapheide.com
knapheide.com





That means never settling when it comes to the tools and equipment you use. At Knapheide, we never settle when it comes to giving you work-ready vehicle solutions and services that make your work a whole lot easier. Find out how never settling sets us apart.

Find out more at **Knapheide.com/NeverSettle.**

KNAPHEIDE®
SINCE 1848

NEVER SETTLE.

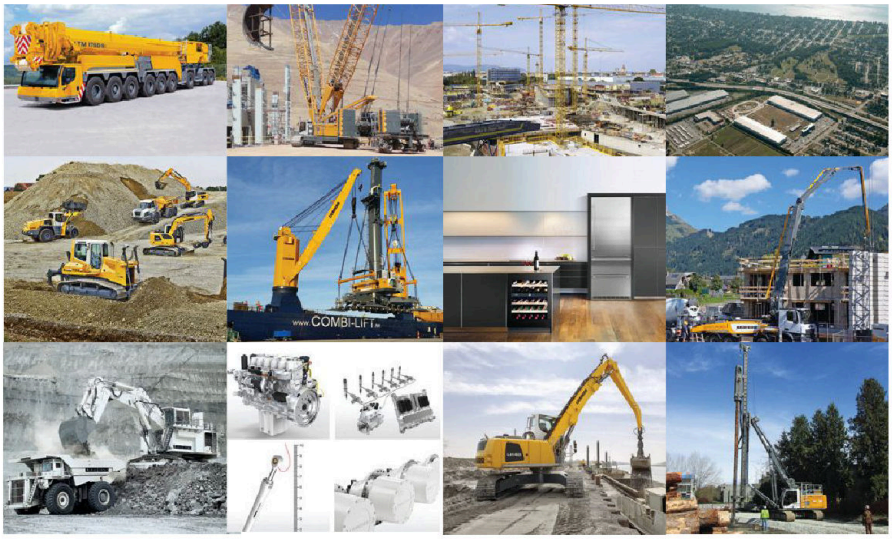
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Liebherr USA Co.

A family-owned company providing products & technologies for the earthmoving industry

Hans Liebherr established the company that bears his name in 1949. Today, the Liebherr Group is a leading manufacturer of earthmoving equipment and a supplier of innovative, user-oriented products and services in many other fields of activity as well. The group's holding company, Liebherr-International AG, which is based in Bulle, Switzerland, is wholly owned by members of the Liebherr family. The family-owned company employs more than 40,000 people in over 130 companies worldwide, in 40 countries. From its earliest days, The Liebherr Group's corporate culture has been determined by its family ownership. For more than 65 years, Liebherr has striven for a close, long-term relationship with its customers and business associates. Liebherr shapes technological progress and aims to retain its position at the leading edge of future technology. Liebherr's products are the outcome of passion and dedication: tailor-made solutions that start with the customer's needs and wishes. Liebherr's North America headquarters was established in 1970 with the construction of its 300,000-square foot production facilities in Newport News, Virginia.



MAJOR PRODUCT LINES

Liebherr USA Co. is organized into eight product divisions, with six of the divisions offering products for earthmoving, including mining, mobile and crawler cranes, tower cranes, foundation equipment, concrete technology, material handling and construction equipment.

LIEBHERR-MADE COMPONENTS

The high-quality requirements with which Liebherr products have to comply are ensured by in-house production. Major machine components and subassemblies are developed and manufactured by Liebherr itself, such as the entire driveline and control technology.

PRODUCT SUPPORT

Liebherr offers efficient customer service at any operating site, through its sales and service organizations and a closely spaced dealer network. Factory-trained service representatives ensure timely, professional support to customers in North America.

PARTS DISTRIBUTION

The new global logistics hub for earthmoving spare parts center in Germany, along with the national parts distribution center located in Newport News, Virginia, and the new distribution center in California, are devoted to expediting parts orders, improving operational efficiency and minimizing transit time while increasing customer support throughout the United States.

APPLICATIONS

- Civil engineering
- Scrap and recycling
- Port handling
- Tunneling
- Quarrying
- Waste management
- Concrete pumping
- Rigging
- Specialized lifting
- Mining

MARKETS SERVED

- Construction
- Material handling
- Demolition
- Aggregates
- Forestry
- Landscaping
- Mining
- Wind
- Specialized lifting

Liebherr USA Co.
757-245-5251
liebherr.usa@liebherr.com
liebherr.us

Experience the Progress.











Purpose-built machines

Liebherr offers custom-made machines and technologies for the construction and material handling industries. A diverse range of wheeled and crawler excavators, wheel loaders and dozers offer all the equipment requirements you need for the construction and material handling industries. Even under the toughest operating conditions, the powerful and economical machines of Liebherr are built to last.

Liebherr USA, Co.
Construction Equipment Division
4100 Chestnut Avenue, Newport News, VA 23607
Phone: (757) 245-5251 Fax: (757) 928-8701
Email: Construction.USA@liebherr.com
www.facebook.com/LiebherrConstruction
www.liebherr.us

LIEBHERR
The Group

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Nissan North America

The vehicles you need to do better business

THE NISSAN NV CARGO: DESIGNED TO PERFORM, DAY IN & DAY OUT

Whether you run a single van or manage an entire fleet, it's important to have the right vehicle for the job. With the 2016 NV Cargo High Roof and NV Cargo Standard Roof, you have the right vehicle for the job and then some.

These are the kinds of vehicles you need to do better business: smarter, tougher and more comfortable, with state-of-the-art technology and safety. Not only are they safe, but they're also rugged. The NV Cargo is put through the wringer during development, logging over 7,000 quality and durability tests, as well as over 800,000 miles of reliability testing on a track that simulates the world's toughest roads.

AMERICA'S BEST COMMERCIAL VAN WARRANTY: 5 YEARS/100,000 MILES BUMPER-TO-BUMPER LIMITED WARRANTY*

Going above and beyond is the Nissan way. After passing all of the quality and durability testing Nissan can come up with, the company is sure you will have a van you can count on. To prove its confidence and commitment, Nissan is pleased to introduce America's Best Commercial Van Warranty. A bumper-to-bumper, limited warranty for 5 years or 100,000 miles, whichever comes first. And that means Nissan has got your back, so you can keep moving forward.

OVER 800,000 MILES & 7,000 QUALITY & DURABILITY TESTS TO OFFER AMERICA'S BEST COMMERCIAL VAN WARRANTY

One unshakable commitment. Fanatical? Maybe. But when it comes to making the toughest commercial vans you can buy, Nissan goes the extra distance for you. And it's no Sunday drive.

The Nissan team simulates years of corrosion, where they soak a vehicle with salt, bake it and pound it around a test track. They wreak havoc with suspension and body components by driving through potholes, dips and over 4x4 beams. Special chambers crank up the heat to 140 degrees and humidity to 95 percent to break down seals and age interiors.

Nissan even has machines that can simulate nearly any road in the world, and it run its vehicles on them nonstop for 12 hours, 24 hours or more. Does Nissan really need to go to such extremes, just to make a Nissan Commercial Van the best one you have ever owned? Yes, because every day, you depend on it to do your job. That's the motivation for Nissan to do its job.

**Claim based on years/mileage (whichever occurs first) covered under the 2016 New Vehicle Limited Warranty basic coverage. NV200® Taxi is covered under a separate limited warranty with a different level of coverage. Comparison based on Ward's Light Vehicle Segmentation: 2016 Nissan Cargo, Passenger v. 2016 Large Van Class; 2016 Nissan NV200® v. 2016 Small Van Class. Comparison based on publicly available information on manufacturers' website. Nissan's New Vehicle Limited Warranty basic coverage excludes tires, powertrain coverage, corrosion coverage and federal and California emission performance and defect coverage (applicable coverage is provided under other separate warranties). The powertrain coverage is 5 years or 100,000 miles (whichever occurs first). Other general exclusions and terms and conditions also apply. For complete information concerning coverage, conditions and exclusions, see your Nissan dealer and read the actual New Vehicle Limited Warranty booklet. Warranty claim is current at time of printing. Always wear your seat belt, and please don't drink and drive. ©2016 Nissan North America, Inc.*

Nissan North America
nissancommercialvehicles.com



NISSAN

Innovation that excites

NISSAN BUSINESS CERTIFIED DEALERS

YOUR BUSINESS DRIVES YOUR LIFE. OUR VEHICLES DRIVE YOUR BUSINESS.

We know that your business is more than just your work, which is why you can trust our Business Certified Dealers to find the right commercial van for you. Only Business Certified Dealers offer exclusive commercial incentive packages such as cash incentives or graphics packages. And we know your business shouldn't have to wait if something goes wrong on the job, which is why we have 24-hour Roadside Assistance and complimentary shuttle service. Plus, we're proud to offer a 5-year/100,000-mile (whichever occurs first), bumper-to-bumper limited warranty – America's best commercial van warranty – on all our vans.*

NV200® Compact Cargo | NV® Cargo | NV® Passenger



NISSAN Commercial Vehicles

NissanCommercialVehicles.com

America's Best Commercial Van Warranty

5 YEARS/100,000 MILES

BUMPER-TO-BUMPER WARRANTY*

BUSINESS CERTIFIED

See dealer for limited warranty details.

*Claim based on years/mileage (whichever occurs first) covered under the 2016 New Vehicle Limited Warranty basic coverage. NV200® Taxi is covered under a separate limited warranty with a different level of coverage. Comparison based on *Ward's* Light Vehicle segmentation: 2016 Nissan NV® Cargo Passenger vs. 2016 Large Van class; 2016 Nissan NV200® vs. 2016 Small Van class. Comparison based on publicly available information on manufacturer's website. Nissan's New Vehicle Limited Warranty basic coverage excludes tires, powertrain coverage, corrosion coverage, and federal and California emission performance and defect coverage (applicable coverage is provided under other separate warranties). The powertrain coverage is 5 years or 100,000 miles (whichever occurs first). Other general exclusions, terms and conditions also apply. For complete information concerning coverage, conditions and exclusions, see your Nissan Dealer and read the actual New Vehicle Limited Warranty booklet. Warranty claim is current at time of printing. Always wear your seat belt, and please don't drink and drive. ©2016 Nissan North America, Inc.

On Center Software

Software to reduce costs, save time, improve accuracy & increase business

On Center Software was founded by construction managers to automate estimating and construction management with the power of digital technology. It started with Quick Bid, which propelled project cost estimating and greatly increased accuracy. Building accurate bids quickly is critical for winning bids. Quick Bid has instant access to 14 accounting systems and trade-specific databases.

On-Screen Takeoff and Digital Production Control were launched to help contractors with the full lifespan of a construction project. During the design and build phase, On-Screen Takeoff uses digital plans with color-coded overlays that identify spec and design changes, which can avert costly rework.

On Center's Oasis Platform is the cloud-based foundation for the entire AEC industry to build on. Using Microsoft and Google's infrastructure as the backbone, Oasis delivers an open, accessible structure to manage the entire construction project lifecycle from design, engineer, build and operate, in real time, from tablet to laptop.

Oasis FieldCenter enables the construction site to collaborate with the office in real time with change orders, notes, photos, production reports and punch lists. All the project details are in sync through the cloud. In the not-too-distant future, architectural firms and builders will require all contractors to have tablets on site.

Digital plans and real-time document sharing simplify the bidding process by making the specs and plans clear and instantly accessible to those involved.

> "I've been using Quick Bid for over 10 years, & I can never go back to longhand. It is a good tool & fairly simple for people to learn. If I need to change markup or production prices, it automatically recalculates the cost. Other software programs are just not as good as this one."
>
> Phil Harrell, senior estimator



TRAINING & SUPPORT

To make sure clients fully use all the benefits of the software, On Center offers extensive training and support, with regularly scheduled training at On Center offices, free, self-paced training and orientation videos. There are instructor-led, feature-specific webinars and customized, individual sessions available.

