MARCH 2023 | CONSTRUCTIONBUSINESSOWNER.COM

THE LEADING BUSINESS MAGAZINE FOR CONTRACTORS

# CONSTRUCTION BUSINESS OWNER®



SUSTAINABILITY VIP 2023

## 3 INFLUENTIAL VOICES OF SUSTAINABILITY

*What they're saying about practical strategy in today's construction environment*

**Joel Honeyman**
*Vice President of Global Innovation*
*Bobcat Company*

**IN THE OFFICE**
5 questions undergrads are asking about the industry

**IN THE FIELD**
5 equipment manufacturing trends to watch in 2023

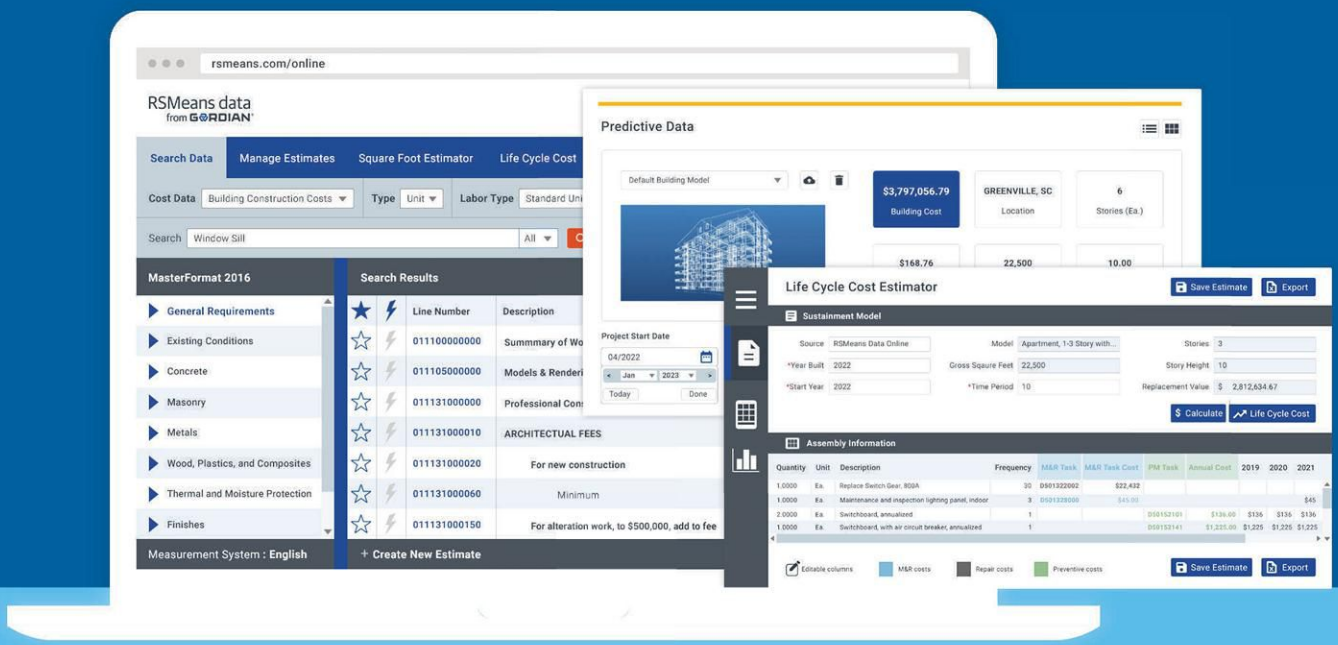



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# FROM THE EDITOR

**KATHY WELLS**

According to a recent study of sustainable construction conducted by Deloitte, businesses are not only closely following the trend, but in some cases also doubling down on their involvement. Findings suggest that amid growing pressure from shareholders, employees and wider society, companies increasingly want to occupy buildings that reflect their sustainability goals. The study also shares that some businesses view cutting energy use as a priority from both a sustainability and a cost standpoint. Additionally, for building owners, the stakes are getting higher for assets that fall behind the sustainability curve. A growing number of our readers aligns with this view, which is why we're excited to bring back Construction Business Owner's Sustainability VIP honor for its third year.




The 49th annual World of Concrete was held Jan. 16-19, 2023, at the Las Vegas Convention Center in Las Vegas, Nevada, and hosted over 48,000 registrants. The Construction Business Owner team (pictured here) returned with an eye on emerging trends, including productivity, battery-powered tech, and worker comfort and efficiency. Read highlights at constructionbusinessowner.com/WOC23top5faves.