On Center Software has live support by phone, Sunday at 6 p.m. to Friday at 10 p.m. CST. Find out more about On Center Software at oncenter.com.

On Center Software
866-627-6246
oncenter.com

IS BIDDING ALL NIGHT KNOCKING YOU OUT?

Chris worked himself around the clock trying to get his estimate in on time.



Ever felt like Chris?

You are not alone.

Quick Bid® has a complete materials database that covers a wide variety of trades, including drywall, acoustical, EIFS, plaster, and more. You can produce bids in a fraction of the time it used to take, plus have the reports and materials databses you need to start jobs immediately.

Quick Bid is not only fast, but flexible too. Change any number and Quick Bid's built-in, real-time estimating calculations will recalculate the entire bid in seconds. Preview reports directly on your screen and print only the pages you need. Enter your bid total and let Quick Bid calculate the profit margin for you.

Don't take it lying down anymore.

Schedule a Quick Bid Demo Today.

Classic Quick Bid®

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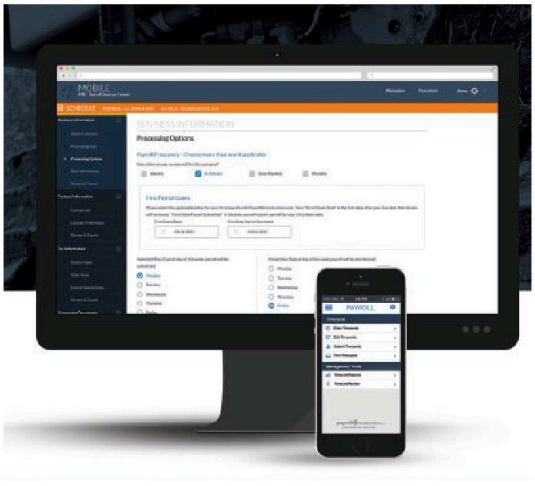
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1-866-627-6246 info@oncenter.com On Center SOFTWARE

Payroll4Construction.com

A payroll service that really knows your industry

Between entering time into spreadsheets, completing tedious certified payroll reports and calculating taxes and fringes, in-house payroll can tie up a construction office staff for entire days each week. But do you really outsource it? After all, what do big corporate processors know about completing your job costing, tracking field labor, managing multiple unions, keeping up with prevailing wage rates and juggling the complex calculations that govern your payroll and keep you on the right side of agencies and your employees?



A PAYROLL SERVICE JUST FOR CONSTRUCTION

Payroll4Construction.com doesn't just major in construction payroll—from system to service and support, it is built exclusively for the weekly, quarterly and yearly challenges contractors face in their payroll management. With a singular focus, it stays current to changes in tax law and the shifting trends of the industry.

Since 2006, contractors of all trades and sizes, including union and government contractors, have trusted their payroll, deductions and taxes to Payroll4Construction.com, because its practical reputation is built on a parent company with over 31 years of experience in construction accounting, Foundation Software.

Payroll4Construction.com goes beyond basic payroll processing tasks like checks, direct deposits, tax filing and W-2s:

- *Multiple states, localities, jobs and rates.* A single payroll can have employees working on multiple jobs in multiple states and localities, all with different trades, rates and even unions. What about when a job is in another union's jurisdiction? That's a lot for anyone to process. Payroll4Construction.com automates it all, so you can simply enter or import timecards and know it is covered.
- *Construction reporting.* Just log in at any time to download a battery of free, instantly generated, construction-specific reports. Proofing reports keeps you confident about the accuracy of your payroll before it even processes, and job cost, union and EEO minority compliance reports will help you make sure you are running on track. Payroll4Construction.com offers certified payroll reports in numerous formats and can even take care of electronic submission.
- *Remote timecard entry.* Payroll4Construction mobile lets users enter time right from the field on laptops, smartphones or tablets. Project managers or superintendents can also review submitted hours, send back corrections and approve timecards, all from virtually any mobile device.
- *Online payroll portal.* With eAccess, employees have a direct line to their payroll information from anywhere at any time. With an easy-to-navigate dashboard, users can see paystub history, taxes and deductions, year-to-date data and even vacation accruals.
- *Affordable Care Act.* With monthly hours reports and Forms 1094-C and 1095-C filing, Payroll4Construction.com helps contractors stay compliant in IRS reporting.
- *Software integration.* The company integrates with select accounting software programs, such as QuickBooks and Foundation, syncing payroll data from leading timekeeping apps and into to the general ledger with less hassle, fewer errors and greater efficiency.

Visit Payroll4Construction.com or call 800-949-9620 to receive free sample reports and claim a custom quote for your construction company.

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"Construction payroll is tough! You've got prevailing wage rates, union fringes, different trades and tax jurisdictions, reporting requirements, and the list goes on. That's why we created Payroll4Construction – to automate construction payroll and reporting so contractors and their CPAs can focus on the bigger picture."

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FRED ODE
CEO/Founder



Takeuchi-US

Operating on the pillars of performance, durability, serviceability & operator comfort

Takeuchi-US was established in 1979 in Atlanta, Georgia. Featuring four product lines: excavators, skid steers, track loaders and wheel loaders, the company's design philosophy is built around four pillars: performance, durability, serviceability and operator comfort.

An innovator from the beginning, Takeuchi was the first company to introduce compact excavators to the North American market. This helped set the stage for one of the highest growth product segments ever introduced in the compact equipment segment. The innovation continued, and in 1995, Takeuchi introduced the first compact track loader to North America. In 2006, Takeuchi unveiled a full line of compact wheel loaders.

Takeuchi uses a growing dealer network throughout North America to distribute its products and provide excellent service and support to its customers. The company has also established many national, regional and local rental companies as loyal customers.

> Takeuchi uses a team approach to support its customers.

Known for top-notch service, the Takeuchi field support structure is unique in that a team approach is used to support its customers. Each region is assigned a business, product, service, parts and rental manager. This results in quick answers and solutions for their customers.

The four pillars design philosophy has never been more evident than with one of the latest products from Takeuchi: the TL12v2 track loader. Not only is it the first vertical lift model in the company's lineup, but it is also the largest vertical lift track loader in the industry.



The TL12v2 has new features to enhance performance, durability and serviceability. These features provide better stability, visibility, reduced vibration, increased lift height and complete operator comfort.

The Takeuchi vertical lift loader delivers 45 percent greater operating capacity when compared to the current TL12 radial and delivers exceptional load and carry performance. Additionally, the vertical lift arm design provides outstanding reach, increased lift height and remarkable machine stability.

Powered by a Kubota 3.8L US EPA Tier 4 Final emission compliant diesel engine, the track loader produces 111.3 horsepower and 284 feet per pounds of torque.

Providing greater visibility, efficiency and performance on the job, Takeuchi features a lower cross member on the TL12v2. The design of the rear cross member provides optimum visibility to the rear of the machine. Additionally, the operator's station has been completely revamped, with a wider cabin for exceptional comfort and accessibility. A new, 5.7-inch, color multi-informational display keeps the operator informed, while the precision pilot controls and a new Active Power Control system provide impressive control of the machine.

The TL12v2 features a quiet track design for reduced noise and vibration while operating with a new tread pattern. The tread pattern produces greater flotation, minimizing ground disturbance, and a new contact pad between the roller and track enhances ride quality and reduces vibration. Furthermore, the undercarriage on the TL12v2 has been lengthened for greater stability and ride quality.

Takeuchi has a long, proud history as a leader in compact equipment. They continue to provide products that meet the needs of today's contractor.

Takeuchi-US
706-693-3600
info@takeuchi-us.com
takeuchi-us.com

PROS KNOW

Boost your profit potential with the industry's largest vertical-lift compact track loader. With impressive operating capacity, increased lift height and greater balance, the **all-new Takeuchi TL12V2** has all the right features to be in constant demand. Massive lift cylinders provide excellent load and carry capabilities, and a longer undercarriage adds stability. Find out why it's one of the most powerful and responsive compact track loaders on the rental market today. Learn more at **takeuchi-us.com**.

TL12V2
Vertical Lift
Compact Track Loader



TAKEUCHI FLEET MANAGEMENT

Takeuchi Fleet Management (TFM)* is a remote monitoring system that keeps track of location, hours, alerts, and more to help you prevent costly repair calls, better manage your fleet and lower your overall operating costs.

***Available on most models.**

TAKEUCHI

Those in the know, know Takeuchi

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FIND OUT WHAT OTHERS KNOW. VISIT **TAKEUCHI-US.COM** TO FIND THE DEALER NEAREST YOU.

Cat Footwear

Supplying men & women with work boots to get the job done right



Cat Footwear produces boots and shoes that represent the long-standing values of the Caterpillar brand. Cat Footwear is committed to developing innovative comfort, durability and technology features that give your team the tools needed to build the future. Cat Footwear is the line of defense between your feet and a daily pounding of the elements. The construction industry is one career field that few women pursue. There are roughly one million people working in the trade and, according to the Bureau of Labor Statistics, 2014, only 8.9 percent are women. Under-representation of women presents business owners with an opportunity to actively recruit and create roles specific to women. And it is important their success that these women feel prepared for their new careers. One way to prepare them is with the proper tools for the trade.

Safety, comfort, performance are important requirements of work boots, yet many women don't realize there are boots designed for them. Footwear brands are embracing women in construction by offering a selection of on-trend styles to fit their needs. Women in industrial jobs, such as contracting or carpentry, should consider footwear with electrical hazard protection, flexible, lightweight designs and waterproof materials. For light, industrial trades, such as transportation and warehousing, it is important to have protection from falling objects with a safety toe, as well as being lightweight and comfortable for long days on your feet. Now women can take a fresh step into a construction industry career in a pair of work boots designed to fit both their jobs and their style.

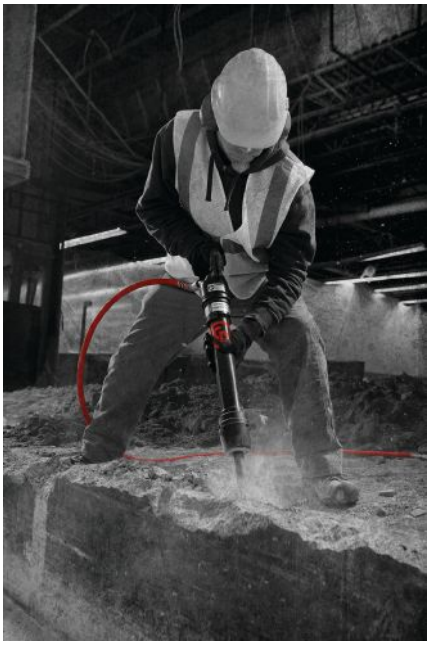
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Chicago Pneumatic Construction Equipment

People. Passion. Performance.



Since Chicago Pneumatic (CP) opened its doors in 1901, its products have played a major role in the construction of the United States. From the Empire State Building and the Lincoln Tunnel to the Hoover Dam and the Golden Gate Bridge, CP tools have helped build structures that last.

CP got its start by providing a single-valve, pneumatic hammer to the construction market, and has since expanded its product offering into a comprehensive range of tools and equipment specially designed for a myriad of construction, demolition and industrial applications.

After 115 years in business, CP products have built a reputation of durability and reliability across all product lines, including compaction equipment, rig-mounted attachments, portable compressors, generators, light towers, concrete equipment and hand-held pneumatic, hydraulic and gas-powered tools.

CP equipment is engineered with precision, built to last and backed by a global network of trusted CP dealers and distributors. For more information, visit cp.com.

Chicago Pneumatic
Construction Equipment
800-760-4049
cp.com



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Eye Trax

Meeting jobsite protection needs with solar-powered security camera systems

The construction industry is very susceptible to crime, including theft and vandalism. The only way to thwart theft and vandalism is to catch the perpetrators in action or pursue them with pictorial evidence.