As the practice of sustainability becomes more prominent, it gains a stronger foothold throughout the construction industry and drives the transformation of both local and global business operations in many areas. Beginning on page 32, this special section recognizes some of the industry's most influential voices of sustainability. Selected by our editors from a set of peer-submitted nominations, this year's finalists include three men who are leading the discussion about sustainability initiatives at both the local and global levels. We hope their stories share both a closer look at their personal approaches to sustainability and how their methods are changing the construction industry.

Take good care,

Kathy Wells

CONSTRUCTION BUSINESS OWNER

**EDITORIAL**
Editor
Kathy Wells
kwells@cahabamedia.com · 205-314-8268
Associate Editor
Carmen Capoccia
ccapoccia@cahabamedia.com · 205-961-3391

**CREATIVE SERVICES**
Art Director
Jessi Tygielski
Digital Production Designer
Matt Hodges
Web Developer
Greg Caudle

**PRODUCTION**
Client Services Coordinator
Sonya Crocker
scrocker@cahabamedia.com

**CIRCULATION**
Subscription Management
constructionbusinessowner@omeda.com
800-256-2785

**ADVERTISING**
Senior Account Executive
Van Imbragulio
vimbragulio@cahabamedia.com · 205-314-8263
Account Executive
Andrew Arnold
aarnold@cahabamedia.com · 205-961-3384

CAHABA MEDIA GROUP
Publisher
Matthew G. Conroy
VP of Sales
Greg Meineke
Director of Finance
Brandon Whittemore
Director of Operations
Laurie Tisdale

1900 28th Avenue South, Suite 200 · Birmingham, AL 35209
Phone: 205-212-9402 · Fax: 205-314-8272

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Construction Business Owner (ISSN 1551-3246) is published monthly by Cahaba Media Group, 1900 28th Avenue South, Suite 200, Birmingham, AL 35209. Periodicals postage paid at Birmingham, AL and additional mailing offices. Subscriptions: Free of charge to qualified construction business owners. Publisher reserves the right to determine qualifications. Annual subscriptions: U.S. and possessions $48, all other countries $125 U.S. funds (via air mail). Single copies: U.S. and possessions $5, all other countries $15 U.S. funds (via air mail). Call 800-256-2785 inside or outside the U.S. Postmaster: Send changes of address and form 3579 to Construction Business Owner, PO Box 271, Lincolnshire, IL 60069-9835. ©2022 Cahaba Media Group, Inc. No part of this publication may be reproduced without the written consent of the publisher. The publisher does not warrant, either expressly or by implication, the factual accuracy of any advertisements, articles or description herein, nor does the publisher warrant the validity of any views or opinions offered by the authors of said articles, descriptions or any advertisements. Submissions: We welcome submissions. Unless otherwise negotiated in writing, by the editors, by sending us your submission, you grant Cahaba Media Group, Inc. permission by an irrevocable license to edit, reproduce, distribute, publish and adapt your submission in any medium on multiple occasions. You are free to publish your submission yourself or to allow others to republish your submission. Submissions will not be returned. VOLUME 20 ISSUE 3


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**32 | SPECIAL SECTION**
3 influential voices of sustainability & strategy










## IN THE OFFICE

The Business Council

**12 George Hedley**
How to overthrow status quo & bank on better results

**18 Gregg M. Schoppman**
An examination of 'The Art of War' relative to the built environment

**20 Marcum Accountants & Advisors**
Understanding ASC 842 & how to handle future lease obligations

**24 Guest Columnist: Donna Laquidara-Carr**
The case for increasing the use of lean construction practices

**26 Business Strategy**
5 industry trends & how you can take action

**29 Training & Education**
Top questions students ask about construction (Part 1 of 2)

## IN THE FIELD

**36 Equipment Matters**
7 tips to get the most out of CONEXPO-CON/AGG 2023

**39 Equipment Update**
5 equipment manufacturing trends to watch in 2023

**43 Logistics**
Examining the impact of a transportation management system

## IN EVERY ISSUE

**2 From the Editor**

**6 News**

**8 Ask the Experts**

**45 Products**

**48 Stats**


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NEWSLETTER

### Swinerton Announces Sloane Brown as Operations Manager of Northeast Market



Sloane Brown

Swinerton has announced Sloane Brown as operations manager of the Northeast market. Brown will be based in the New York City office, which opened in June 2021. Prior to this role, Brown was a senior project manager for Swinerton in San Francisco. She brings expertise in managing talent and employee resources, estimating and preconstruction, field operations, business planning and development, and corporate responsibility. In her new role, her key performance objectives are to ensure that staff development is progressing and overall morale is optimistic; oversee that all operations are executed safely with quality work and within budgets; develop self-perform capabilities and ensure proper execution of all corporate initiatives, requirements and expectations. Founded in 1888, Swinerton is 100% employee owned and provides commercial construction and construction management services throughout the U.S. Visit swinerton.com.