Many equipment owners and project managers have found that their level of risk for theft and vandalism significantly decreases with the more precautions they take to secure the jobsite—proving that the need for security monitoring on construction sites is greater than ever.

An Eye Trax wireless, solar-powered, motion-activated and night-vision-enabled construction camera fills a void in remote areas where security and surveillance cannot be performed. Human and vehicle activity can be monitored up to 250 feet from the camera with Eye Trax's battery operated, wireless motion sensors, while night vision provides 125 feet of invisible, infrared light. Motion-activated images and video can be sent to you as a text alert to any mobile device, or you can simply review all activity on Eye Trax's cloud software. Eye Trax cameras connect to the cloud with a secure cellular connection or Wi-Fi, if available. Cloud-based camera control software also provides a time-lapse video creator and image overlay, or simply draw and add text to your images to provide visual communication with your team.



Eye Trax
800-594-4157
jerry@eyetrax.net
eyetrax.net



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Felling Trailers Inc.

Increase ROI with the Air Tilt Deck-Over



Felling Trailers Inc.'s Air Tilt Deck-Over trailer's unique design utilizes air, powered from the tow vehicle, to tilt the trailer and optional ramps, which eliminates the need for hydraulics.

It is touted to have the "towability of a TAG trailer with the versatility of a tilt." These models are great for transporting low-clearance equipment because of their optimal low-clearance loading angle.

With the option of ramps, a load angle as low as 7 degrees can be achieved for loading equipment. Felling Trailers' Air Tilt model increases ROI through the following features:

- Reduces equipment transport time and labor with the ability to load two machines at once
- Offers better towing ability due to axles that are positioned back like a tag trailer (not in the middle), which creates optimal balance and stability and provides safer transport of equipment
- Operates on air, which eliminates oil that could potentially contaminate a worksite (No EPA or DEC concerns).

Felling Trailers is a family-owned-and-operated, full-line trailer manufacturer located in Central Minnesota that was started in 1974 by Merle J. Felling. Felling Trailers Inc. has grown from a small shop to a factory and office complex that today covers over 250,000 square feet. Felling Trailers currently manufactures more than 4,500 trailers a year. Its standard trailer line includes over 220 models. Felling Trailers provides high-quality products that are distributed across North America and internationally.

Felling Trailers Inc.
800-245-2809
felling.com



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Jobpower Construction Software

Technology essential to success in today's construction market

Jobpower provides comprehensive accounting, job cost management, payroll and document management software for general contractors and subcontractors of all trades. Accurate job cost reports, multiple billing methods, change orders and retainage tracking are essential for success in today's construction market. Real-time dashboards keep contractors' fingers on the pulse of their business.

INDUSTRY-SPECIFIC FEATURES

Jobpower offers construction-specific options not found in off-the shelf accounting software. Budget versus actual reporting is critical to stay competitive, while WIP reporting simplifies the bonding process. Progress billings are a breeze with the AIA billing option, and document management makes sure you are organized and efficient.

REMOTE TIME ENTRY

JPMobile runs on laptops, tablets and Android or Apple phones. Supervisors can enter and approve time for their crew by job, tasks, pay type and more. The clock-in/out feature with GPS capture and notes allows employees to self-report time, eliminating lost time sheets and office input.

THE RIGHT TOOL FOR THE JOB

Jobpower is the proven solution chosen by



thousands of contractors and their CPAs for over 30 years. Select between locally installed or cloud for access anywhere, anytime, with any connected device.

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OTTO

Communications accessories for demanding applications

For over 25 years, OTTO has been designing and manufacturing communications accessories, specializing in demanding applications for the two-way radio market.

Located in Carpentersville, Illinois, OTTO is recognized worldwide as an industry leader for superior performance and innovative products.

Vertically integrated manufacturing facilities allow OTTO to remain flexible and responsive to the constantly changing needs of any industrial environment, construction included.

Clear, efficient communications ease delays and enhance safety at jobsites where conditions can be challenging. Extremely noisy and rugged work settings are where OTTO accessories excel. By offering a vast array of products, from headsets to intercoms, OTTO keeps your team constantly connected and your project running smoothly.

OTTO provides solutions for a wide range of environments and budgets. OTTO headsets can improve traditional, two-way radio communications by providing additional hearing protection and audio reception.

Intercoms, such as the OTTO Connect powered by Multivoice, deliver clear audio transmission with the added benefits of hands-free communication.



OTTO
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Thunder Creek Equipment

Experts supplying mobile fuel, DEF & field-service solutions



Thunder Creek Equipment manufactures mobile solutions for the on-site storage and handling of diesel, diesel exhaust fluid (DEF) and other fluids/tools critical to the daily operation and uptime of construction equipment.

Thunder Creek has streamlined the way many companies handle fueling and service. This includes the industry's first bulk-fuel trailers that don't require CDL or HAZMAT endorsements, and a proprietary 2-in-1, closed DEF system that significantly reduces the opportunity for DEF contamination that is harmful to today's Tier 4 emissions solutions. The company also manufactures service and lube trailers with a modular tank design that is capable of holding 440 gallons of fluid in up to eight tanks in combinations of 25, 55 and 110 gallons. This can include tanks for diesel fuel, oil delivery (engine or hydraulic), used oil reclamation, grease delivery, antifreeze, DEF and other fluids based on field-maintenance needs.

Most importantly, Thunder Creek is putting uptime and cost savings directly within the control of fleet managers and foremen. Having these solutions on site and accessible ensures that fueling and maintenance happens on demand, that cost premiums charged by wet-hose services for small quantity drop-offs are avoided and that all of these daily, required services can be performed at a lower total cost of operation.

Thunder Creek Equipment
866-535-7667
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thundercreek.com



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Towmaster Inc.

A reputation for reliability that resonates with professional haulers



Since the late 1970s, Towmaster trailers have been relied on by equipment haulers all over the country. Not only have the trailers become known for their durability, but the company is recognized for its outstanding customer service.

Towmaster sells its trailers through a network of equipment dealers. This network has grown to include hundreds of dealer locations throughout the country. By selling only through reputable dealers, Towmaster customers can be assured they will get the best service available.

The company understands the costs associated with downtime, but its trailers have been known to last decades with regular, routine maintenance. In fact, Towmaster believes in the build quality of its trailers so much that the company backs it up with a limited lifetime frame warranty. Should replacement parts be needed, dealers can get them quickly by calling Towmaster's Trailer Parts warehouse.

Some businesses may choose to rent a trailer for temporary hauling projects. Towmaster sells trailers to the biggest equipment rental companies in the United States. Rental yards know that users will be able to haul their equipment safely with a Towmaster trailer. The company manufactures many styles of trailers, and has several models and hauling capacities in each style. You can even download the Towmaster's app through iTunes or Google Play and have detailed information about all the models right on your mobile phone.

Professional haulers want a reputable trailer that safely hauls their equipment all day, every day. That is why Towmaster has become America's best-built trailer for professional haulers. Is your company's reputation worth risking over hauling with a less reputable trailer brand?

Towmaster Inc.
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Winning Technologies Inc.

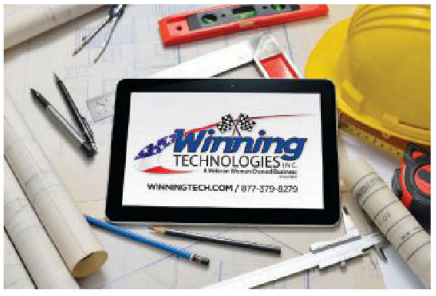
Focusing on your technology, so you can focus on your business

At Winning Technologies, the goal is to assist you with the selection, implementation, support and management of technology initiatives. Since 2002, Winning Technologies has worked with construction companies around the world to implement and manage cloud technologies, Voice over Internet Protocol (VoIP), networking, website development, IT strategic planning, and outsourced CIO services, along with Winning Technologies' 24/7/365, end-user support helpdesk.

Winning Technologies leads the technology industry with a 98-percent customer satisfaction rating. Winning Technologies wants to partner with you to bring its technology experience and resources to your business. The company will help you grow your business through increased productivity, streamlined work processes and reduced costs.

Winning Technologies maintains 15 offices around the country, in St. Louis, Dallas, Baltimore, Milwaukee, Medford, Sacramento, Phoenix, Wichita, Gainesville, Fort Lauderdale, Charlotte, Buffalo, Denver, Atlanta and Detroit.

Winning Technologies is a true, one-source technology partner. With Winning Technologies, you have one number to call. The company has full control of the technology because it owns the companies



providing it, with no outsourcing. Winning Technologies owns the process from the front to the back.

Winning Technologies Inc.
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Husqvarna Construction Products

Manufacturer of equipment & diamond tools for the concrete construction industry

Husqvarna technical experts are always at your service. As an owner, you depend on your equipment and diamond tools to be available and in good repair, so you and your operators can work efficiently, without downtime. Breakdowns are unthinkable when the timeframe is tight. If something unexpected does occur, you need to be able to solve the problem quickly.

Husqvarna products are built to withstand tough working conditions for long periods of time. But even the most durable equipment may develop issues if it is not taken care of properly. The best way to prevent problems, unwanted downtime and unplanned loss of productivity is to have an authorized Husqvarna technician check the equipment regularly to detect potential sources of error and replace worn parts before they cause bigger problems.

This is done by maintaining each machine according to its service schedule. Daily inspection and other minor service jobs can easily be handled by you and your team with the help of instructional videos available on Husqvarna's YouTube channel or by referencing the service instructions provided in the operator's manuals.

However, there are times when the service job should be handled by one of Husqvarna's 10 service centers located across North America. The company's centers are well-managed and built on high technical competence, efficient logistics and digital technology to ensure you experience minimum downtime and your equipment can be back at work quickly.

Husqvarna Construction Products
800-288-5040
hcpcustomer.service@husqvarna.com
husqvarnacp.com



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Jenny Products Inc.

An air compressor & pressure washer manufacturer with roots dating to the 1870s



Budgets are critical, and contractors cannot afford to buy cheap tools that fail after minimal use. Investing in equipment constructed with quality components from a reputable manufacturer is one way to safe-bet those purchases.

A manufacturing company doesn't acquire nearly 150 years of history by building shoddy merchandise, which is why the focus for Jenny Products Inc. has always been on being an innovator and producer of the finest air compressors and pressure washers available.

Jenny manufactures a complete line of hand-carry, wheeled, portable and industrial, stationary air compressors, all built to withstand the rigors of daily use. Features, such as cast iron pumps that are splash-lubricated with Jenny Ultimate Blue synthetic oil and belt drives with large flywheels for easier startup and extra cooling, lead to long lifespans and minimal machine maintenance.

Meanwhile, Jenny also manufactures pressure washers, which come equipped with heavy-gauge steel chassis, valves and hoses, industrial-grade triplex ceramic plunger pumps and other features that offer lengthy service life while providing the ultimate cleaning experience.

With lower maintenance needs, reduced downtime and the ability to simply keep working, Jenny products give contractors the means to see their work through to the end, without costly repairs or being forced to purchase replacement units.

Jenny Products Inc.
888-425-3669
dleiss@steamjenny.com
jennyproductsinc.com
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Mi-T-M Corporation

Making quality & customer service a priority



Mi-T-M manufactures pressure washers, generators, air compressors and a variety of other industrial-grade equipment in its one-million-square-foot manufacturing facility in Peosta, Iowa. Known for quality equipment and outstanding customer service, Mi-T-M stands behind everything it builds. Construction companies and contractors value quality and dependability. Mi-T-M knows getting a job done on time and under budget is important, and it has the equipment to help you do just that.

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Mabey Inc.

Enabling global infrastructure



Mabey enables global infrastructure by providing equipment and expertise for the safer, faster development of and access to construction projects.

Mabey is headquartered near Baltimore, Maryland, with 10 depots on the East Coast, and nationally serves the United States for bridging and propping projects. Mabey's goal is to accelerate the construction projects that matter most to the customers and communities it serves.

Mabey is a global company, working in 140 countries to combine engineering and design expertise, quality products and personal service to solve the world's construction and maintenance challenges.

Mabey's rental equipment supports infrastructure projects that require trench protection, structural propping, bridging and temporary roads for work on bridges, buildings, roads, railways and utilities.

Mabey's products include temporary and permanent bridges for highways, detours, pedestrian use and construction site access for utilities, mining, logging and manufacturing.

Structural propping is used to support structures during building, renovation and rehabilitation, for retaining walls, needling and to support bridges. Mabey's bridging and propping equipment is made from prefabricated, modular designs in various sizes and configurations.

The company also provides in-house engineering, on-site technical assistance and shoring training. Mabey installs temporary roadways made up of reusable composite matting to provide safe, stable access for utility work, construction access, events, golf courses, landscaping or projects that need a stable roadway to transport heavy equipment or support remediation projects.

Mabey was founded almost 100 years ago with a focus on product design, production and people. These principles continue to shape the business today and provide customers with innovative solutions that work for your construction company time and again.



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Mabey Inc.
800-956-2239
j.delligatti@mabey.com
mabey.com

Signature Systems Group

Providing a safe, dry, solid & stable foundation for jobsites, no matter what

Signature Systems Group has been a leader in the manufacturing of composite matting systems for nearly 20 years.

Signature Systems' mats are used worldwide on jobsites and for construction projects of all sizes to provide safe, stable and easy-to-deploy portable roadways, working platforms, staging areas and pedestrian walkways.

Signature Systems' line of HDPE composite matting is designed and engineered to handle the toughest of terrains and ground conditions, including mud, swamps, snow, sand and other sensitive surfaces.

Far superior to plywood, wood, steel, aluminum, gravel or concrete, Signature's composite mats will save you time, money and headaches. There are three systems available:

- *DuraDeck (light duty)*—Lightweight HDPE mats are quick to deploy and can easily be handled by two people. These mats are ideal for areas that require instant access, and work better than plywood sheets in every way.
- *SignaRoad (medium duty)*—These mats lock together to form a stable, nonshifting roadway. They are ideal for roadways and working platforms with heavy-haul access needs. They are also are cheaper to ship than wood or steel. This line eliminates cross contamination.
- *MegaDeck HD (heavy duty)*—This is the strongest mat on the market; supporting up to 600psi. They are ideal for roadways, projects and working platforms that will be in place for long periods of time and/or in unstable or fragile environments.



Trust your project to Signature Systems Group. Signature Systems Group's line of composite matting systems provides a safe, stable foundation for jobsites—no matter the ground condition, terrain or weather.

Signature Systems Group
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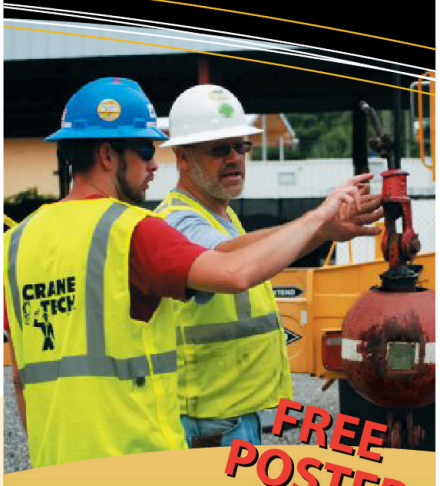
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FREE POSTER
As seen in the Construction Business Owner September edition
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Crane Tech, LLC fully endorses the national certification program offered by the National Commission for the Certification of Crane Operators (NCCCO), and provides training to prepare candidates for CCO examinations.

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Crane Tech LLC

Providing superior training & consulting to ensure safety



Whether you need material handling equipment training for corporate compliance or crane operator certification, Crane Tech is the trusted industry partner to help meet your needs. For nearly 40 years, Crane Tech has provided quality training and safety consulting services to large and small construction companies.

As one of the first companies to provide training for crane operators and riggers, Crane Tech has a rich history of helping clients meet the demands of an evolving economy with complex compliance requirements.

Crane Tech understands your high-risk world of construction and handling materials. The company's passion for safety through education gives your business a competitive advantage.

Crane Tech will help you certify your personnel, extend the life of your equipment, reduce your exposure to accidents and build reliability into your material-handling operations. The result is a workforce, equipment and methods that all have the capacity to perform safely and efficiently in both routine and extreme conditions.

Crane Tech offers on-site training at your location or scheduled training at one of the company's convenient sites across the United States and in Crane Tech's hands-on training center. Programs are taught by experienced instructors and include competency-based training and nonsubjective testing.

GET READY FOR CERTIFICATION

From Crane Tech's longstanding involvement working on National Commission for the Certification of Crane Operators (NCCCO) Committees and representation on the NCCCO Commission, Crane Tech is ready to assist construction companies and crane operators with the certification requirements proposed for November 2017.

Crane Tech's proven certification prep courses will cover all subject domains and help prepare employees to take their national certification exams.

Proof is in the results. With a 99 percent satisfaction rate from nearly 5,000 students annually, Crane Tech takes pride in what it does and will work tirelessly to produce reliable results that meet or exceed your expectations—just as it has since 1977. Contact Crane Tech today.

Crane Tech LLC
800-850-1457
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A-G Body Inc.

Serving the truck equipment industry since 1946

A-G Body Inc. is dedicated to designing and manufacturing a variety of specialized and standard tool storage products for mobile applications.

Combining traditional craftsmanship with modern technology allows A-G Body to offer a quality line of rugged products tailored to customers' needs. Custom and stock drawer units are available to ship within 48 hours. View a stock list online, or call the number below for more information. We make our drawers to fit your body.

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Checkers Safety Group

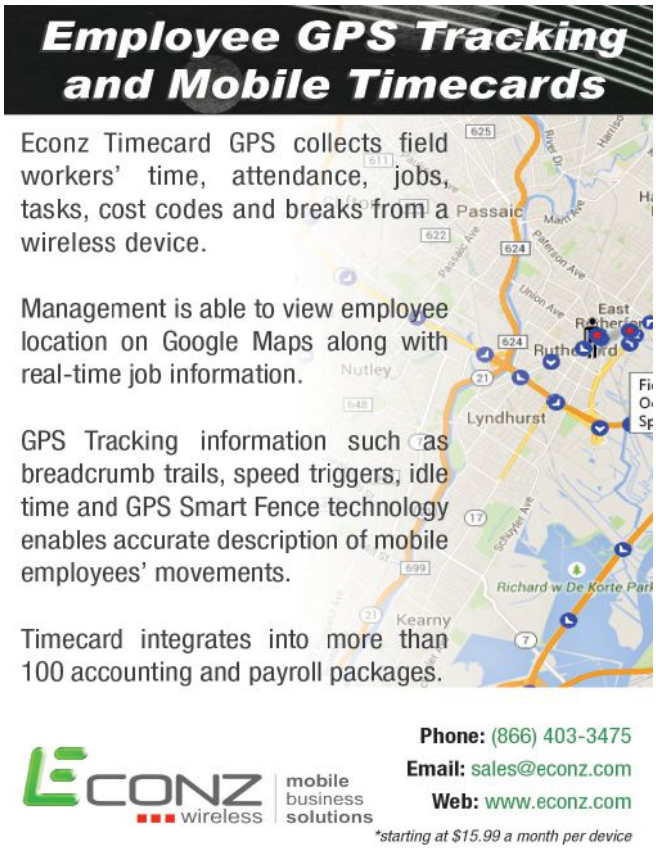
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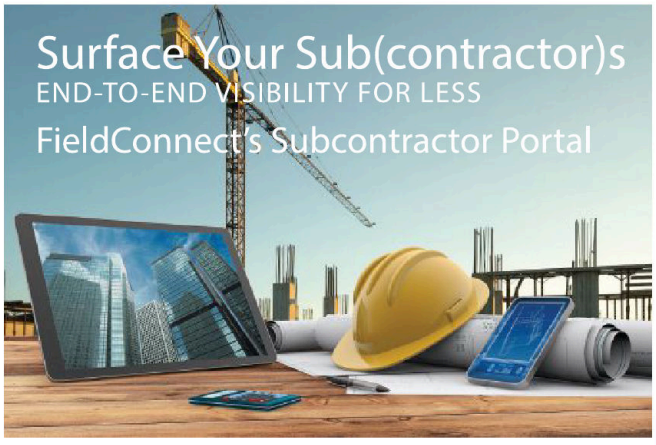
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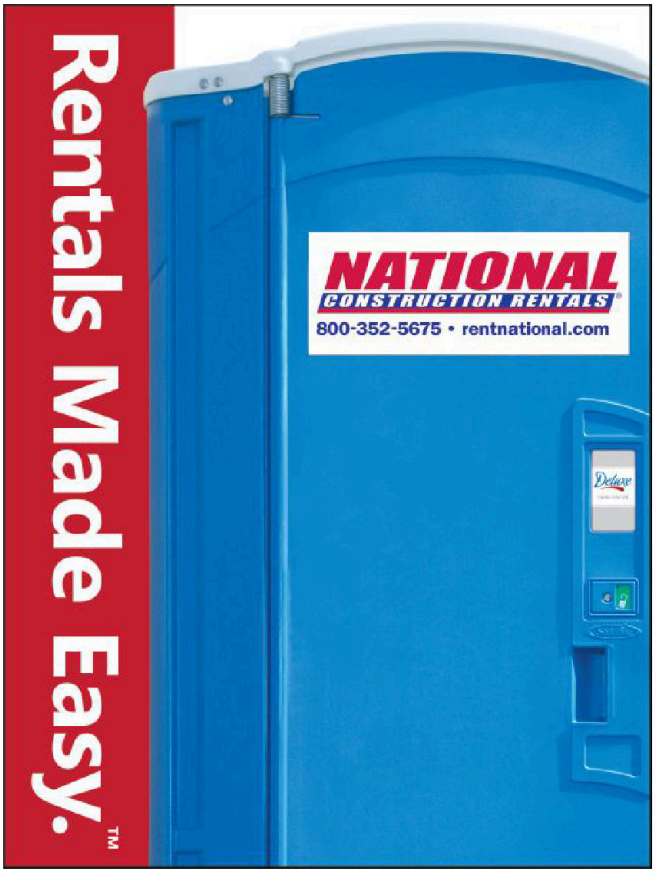
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Innovations Spur Productivity Gains

Connecting the dots between owners, operators & compact equipment

BY JASON ARCHBOLD

Whether you are a veteran business owner or a newbie, now is more important than ever to understand emerging compact equipment technologies. If you have not researched or previously purchased compact loaders or excavators, you may be surprised at the amount of innovation and smart technologies available in today's machines. Depth guidance systems for compact excavators, grading systems for compact loaders and continued refinements to the instrument panels are three technologies that have helped make these machines considerably more and productive. These technologies monitor a variety of diagnostics and equipment functions as well as provide in-depth machine and operator performance metrics. When planning your next construction project, explore some the following innovative technologies found in compact equipment and see how these advancements translate into productivity gains.



EXCAVATORS ACCURATELY TRACK DEPTH & GRADE

Manually checking the grade or dig depth with a tape measure or stick receiver can be time consuming. With the implementation of depth guidance systems, compact excavator operators can set a desired dig depth and work against that benchmark using multiple on-board sensors that are built in to a forward-mount instrument panel inside the cab that can detect the exact position of the bucket's teeth. The instrumentation panel continually references the current and desired depths, while audible and visual alerts indicate whether the operator is approaching the target, at the target or beyond the target.

The base system is laser-compatible and can be operated with a basic laser system, allowing the operator to benchmark off a laser signal instead of the trench grade. Plus, the laser helps excavator operators to grade or slope with a beacon or grade at multiple on-site locations.