### RedTeam Announces 3 Hires to Complete Senior Leadership Team

RedTeam Software, a provider of construction management software, has hired Patrick Brien as vice president (VP) of sales. He is charged with leading all facets of the RedTeam sales function. He joins RedTeam from Lytx, a software as a service (SaaS) fleet management solution, where he built and led a high-performing sales team that consistently met or exceeded revenue targets. Betsie Hoyt joined RedTeam as VP of product management, overseeing the strategic vision for the company's portfolio of solutions and product-led growth initiatives. Hoyt brings 20 years' experience in software product management. Kristine Sheikh, a software marketing executive, started with RedTeam as VP of marketing. Sheikh has focused on building a marketing team and rebranding/repositioning the product portfolio to strengthen RedTeam's marketplace position and integrating the company's acquisitions of Paskr and Fieldlens in the first six months of her tenure. Sheikh joined RedTeam from PandaDoc, a global document management software company, where, as senior director of international expansion, she oversaw international marketing, sales, product adaptation and operations, and built a team across six countries. Visit redteam.com.

### Develon Names New CEO



Chris Jeong

Chris Jeong has been named the new CEO at Develon (formerly known as Doosan Infracore). Jeong succeeds Edward Song, the previous CEO, who was promoted to global sales head of Develon in Korea. Jeong most recently served as CEO for Develon European Union. He joined Develon in 2006 as a senior corporate strategy manager after completing his MBA at Carnegie Mellon University. He led strategic activities across various markets before he was promoted to VP of sales and marketing for emerging markets. Jeong oversaw sales and marketing for Develon employee teams in Asia, Oceania, Commonwealth of Independent States, Middle East, Africa, Latin America, Brazil and India. Among Song's CEO accomplishments were establishing two regional parts distribution centers in North America, opening the machine customization plant in Savannah, Georgia, and most recently introducing the new Develon machine monitoring center at the corporate office in Suwanee. Jeong's first major assignment will be to oversee the Develon exhibit at CONEXPO-CON/AGG 2023. Visit na.doosanequipment.com/en/develon.

### Terramac Relocates Headquarters

Terramac, a manufacturer of rubber track crawler carriers, has moved into its new headquarters in Sugar Grove, Illinois, just west of Chicago. The growing call for the Terramac machines and increased support services offered to customers led to the need for a larger facility to meet the demand. The new headquarters facility is more than double the size of the previous square footage that was located across multiple buildings. It is designed for increased efficiency and productivity and accommodates all the employees under one roof. The new space provides for expansion of the in-house crawler carrier customization services offered by Terramac. Terramac units can be customized with support equipment to serve many industries including pipeline, utility, mining, environmental, forestry, general construction and more. Terramac is part of the CK Power family of companies providing power generation, powertrain, and off-highway power solutions. Visit terramac.com.

### American Concrete Institute Establishes New Center of Excellence for Concrete Industry Productivity

Pro: An ACI Center of Excellence for Advancing Concrete Industry Productivity has been launched by the American Concrete Institute (ACI). As a catalyst for solving the barriers of constructability to advance concrete construction productivity, Pro will collaborate with designers, material suppliers and contractors to identify and resolve issues that negatively impact productivity in concrete construction. Located at ACI headquarters in Farmington Hills, Michigan, the center aims to optimize labor and time against materials by improving structural design and construction processes through a collaborative approach with designers, material suppliers, builders and industry stakeholders. Initial areas of focus for Pro include industry collaboration efforts, identification of productivity obstacles and solutions, constructable design resources, automation, technology validation, interaction with ACI committees and more.

## 100th

Aquajet, a designer and manufacturer of hydrodemolition technology, announced the delivery of its 100th Aqua Cutter in North America. The milestone marks the growing demand of the hydrodemolition method in applications ranging from road and bridge repairs to dam and parking garage rehabilitation. The special edition Aqua Cutter 750V features a commemorative design. Visit aquajet.se.

Managed by ACI, the center will draw from the Institute's technical and administrative support services, with funding provided by sponsors. Initial staffing for the center comprises an executive director supported by ACI technical experts. Pro and its future sponsors aim to advance new technologies and processes that improve productivity beyond historic levels. Visit concreteproductivity.org.