Depth guidance systems can help prevent under-digging and over-digging and minimize the cost and time associated with backfilling, compacting fill material and completing manual labor to finalize depth or grade. The system is ideal for trenching utility lines, placing drainage ditches, digging basements, installing sewer lines and drain fields and preparing a site for footings or pads.

LOADERS PRECISELY GRADE USING SENSORS

Manufacturers are also emphasizing loader technologies, including adding automatic

grading solutions for more accurate results. Previously, loaders could be equipped with 2-D grading systems that would allow operators to set the desired grade from inside the cab and work off a single plain—either flat, single or dual slope. The 2-D systems work well when job conditions and applications rarely change.

Recently, manufacturers made modifications to grading solutions, making them more robust and leading to 3-D grading solutions. The 3-D grade control system has a variety of measurable benefits, including its ability to work off elevation coordinates set up around the jobsite, giving operators the ability to grade valleys, ditches and contours. In addition, the system can display point data, machine diagnostics and jobsite progress live from the field to an office computer.

This type of grade control system makes it easier for operators to complete construction applications: residential and commercial development, coastal engineering, road and highway building and land reclamation. Less rework, less staking and checking, lower operating costs, improved material usage and faster job cycles can improve productivity, allowing for a stronger bottom line.



DISPLAY PROVIDES MORE DETAILS

In addition to depth and grade control technologies, multiple functions and controls are integrated into excavator and loader instrument panels, enhancing a machine's functionality to provide critical information to the operator.

For example, instrument panels can track individual fuel usage, real-time fuel consumption and idle time intervals in compact excavators and loaders. With this data, owners and operators can assess a particular type of job and more accurately estimate what aspect of a job requires more fuel.

Machine diagnostic and management technologies can be integrated into some instrument panels to monitor engine coolant temperature, engine oil pressure, hydraulic oil temperature and other essential machine functions. By having this onboard diagnostic tool, operators can potentially identify and solve problems while on the jobsite and help prevent issues before they occur.

Another benefit of advanced instrument panels is keyless start systems. Keyless systems prevent authorized use and help owners minimize the risk of theft. Only operators with preassigned passwords can start and run the machine. Passwords can easily be changed, and multiple passwords can be assigned to other employees.

Attachment communication on the instrument panel is yet another timesaving feature. An hour clock is displayed on the attachment screen and a special screen relays laser transmitter, receiver and blade position information to the operator. The panel also monitors specific activities for certain attachments.

A growing number of businesses employ operators who speak different languages. Some manufacturers have equipped compact equipment with operator instructions in multiple languages. Panel readouts of leading loader and excavator control systems can be accessed in English, Spanish, French and a variety of other languages. The language preference can be used throughout all panel communications, including startup, machine and attachment operation, diagnostics and troubleshooting.

Onboard technology continues to move toward greater sophistication, efficiency and ease of operation. Instrumentation improvements can translate into measureable efficiencies on the jobsite, so it is important to take time to understand how these technologies can increase operator utilization, cut operating costs and enhance operator productivity. **CBO**

REMOTE-READY TECHNOLOGY

When operators are working in adverse environments, they have the option to control a skid steer loader and compact track loader without having to be in the cab. An optional radio remote control system allows the operator to operate the loader from a distance, free from dust and noise. Advantages of radio remote control include:

- Remote control system can be moved from one loader to another
- Ability to start the loader engine and operate the drive, lift, tilt and auxiliary hydraulic functions using the radio remote control transmitter
- Transmitter guard bar provides protection against bumping or damaging controls
- Includes emergency stop (e-stop) buttons
- If the operator trips and falls down, the system shuts down the machine

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



Manage Equipment Disposition Like a Pro

10 ways to build buyer interest & achieve greater returns

BY RANDALL E. BERRY

When farmer Paul Rackham decided it was time to unload his collection of 230 vintage tractors, he brought in more than $2 million at auction. This wasn't a bad return for the fleet he had tended for 25 years and kept in "museum-like" condition. When it is time to make decisions on your construction equipment fleet, hermetically sealed museums are nowhere in sight, unless, of course, you're building one. Still, you hope to attract buyer interest and big returns. To achieve anywhere near Rackham's success, fleet managers must address a range of issues. But the journey to strong used equipment values begins long before you enter the sales process. Consider the following 10 items as you evaluate potential disposal of your equipment assets.



1. *Fine tune your disposition strategy.* Fleet managers can save time, make smart disposal decisions and increase returns by building a disposition strategy that takes into account total cost of ownership, equipment utilization, the project pipeline ahead, fleet upgrade and rebuild options and whether family members want to invest in the long-term future of the business.
2. *Review your dance card.* Many potential partners can help you achieve your sales objectives. Don't hesitate to discuss your plans with them.
3. *Practice preventive maintenance.* Well before you put that long-running dozer up for sale, any product support salesperson will advise you to implement a preventive maintenance program. You will catch minor problems before they become major after failure repairs and keep your fleet productive. The maintenance paper trail you assemble shows you have cared for your equipment over the long haul. This practice will help fetch better prices when it comes time to unload a portion of your fleet.
4. *Travel around the world in 80 clicks.* If you have equipment that has been parked at the back of the yard for more than a few weeks, think about turning those under-utilized assets into cash. Even if the old dog needs serious repair, there may still be a market for it. Some buyers prefer fixer-uppers or want them for parts. Online marketplaces with a global reach give you access to buyers in developing countries, where older models are popular and more easily maintained. An auction marketplace will get your elderly or wounded iron in front of markets where your machine is just what they need.
5. *Determine whether you want quick cash or slow.* Whatever marketplace you choose, it's important to know the fine print. For instance, dealer consignment gives you complete control of price, but uncertainty regarding timing of sale. You may prefer quicker conversion of assets to cash, which an auction marketplace can provide.
6. *Drive decisions with data.* Knowing

what your equipment is worth will help you decide whether to pull the trigger on a used sale. You can hire an independent appraiser, use your dealer's used equipment team or arrange for an evaluation from your auction team, which has all the stats on what sold when, where and for how much. More data drives better decisions.

7. *Take time to top off.* To attract buyers, make sure your machine offers a solid first impression. Include all attachments and accessories in working order. Top off fluids and make service history records available. The more documentation you have, the better.
8. *Start with the cab.* Doug Nordlund, a member of the IronPlanet team and a 40-year, heavy-duty mechanic, has specific advice for anyone looking to get the best return from the sale of used equipment. "Make sure it's clean, inside and out. Make sure the lights work and there are no flat tires. It's very simple stuff really," he said. "If the cab's in good shape, that usually means the rest of the unit is as well."
9. *Double your return.* You will find a range of advice on what to fix and how much to spend before you put equipment on the block, but for every dollar spent on repairs prior to sale, you will gain two dollars in return. To assess needed repairs, engage a heavy-duty mechanic to give it the once over. Buyers are looking for equipment that they won't have to spend more money on later.
10. *Watch those deadlines.* If you select the auction route, know the deadlines. You will want to connect with your local representative, who will let you know when decisions are required to ensure your equipment is included in appropriate marketing materials. Online marketplaces also offer a range of options and enable you to sidestep transportation costs with the ability to sell your equipment from where it sits in your yard.

The bottom line is that your fleet needs to get the job done. Armed with a solid disposition strategy, you will regularly trim underutilized or high-maintenance units, retain greater asset value and keep your fleet technologically current. Paul Rackham would be proud. **CBO**

Randall E. Berry is responsible for IronPlanet operations organization. He also leads TruckPlanet, the company's marketplace dedicated to on-road and vocational trucks. Berry brings more than 30 years of experience to IronPlanet improving business performance in Fortune 1000 companies. Visit ironplanet.com.



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The Good Life for Equipment

10 tips for maximizing articulated dump trucks

BY DEBBIE MCCLUNG

Like the sage investment advice, "Buy low, sell high," articulated dump trucks (ADTs) have a greater return on investment when a low total cost of ownership is paired with high use.

While an ADT's longevity is impacted by a wide variety of variables, you can control much of the outcome by selecting the right machine for the job, tending to maintenance and following the right operation, according to Brian Bereika, a Doosan ADT product specialist.

"Today's equipment owners are looking to capitalize on technologies and best practices that will drive down the total cost of ownership. By focusing on the fundamental fleet strategies that directly influence your assets, you can improve operating efficiencies, extend life cycles and get the most out of your ADT," Bereika said.

The following are 10 tips from Bereika to help maximize the life of your machine.



THE RIGHT MACHINE

1. *Select a machine for the application.* Whether doing site preparation, capping landfills, removing overburden at mines or moving material in sand and gravel pits, you need a durable machine and options with the capacity to match the type of work you are routinely performing. For example, if you need an off-road truck for short hauls and own a midsize excavator, you would probably consider a 25- to 30-ton-size ADT. If you have to move large volumes over long distances, a 35- to 40-ton ADT would probably fit your requirements. It is just as important to size the excavator or wheel loader to the size of ADT. Also, using similar-sized ADTs on the same haul road, especially if deeply rutted, will usually put less strain on the driveline. Specifications that should be taken into consideration include:
   - Engine horsepower
   - Torque
   - Payload
   - Brake system
   - Load over height
   - Width of vehicle
   - Ground pressure
2. *Partner options to site conditions.* Match tire size, type and width to site conditions. Hard-packed haul roads or sharp-edged rocks will shorten tire life. Being able to minimize tire sinking will put less stress on the driveline. Impact damage or abrasion will shorten the life of the dump body, so a body liner may be necessary.

3. *Know the safety requirements.* Many ADTs work in environments that are required to meet OSHA or MSHA regulations. Equip the vehicles with the necessary safety equipment to minimize the risk of accidents that shorten the machine's lifetime.

THE RIGHT MAINTENANCE

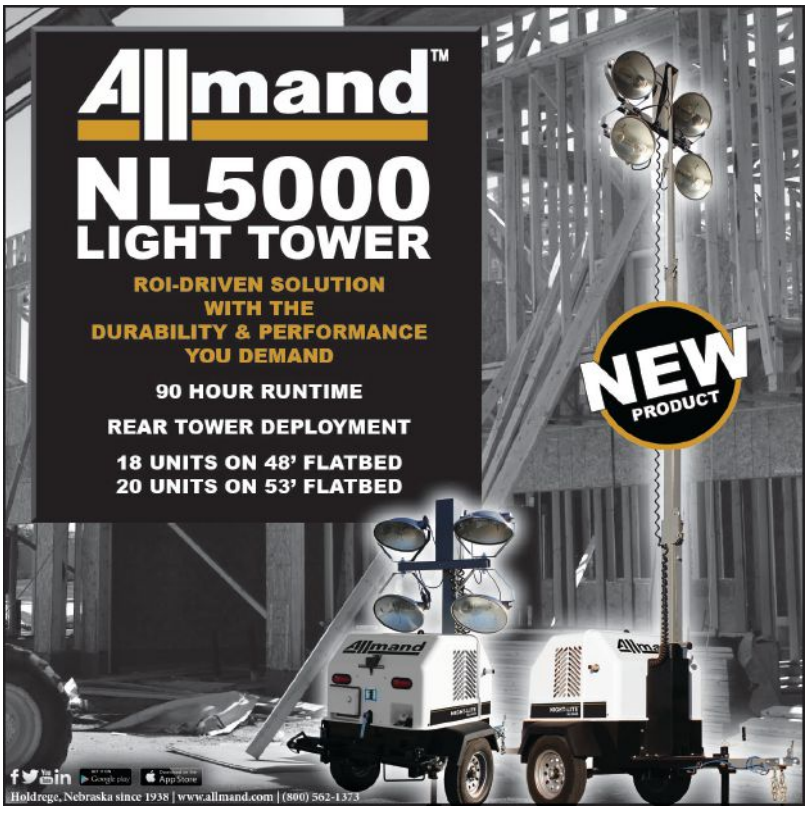
4. *Follow maintenance schedules.* Perform daily lubrication duties, in addition to other key maintenance intervals recommended by manufacturers. Auto-lube systems may be advantageous to ensure proper lubrication of expensive components. Fleet management systems designed to track maintenance intervals and check engine codes can improve maintenance by reducing guesswork. Routine maintenance should also include visual inspections of the tires, driveline and structural members for damage. Also inspect for leaks and any abnormal sounds.
5. *Modify maintenance intervals to accommodate special conditions.* Extremely dusty applications may require more frequent air filter cleaning and use of engine precleaners. Double shifting will require more frequent maintenance. Very hot or cold temperatures may demand special oils and lubricants for protection of major components.
6. *Limit excessive idling time.* By reducing travel time on or between jobsites, operators can improve fuel efficiency. Limiting the amount of idling that can occur during ADT loading and unloading operations is a good practice to increase profitability.

THE RIGHT OPERATION

7. *Provide safety training.* Having a solid understanding of all the various functions of an ADT not only increases productivity, but it can help avoid accidents. At the same time, by receiving hands-on training, operators can learn controls faster and distinguish which features will produce better results in certain applications.
8. *Avoid overloading.* Operators and owners should understand that there might be short-term gains from overloading ADTs, but in the long term, this will result in higher repair costs and shorter machine life. Tire life will also be adversely affected by overloading.
9. *Establish machine limits.* Operators who are trained in the proper operation of an ADT develop a better understanding of a machine's limits and the consequences for activities that push machines beyond rated capacities. Operators must be aware of stability limits during dumping and when turning too quickly and abruptly, which can contribute to rollovers. Another example would be braking limitations while traveling downhill with a loaded dump body. Runaway trucks can result in damage and personal injury.
10. *Strive for optimum sight lines.* Many manufacturers have addressed compromised sight lines with front-sloped hoods, better fender design and center-mounted cabs. Views to the rear are just as important for safety. Large, well-placed and properly adjusted rearview mirrors and cameras all make backing up much safer and can lead to longer ADT life.

Maximizing an ADT's life can pay big dividends through increased productivity, the reduction of maintenance surprises and safer, more efficient operation. The ultimate goal is a highly productive life cycle and a low total cost of ownership. **CBO**

Debbie McClung is a public relations writer at Two Rivers Marketing in Des Moines, Iowa. McClung writes new product releases and construction-related articles for Bobcat Company and Doosan Infracore Construction Equipment America. Visit doosanequipment.com.



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Get Keen on Lean

How lean construction can reverse the decline in company productivity

BY CARLA WILLIAMS

The construction industry is never short on demand, but how well do contractors actually meet that demand? Although the industry hasn't reached a consensus about productivity trends or how to accurately measure them—the data points to a general decline in productivity for the past several decades.

The United States Bureau of Labor Statistics reviewed their own data from 31 different industries related to construction, and found that productivity has been declining among American construction projects since the 1960s. If you want to help reverse this trend and increase your own company's productivity, the solution could lie in lean construction. This productivity-boosting business practice is a way to both increase efficiency and reduce waste throughout a construction project. Many veteran contractors are embracing lean construction practices in order to reduce expenses and prevent delays, and their profits and productivity rates are increasing as a result.



PRODUCTIVITY ON THE DECLINE

If construction is so in demand, why does productivity continue to decrease? One big reason is the industrywide skills shortage. Based on data from the U.S. Bureau of Labor Statistics and Gallup Survey, economic expansion is growing the construction industry and increasing demand for skilled labor, but as baby boomers retire, more than three million construction jobs will be vacated within the next decade. Two million of these jobs are expected to go unfilled.

To generalize, many young people have a negative view of the construction industry. Rather than learning a skilled trade and moving directly into the workforce, youth are seeking out 4-year degrees. With that shift, there has also been a decrease in the number of technical education programs and opportunities to learn science, technology, engineering and math (STEM) skills in high schools.

But the retirement of baby boomers and disinterest of youth is not solely responsible for the skills shortage. During the 2008 recession, many construction workers were laid off. Instead of finding work elsewhere within construction, they found jobs outside the industry. The oil and gas industries have poached many skilled construction workers by offering higher wages.

Finally, new technologies have changed the skill requirements for construction workers, making it harder to find talent with the appropriate skillset.

If you want to increase efficiency among current workers and make the industry more attractive to new workers, you need

to start by revolutionizing the way you currently manage projects. That's where lean construction comes in.

HOW LEAN CONSTRUCTION CAN HELP YOUR BUSINESS

As the industry faces a worsening labor shortage, it is more important than ever to maximize the potential of the people you do have on your team. Lean construction is a series of methods to do just that, because it revolves around eliminating waste, including any wasted time and talents of your current skilled workers.

In order to understand how lean construction can help, it is important to stop associating construction waste solely with building materials, and start by taking a closer look at time, money and skills as invaluable resources. For example, in the United Kingdom, up to 30 percent of all construction work is actually rework—correcting or undoing previous mistakes. Construction workers are only tapping into 40 to 60 percent of their full labor potential. If this waste could be avoided, construction workers could be twice as productive.

5 PRINCIPLES OF LEAN CONSTRUCTION

The Alexandria Engineering Journal outlined the following five lean principles and the steps you can take to implement them:

1. *Specify value*—Identify each activity that generates value for your end product.
2. *Identify the value stream*—Eliminate everything that does not generate value. If something is going wrong, stop the production process and correct it as soon as possible.
3. *Flow*—Oversee the entire supply chain to ensure the process flows smoothly and generates value consistently.
4. *Pull*—Use pull instead of push. In this case, pull refers to producing exactly what your client wants, when they want it and being prepared to change course if they change their mind.
5. *Perfection*—Deliver a product that meets or exceeds every expectation, on time and on budget. Don't settle for defects, mistakes or subpar materials. Perfection is only possible if the first four steps are followed.

CHALLENGES IN IMPLEMENTATION

Lean construction seems like a common sense business strategy. After all, principles that reduce waste and increase productivity are good for any industry. They are especially important for contractors who already face labor shortages and declining productivity rates. Unfortunately, the industry hasn't reaped the full rewards of lean construction because these practices aren't being implemented across the board.

Greg Howell and Glenn Ballard, two directors of the Lean Construction Institute, explored some of the biggest challenges in their paper, "Implementing Lean Construction: Understanding and Action." According to their research, operationalizing lean construction is essentially about coordination. Implementing lean construction can be difficult because there are so many people, tasks and goals to coordinate.

Another obstacle is misunderstanding. When contractors don't understand the steps they need to take—or take them incorrectly—they may actually hurt their productivity instead of helping it. Implementation also requires participation from every member of the team, so even the most well-informed contractor must also talk to their employees and make sure they buy in to the idea that lean construction will work.

A REAL-LIFE EXAMPLE

Increasing efficiency is a broad goal, and there are countless ways to achieve it, from minor cutbacks and schedule changes to huge overhauls of your entire working method. Jimmy Hawkins, who leads projects for Leon Williams Contractors, says that careful planning is the key to improving efficiency. Hawkins recommends "verifying all openings, swings, hardware" and other materials ahead of time, so that they can be installed immediately after they arrive. He also gathers all materials that may be necessary for a job, preferring to return unused materials later instead of stopping a project for a trip to the warehouse or store.

Labels and organization are also very important. Because multiple people work on each jobsite, Williams puts numbers on doors and door jambs. This way, every member of the installation team won't have to reference the building plans in order to install the right doors in the right places.

A LEAN FUTURE

If the construction industry is to thrive in the years to come, big changes will be necessary in order to meet the demand. Lean construction practices are an effective way to make better use of the current workforce. But as older workers prepare to retire, it is important to entice the next generation of workers to pursue the skilled trades as profession. Fortunately, new technology always attracts new talent. 3-D simulations, intuitive business intelligence (BI) software and strong synthetic materials are among the latest innovations that are changing the way we design, plan, construct and manage new projects.

Whether you are learning to anticipate clients' needs or using the latest management software, incorporating lean construction into your business model is always a smart move. As you tackle your next project, be aware of all unnecessary waste and harness the power of lean construction to keep your whole team productive and on schedule. **CBO**

Carla Williams works in customer service for the Williams Brothers Corporation of America, a family-owned company started by her parents, George and Angie Williams Williams also manages all media relations with Williams Brothers to help market WBCA to both the distributors and end users. Email info@wbdoors.com or visit wbdoors.com.



Taking the Telematics Track

How to optimize your fleet management approach & add value to every project

BY CRAIG E. CUTTING



Technology has changed the way we analyze and approach business operations. When used effectively, the data available today can be as much a competitive advantage as the expertise we bring to jobsites. Key among those technologies are heavy equipment telematics systems that provide real-time visibility across entire fleets of machines. A recent survey conducted by Caterpillar, the Association of Equipment Manufacturers and the Association of Equipment Management Professionals found that only half of equipment managers are using telematics.

Additionally, their use is limited to assessing a single parameter, such as idle time. Considering the vast amounts of data that can be tracked and analyzed by tapping into a fleet's telematics systems, it is easy to become overwhelmed and apprehensive about getting started. Making use of the world of information that is available is hugely valuable to a construction company's bottom line. Listed below are several key benefits that a telematics system is capable of offering.

MACHINE & FLEET UTILIZATION

Benchmarking fuel burn, idle time and operator techniques are just some of the ways an equipment manager can improve the performance of the entire fleet. The technology that is already available makes it possible and easy to view the entire fleet—or individual machines—in order to make informed decisions.

TRACKING & IMPROVING FLEET PRODUCTIVITY

You can quickly access information that helps you track and analyze everything from a single data source in an individual piece of equipment to the productivity of the entire fleet. Those insights will help you identify where efficiency improvements are needed to improve cycle times and productivity, manage where material is and where it is going, receive real-time information and make informed decisions on project goals that reduce rework.

MANAGING YOUR EQUIPMENT

Maximum uptime is the goal of every construction crew. To avoid unscheduled downtime and keep projects profitable, telematics systems ensure a constant flow of data to keep operators and owners informed. From automatic alerts of critical issues to tracking maintenance schedules, having a line of sight to equipment performance is key to running a smooth and successful operation.

TAKING THE GUESSWORK OUT OF COMPETITIVE BIDDING

The more you know about your fleet, the easier it is to anticipate costs. Having fleet productivity information at your fingertips

allows more competitive bidding estimates by understanding machine utilization from previous projects. This information allows companies to gauge what they can or cannot do and provide accurate scopes of work and estimates.

ATTAINING VISIBILITY THROUGH A MOBILE INTERFACE

Insight into equipment fleet statistics can be accessed from anywhere, at any time, and provides valuable information that can be acted on quickly. Detailed data can be accessed through a mobile device or tablet, allowing decisions to be made remotely.

PERFORMING ASSET TRACKING

According to the National Insurance Crime Bureau, there were 11,486 heavy equipment thefts in 2013, an increase of 5 percent over 2012. This is a primary reason why insurance costs are so high. It is essential for managers to know hours worked and the locations of their assets. The telematics technology that exists in fleets allow real-time access to see where machines are and when they are active.

MANAGING A MIXED FLEET

Most construction company fleets include machines from a wide variety of manufacturers, and each of those OEMs has its own proprietary telematics system.

EXECUTING FLUIDS ANALYSIS

Knowing what is going on inside the machine is imperative to prevent breakdowns and maintenance issues. Telematics provide information to help customers make maintenance decisions, reduce owning and operating costs and maximize component life based on real-time fluids analysis. Many dealers take it a step further by offering customers enrollment options for services to keep equipment operating at peak performance.

INSTALLING DIGITAL SWITCHES

When the data that is available through standard telematics is just not enough, another solution offered consists of switches that can be installed to measure or monitor desired parameters on the machine. These switches can provide greater insight to help you make informed decisions.

The bottom line is that telematics systems provide fleet managers with data that has endless uses. The benefits are too powerful to ignore. Telematics systems let your machines communicate with you to run your business more efficiently. **CBO**

Craig E. Cutting is the construction technology applications consultant at Caterpillar Inc. Visit caterpillar.com.



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Building efficiency & cost savings with rugged mobile devices

BY DR. MUZIBUL "MUZIB" KHAN

Constant exposure to the elements and heavy machinery make construction one of the most dynamic and dangerous work environments. Working in this environment requires robust and durable equipment, including rugged technology. According to a recent construction industry report, more than 80 percent of those surveyed used mobile devices for work purposes. For the most part, mobile technology has succeeded in generating process efficiencies for construction companies—but it has come at a cost. The lack of durable mobile solutions for construction environments often results in damaged devices, communication interruptions and technology cost overruns. Though some rugged solutions do exist, they have historically been offered only to enterprise-level companies, by specialized manufacturers, at a premium expense. However, new rugged mobile solutions have emerged—complete with carrier subsidies—that will allow small and midsize businesses to enjoy the advantages of rugged devices that perform well in the field without sacrificing the cost advantages of a traditional, carrier subsidized smartphone. But how did we get here?

THE EVOLUTION OF THE RUGGED DEVICE INDUSTRY

For an industry that conducts the majority



of its work away from the office, rugged technology solutions are imperative for success. However, implementing on-site technology has posed significant challenges. Construction sites are rough, unpredictable environments—simply walking onto most construction sites requires wearing a hardhat. The same goes for mobile devices. The incredible technology and functionality of modern mobile devices are housed inside lightweight and delicate hardware. As most mobile device users know, dropping a smartphone can result in costly damages. With that in mind, it is no surprise that the construction industry has typically lagged in adopting technology. In fact, a 2014 study found that financial allocation for information technology was lower in the construction industry than in any other field.

Historically, the adoption of rugged mobile technology was a luxury reserved for large enterprises with sizable budgets and access to expensive rugged mobile devices offered by specialized manufacturers. These devices—typically priced at more than $1,500 each—required large investments that small and midsize companies simply could not afford. But adoption of mobile technology is no longer a luxury for construction companies—it is a necessity. Many construction companies have attempted to bridge the gap between technology and budget by moving to consumer devices like iOS- and Android-based phones. Although these consumer devices are not shock-, drop-, water- or element-proof, the devices are dramatically cheaper than their niche rugged counterparts – even when paired with external rugged cases from brands like OtterBox or LifeProof. The logic is simple: at less than half the cost of the traditional rugged device, a company could replace the consumer device every year and still come out ahead. Add in the fact that the majority of workers are already

familiar with the operating systems and functionality of consumer devices, and this strategy looks like a winner, at first glance.

But there is more to the story. While this approach has helped construction companies take the leap with a palatable up-front investment in the short term, it remains a risky proposition in terms of long-term total cost of ownership (TCO). The use of consumer devices in demanding work settings leads to a myriad of functional issues and hidden costs that quickly erode any presumed savings. These unforeseen complexities and hidden costs include:

- Technology downtime leading to lost productivity
- Insufficient bandwidth to accommodate management and inventory software needs
- Increased IT support due to device breakage/malfunction
- Constant technology upgrade costs

According to a study by VDC Research, TCO for rugged devices in business settings, which includes not only the initial investment, but also subsequent costs associated with failures and breakage, is significantly lower in comparison to non-rugged devices. According to VDC's data, annual TCO for nonrugged devices (approximately $4,000) is actually almost double that of rugged devices (approximately $2,000). And although carrier subsidies can help suppress initial purchase costs, the underlying issues remain. Put simply, the full implementation of consumer mobile devices for business does not offer a viable, long-term value proposition for the modern construction industry.

A NEW ERA OF CHALLENGES

The construction industry has certainly seen its fits and starts over the last 2 decades, but the current climate is one of optimism. According to a study from Wells Fargo that surveys contractors and equipment distributors, optimism for increased industry activity remains strong.

However, the relative health of the industry belies emerging challenges that will face the industry in the years to come—challenges that will require a focus on finding and exploiting efficiencies. Perhaps the most significant challenge is a continuing skilled labor shortage.

As a result of the financial collapse of 2008, the construction industry lost a significant portion of its labor pool that has yet to return. Coupled with a slowdown in immigration and increasingly tight immigration regulations, the labor shortage will most likely continue for years to come.

Unsurprisingly, construction companies are turning to technology to fill in the gaps. Many smaller firms are moving toward building information technology (BIM), a growing trend already widely used by larger firms. Technologies like BIM and cloud-based, project-management software platforms are helping to create more fluid and more efficient operations. And they are all driven and connected by mobile devices and technology.

The future of the construction industry will belong to companies that can leverage technology to realize efficiencies and cost savings. Advancements in the mobile industry will help companies of all sizes accelerate the adoption of technology necessary to compete in today's environment.

AN EVEN PLAYING FIELD

While many small to midsize construction companies have turned to off-the-shelf, consumer mobile devices to bridge the widening technology gap separating them from their larger competitors, these devices are little more than a temporary patch. Designed for the average consumer, these devices lack the rugged design features and industry-specific functionality required for the demanding work environments in which construction companies operate. These features include: military-grade weatherproofing and waterproofing, all-weather touchscreen, push-to-talk functionality, scratchproof screens, extended-life batteries and secure VPN support. Going forward, companies will no longer have to choose between budget-busting enterprise solutions and price-friendly consumer devices that lack the hardiness and functionality necessary for working in construction. A new era of rugged mobile devices has arrived in the United States market that blend the functionality and durability of enterprise rugged devices with the affordability of off-the-shelf, carrier-subsidized consumer devices.

Android-based smartphones provide hardened voice and data solutions at a fraction of the cost of Apple's iPhone. They meet compliance standards and provide security, performance and connectivity at an affordable price point. They also support a robust ecosystem of software/application developers and hardware accessories that turn the devices into tailored solutions for specific vertical markets. Meanwhile, not all construction workers require data services, making rugged feature phones an even lower cost option. All of the devices are certified to Military Standard 810G and are offered by nearly all major carriers in North America, making these rugged devices available off-the-shelf and ready for deployment for an average subsidized price of just $49 to $149.

In a bottom-line business like construction, this new breed of rugged mobile devices will enable professionals and companies of all sizes to utilize technology to realize efficiencies that will help them compete and thrive in the digital age. **CBO**

Dr. Muzibul "Muzib" Khan joined Kyocera International Inc.'s Communications Equipment Group (CEG), a subsidiary of the global Kyocera Group focused on cellular and mobile devices, in 2013. He is responsible for corporate and technology planning functions and charting the evolution of the business plan and technology portfolio for CEG. Before joining Kyocera, Khan served in leadership roles in the global telecommunications industry. Khan has authored more than 30 technical publications and received five patents with several patents pending. Visit kyocera.com.



New & Innovative Products

Selected by the *Construction Business Owner* editors



1

1 TIER 4 FINAL ROADMIX MTV & PAVER

The rubber-track Cedarapids CR662RM RoadMix from **BOMAG** features a new 260-horsepower, Tier 4 Final Cummins diesel engine. Boasting a low, 21-PSI fully-loaded ground contact pressure, the CR662RM can be used on all paving lifts to eliminate all forms of material and thermal segregation. The low-PSI, rubber track RoadMix machine does not cause rutting on the base layer, can cross bridges fully loaded and is transported to the jobsite like a 10-foot paver. Replacing the traditional, in-hopper slat delivery system, the Remix Anti-Segregation System delivery augers now feature hard-faced back sides to significantly increase wear life.

bomag.com

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2



5

2 CARBIDE CUTTER

The Carbide Cutter G4 is **Loftness Specialized Equipment's** newest generation mulching head attachment for skid steers. The attachment incorporates an adjustable shear bar to customize material sizing and a 37-percent larger displacement drive motor with more torque. The Carbide Cutter G4 is available with 61- and 71-inch cutting widths. All models are offered with either carbide-tipped teeth or heat-treated, steel planer blade Loftness Quadco teeth. The tooth pattern has an improved staggered spiral configuration that offers better power distribution and balance, as well as single-tooth contact with the work surface.

loftness.com

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4

3 PRODUCTION-CLASS EXCAVATOR

The **John Deere** 870G LC production-class excavator follows in the footsteps of its G-Series counterparts with the addition of an EPA Final Tier 4 (FT4)/EU Stage IV diesel engine. The updated excavator offers a fuel-efficient FT4 diesel engine that delivers power at 512 hp. The 870G LC features cooled exhaust gas recirculation (EGR), a diesel oxidation catalyst (DOC) and selective catalytic reduction (SCR). With an improved piston design, the excavator burns particulate matter in the cylinder, so operators can save on service time and lower operating costs without the need for a diesel particulate filter (DPF). The 87-ton production class excavator is easy to service with a battery disconnect switch, spin-on fuel filters and two additional water separators to maintain long fuel filter life.

johndeere.com

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4 HYDRAULIC DETACHABLE MINI-DECK TRAILER

XL Specialized Trailers features the new XL 80 Mini-Deck Hydraulic Detachable Gooseneck (HDG) lowboy in its lineup, which uses an innovative 3-beam design to provide users with the ultimate in versatility. Featuring a loaded deck height of 12 inches with 4 inches of ground clearance and an empty weight that easily allows scaling to maximum payload, the XL Mini-Deck HDG is now available with a capacity rating of 80,000 pounds overall and 80,000 pounds in 16 feet concentrated. The trailer features an 11-foot long full-width platform with a low-profile, hydraulic neck. Equipped with a Honda Power 13-hp unit, it allows the user to raise and lower the neck into one of the five ride height positions with ease. The Mini-Deck meets bridge clearance laws without sacrificing strength.

xlspecializedtrailer.com

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5 CLOUD-BASED SOFTWARE SUITE

Corecon Technologies Inc. announced the next generation of its construction software suite. The new version enables construction firms to easily and proactively manage job opportunities and current projects from their office or jobsite using any Wi-Fi enabled device. The comprehensive platform includes modules for estimating, project management, job-cost control and scheduling. Additionally, a new module for quality control and safety is now available in the latest version. Corecon continues to integrate with popular accounting software and has online team collaboration functionality via its TeamLink Portal. The most significant enhancement in the modernized version of Corecon is its new user interface that increases speed and improves functionality.

corecon.com

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6 REVAMPED CPG 25 & CPG 45 GENERATORS

Chicago Pneumatic (CP) CPG 25 and CPG 45 generators adapt to many jobsite demands. Available in skid-mount and trailer-mount configurations, the new CP generators have been revamped and improved to offer the longest runtime in their class. The new CP generators are lighter weight than the previous versions. They feature the same design principles of CP compressors: trailers identical to the CPS 185 compressor; weatherproofing; and corrosion-resistant, sound-reduced, compact enclosures. Both models offer the same platform with a common engine cubicle and enclosure. The generators come with a standard, 5-year, limited engine warranty on the reliable Isuzu 4LE engine with DOC engine exhaust aftertreatment. The CPG 25 offers 32.5 hp, and the CPG 45 runs at 59 hp. A heavy-duty marine impregnated alternator has multivoltage capabilities.
cp.com
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6

7 COMMERCIAL-GRADE RUBBER TRACK CONVERSION SYSTEM

Mattracks has produced a commercial grade rubber track conversion system for your utility work machine, which you can convert from your tires to tracks in less than an hour. Features include exclusive offset rocker suspension, a two-piece, HD steel sprocket, rubber-coated UHMW wheels and a 15-inch-wide, all-terrain track with an easy steer option. The easy-steer option provides effortless two and four-wheel steering, while minimally increasing the turning radius. There are 16 LiteFoot models to fit Bobcats 3400, 3400XL, 3450, 3600 and 3650.
mattracks.com
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7

8 CORDLESS SDS MAX ROTARY HAMMER

Milwaukee Tool brings innovation to the cordless power tool market with the introduction of the M18 FUEL SDS Max Rotary Hammer. The SDS Max Rotary Hammer is the first cordless solution of its kind that provides the performance required for more demanding, heavy-duty drilling and chipping applications. Milwaukee's M18 FUEL technology enables the M18 FUEL SDS Max Rotary Hammer to deliver the performance required for more demanding SDS Max applications, including dry coring and medium duty chipping in both concrete block and reinforced concrete. The M18 FUEL SDS Max will also be among the first Milwaukee solutions to be powered by the new M18 REDLITHIUM HIGH DEMAND 9.0 battery pack.
milwaukeetool.com
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9 TITAN II FALL-PROTECTION HARNESS

The next-generation **Honeywell Miller** Titan II harnesses and lanyards are an affordable fall protection solution for the general construction, manufacturing and oil and gas (refinery) markets. The new Titan II harnesses offer enhanced adjustability and improved comfort with slip-resistant pads and rings and lighter, strategically-placed padding for optimal airflow. They feature new ANSI Z359.11 compliance and a maximum capacity of 400 pounds. All of the new harnesses and Titan II lanyards feature Hi-Viz color for increased safety.
millerfallprotection.com
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10 ALUMINUM SERIES COMMERCIAL PRESSURE WASHERS

Simpson has released a new series of commercial pressure washers: The Aluminum WaterBlaster Series. The Aluminum WaterBlaster series has a modern design while still capturing the industrial, robust appeal. The Aluminum WaterBlaster series was created to provide commercial cleaning professionals a high-quality, durable, belt-drive machine. This series was designed for the heaviest of cleaning jobs. The aluminum frame was crafted to withstand some of the harshest cleaning environments for an extended period of time. The dual belt drive system prevents overheating, absorbs vibration and reduces pump fatigue, resulting in long life.
fna-group.com
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11 ROTARY SCREW AIR COMPRESSOR SYSTEM

VMAC announced the launch of its latest underhood150 rotary screw air compressor system, designed specifically for Ford F650 and F750 6.8l Triton v10 gas engine work trucks. The announcement marks VMAC's fourth product launch this year after the VMAC Raptair-G30 gas drive, the DTM70 PTO drive air compressor and the VMAC Underhood-Lite air compressor system—all rotary screw air compressors. VMAC's Underhood system provides 100-percent duty cycle and up to 150 cfm and 175 psi. It is proven to work in extreme climate conditions making it the most reliable mobile air compressor available. The mounting kit is specifically engineered to fit the Ford F650 and F750 engine and chassis.

vmacair.com

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11

12 SELF-LEVELING, CROSS-LINE LASER WITH PLUMB POINTS

Bosch Tools recently introduced the GCL 2-160 Self-Leveling Cross-Line Laser with Plumb Points. This all-in-one unit offers a high-visibility cross-line with two up/down laser points. The lines and points can be turned on independently or together for horizontal level, vertical level and plumb transfer applications. The laser has a visible range of 65 feet and accuracy of 1/8 inch; the receiver mode allows it to work with optional Bosch line laser receivers (LR 6 or LR 7) for a working range of up to 165 feet. The unit has suitability to work both indoors and outdoors. The laser has Bosch VisiMax Technology, which monitors power consumption to extend line visibility time and battery life. The Bosch GCL 2-160 Self-Leveling Cross-Line Laser with Plumb Points has manual mode to lock lines for use at any angle.

boschtools.com

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12

13 ANSI 10.31 DIGGER DERRICK

Elliott Equipment Company introduced the D105, a new ANSI 10.31 digger derrick. The D105 was specifically designed for transmission and heavy-duty construction projects. Mounted on a tandem axle chassis, the D105 Digger Derrick boasts a 107-foot sheave height, 20,000 feet per pounds of torque and a 41-foot digging radius. The unit is equipped with Elliott's high-boom pinpoint geometry, allowing for maximum power out of the hole, a variable displacement piston pump and a new ergonomic seated control console. Key features of the D105 Digger Derrick include a four-section proportional steel boom with a 107-foot sheave height, a 20,000 feet per pounds of high torque digger system with auger spin speeds of 35 RPM (low) and 80 RPM (high), a digging radius of up to 41 feet and digging depth of up to 16 feet, a heavy-duty, tilting, pole claw attachment and pole guide designed for gripping large poles.

elliottequip.com

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13



14



15

14 CORDLESS BAND SAW

Metabo Corporation introduces their new 18V Cordless 2-1/2-inch, handheld band saw. The MBS 18LTX 2.5 is the only cordless band saw that comes standard with a "safety break" that stops the blade in under a second, as well as a full blade guard to protect users from blade slippage or from coming in contact with the cutting teeth. Lightweight, well-balanced and ergonomically designed, the MBS 18 LTX 2.5 is suited for quickly and easily cold-cutting small diameter metal and plastic pipes, conduit, threaded rod, angle iron and channel. Additional features include a soft grip handle to provide increased user comfort and operation, an integrated hang hook, as well as a tool-less blade changing lever, blade tracking adjustments and dual-blade bearing guides for increased durability of blade support system.

metabousa.com

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15 SUPER LOW DECK TRAILER

Felling Trailers Inc.'s X-Force Hydraulic Detachable Gooseneck model line now offers a Super Low deck height with the X-Force SL Series. The X-Force SL Series provides an 18-inch usable level deck height with a 6-inch ground clearance, making it an ideal spec for carriers that specialize in extra-tall cargo/equipment transport. The low-loaded deck height is ideal for a multitude of applications due to the full-width level deck, as opposed to a drop-side model. Felling Trailers designed and engineered the SL Series with versatility and functionality in mind knowing that with changing markets, cargo and equipment loads vary.

felling.com

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16 SNOW UTV PLOW

SnowEx introduced a professional-grade V-Plow for UTVs. Measuring 6 feet wide, the plow blade angles to 5 feet wide to fit most sidewalks and through gates. Two width settings cover the optimal tire track width on a range of popular UTVs. Configuring the plow to straight blade position, V position and Bucket Blade scoop position allows for ideal customization when facing various snow management situations. The UTV plow blade is constructed of high-strength, low-alloy steel components that are stronger and lighter than regular steel. It is also reinforced with six vertical ribs for additional stability. The 5-inch, hardened steel cutting edge has built-in, trip-edge protection, which will trip in any position without losing the snow load.

snowexproducts.com

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16

17 DIGITAL MEASURING WHEEL

Calculated Industries (CI) has announced the introduction of a newly-redesigned model of its DigiRoller measuring device, the DigiRoller Plus III. CI is best known for its line of specialized calculators like the Construction Master Pro. The DigiRoller Plus III can measure lengths, widths and heights in either U.S. or metric units. Plus, it can calculate areas, volumes, perimeters and more. It has easy-to-use, handle-mounted controls with a seven-digit, backlit display. The gear drive is sealed for better protection and the center line design gives it good balance and 99.5-percent accuracy. The new Digi Roller III has a kickstand for when you're "parked", and it comes with a backpack/carrying case, a 9-volt battery, reflective safety tape, a wrist lanyard and a 2-year warranty.

calculated.com

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17

18 INVERTER GENERATOR

Mi-T-M Corporation announced the release of the new 3000 Watt Inverter Generator. Designed with inverter technology, the new 3,000-watt generator provides clean and quiet power for jobsites. Compact and easy to move this generator features a 212cc Mi-T-M overhead valve engine with low-oil shutdown and recoil start. Its insulated side panels reduce noise, making this inverter an efficient and cost-effective quiet power source in noise-restricted areas. With 3,000 watts of power, use it on jobsites to power your tools and charge your battery packs with the DC/battery charging capabilities. Copper windings and an alternator total harmonic distortion (THD) of less than 3 percent provides power for sensitive electronic equipment.

mitm.com

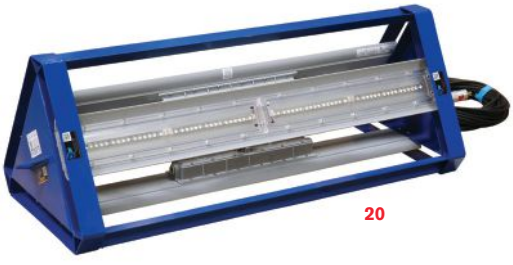
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20

19 DIESEL ENGINE OILS

Shell ROTELLA announced T4 15W-40 Triple Protection and T5 10W-30 Synthetic Blend, which have been developed to meet the new API CK-4 service category for diesel engine oil. The oils meet numerous specifications and with approvals from many of the world's leading engine makers, both are an excellent choice for on-highway fleets, general haul, construction, agriculture, public-transport operators and diesel pickup trucks, including high-power vehicles where resistance to increased heat and stress is required.

rotella.com

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20 FLOOD LIGHT SYSTEM

Larson Electronics announced the release of a new 4-foot, explosion-proof, portable LED flood lighting system. The EPL-3X100LED-4-HDL-100 system is Class 1, Division 1 approved and uses three 48-inch LED light heads producing a combined total of 21,000 lumens of light. Each 100-watt LED light fixture is mounted to a portable powder coated frame constructed from nonsparking aluminum. The LED lights within the unit produce a brilliant flood pattern of light that is ideal for illuminating enclosed areas and hazardous locations where flammable vapors, gases and dusts may be present. Each lamp comprised in this unit draws 100 watts and produces 7,000 lumens with a color temperature of 5000K.

larsonelectronics.com

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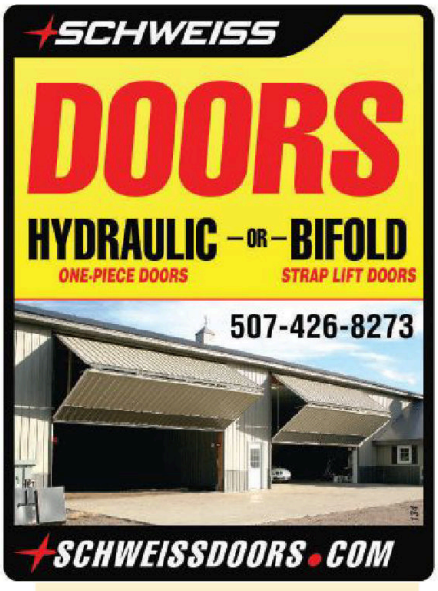
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Annual Value of Construction Put in Place

2014/2015/July 2016 Annual Rate Comparison

This chart compares the two previous years' total value of construction put in place to an annual forecast based on July 2016 figures. (Millions of dollars. Totals may not add up perfectly due to rounding.)

	2014	2015	July 16
Total Private Construction	**704,483**	**827,345**	**874,986**
Residential	349,643	433,108	445,459
Nonresidential	354,840	394,237	429,526
Total Public Construction	**280,019**	**296,153**	**278,190**
Residential	5,566	5,909	6,278
Nonresidential	274,453	290,244	271,911
TOTAL Construction	**984,502**	**1,123,497**	**1,153,175**

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

$1,153,175

JULY 2016 TOTAL ANNUAL VALUE OF CONSTRUCTION PUT IN PLACE

"The uncertainty surrounding **the presidential election** is causing some funding decisions regarding larger construction projects **to be delayed or put on hold** for the time being," 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
Feb-16	50.3	59.5	49.5	49.3	51.1	49.9	53.0	52.3	48.1	47.7
Mar-16	51.9	58.1	51.0	49.8	52.4	50.4	55.7	51.8	48.0	50.0
Apr-16	50.6	56.9	51.5	50.8	52.2	50.8	53.7	52.0	49.0	50.0
May-16	53.1	60.1	51.2	49.9	53.7	53.8	53.7	51.0	53.0	51.0
Jun-16	52.6	58.6	51.8	48.2	55.5	54.1	57.9	50.3	52.7	51.0
Jul-16	51.5	57.5	49.3	50.1	56.9	49.2	55.2	50.3	50.7	50.5

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

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

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