### Gerdau's Fernao A.O. Cesar Joins AISC Board of Directors

The American Institute of Steel Construction (AISC) has named Fernao A.O. Cesar, director of marketing – Gerdau Long Steel North America, to its board of directors. He brings more than 15 years of experience in the steel industry, both in Brazil and the U.S. With AISC embarking on a reinvigorated market development program, Cesar's experience in both sales and marketing is expected to be invaluable. Cesar is well-known and respected particularly for his expertise in market intelligence and forecasting. He previously led Gerdau's U.S. innovation program. He earned a Bachelor of Engineering (materials engineering) from the Universidade Federal de São Carlos, Brazil, a master's degree in business economics from Fundação Getulio Vargas, Brazil, and an MBA from Michigan State University. Visit aisc.org.

### Graycor Names Michelle Palys to VP of Performance Excellence & ESG



Michelle Palys

Graycor has named Michelle Palys VP of performance excellence and environmental, social and governance (ESG). Palys has worked at Graycor since 2012 as a quality manager and most recently as business excellence manager. In her expanded role, Palys is responsible for developing and implementing high-impact performance excellence strategies and action plans to meet Graycor's ongoing continuous improvement, performance excellence and organizational development goals. She will serve as a member of Graycor's executive committee. Palys will also lead the development and execution of Graycor's ESG strategy and plan, focusing on strengthening sustainability attributes across the business and furthering the company's diversity, equity and inclusion (DEI) efforts with their workforce and supplier/subcontractor community. As Graycor's GC Council Representative for Association of Subcontractors and Affiliates Chicago, Palys is committed to developing, supporting and advocating for subcontractors. Graycor is a provider of construction, maintenance and facilities services throughout the U.S., Canada and Mexico. Visit graycor.com.

### Vermeer Northwest & Vermeer Mountain West Merge

In 2022, Vermeer Northwest merged with and took the name of Vermeer Mountain West. Combining these two adjacent Vermeer dealership groups creates a contiguous network of 13 locations spanning much of the Western U.S. By joining forces, both dealership groups will bring equipment expertise and market knowledge to their combined region. Leadership from both dealership groups will continue to be engaged in the business. Tim Weaver has accepted the role of vice president of sales with direct oversight in leading commercialization efforts in the states of Washington and Alaska. Kyle Pieratt will continue to lead as the president and CEO of Vermeer Mountain West. Vermeer Mountain West will be headquartered in Chandler, Arizona, with multiple branch locations in several states to support Vermeer products with a dedicated, factory-trained sales staff, a genuine parts inventory, experienced service technicians and service facilities. Vermeer Mountain West can service equipment anywhere in the Mountain West region. Visit vermeermountainwest.com.

### Sonya Walton Promoted to VP of Economic Inclusion at Messer Construction Co.



Sonya Walton

Messer Construction Co. announced the promotion of Sonya Walton to VP of economic inclusion. She will oversee strategies to continue the advancement of Messer's supplier diversity efforts in coordination with the company's 11 regional offices throughout the Midwest and Southeast. She will continue leading mentoring efforts for women and people of color across the company. Walton joined Messer in 2006, applying her expertise in supplier diversity, workforce diversity and community engagement to make the construction industry a better place for people from all backgrounds, including minority-, women- and veteran-owned businesses. She received the Ohio Minority Supplier Development Council's 2020 Leadership award, as well as the Advocate of the Year award in both 2016 and 2019. Messer Construction Co. is a construction manager and general contractor that provides leadership for complex commercial construction projects in the aviation, federal/military, health care, higher education, industrial, and science and technology market segments. Visit messer.com.

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# ASK THE

Insight from industry aces & answers to construction's biggest questions

## What is the most important factor for jobsite safety?



"The most important factor for jobsite safety in a small commercial construction company is a strong safety culture in which everyone is committed to following safety protocols and procedures. Other important factors include proper training, clear communication, hazard identification and assessment, and the use of personal protective equipment (PPE). It is also important to assign a dedicated safety officer to oversee safety on the jobsite, invest in necessary safety equipment, develop a detailed safety plan, hold regular safety meetings, and encourage a culture in which workers feel comfortable speaking up about potential hazards or unsafe behavior. By prioritizing safety, a small construction company can reduce the risk of accidents and injuries on the jobsite."

**- Richard Harvey**, Vice President *(ICS Commercial LP)*



"I believe the answer is awareness. In today's world, the jobsite can be full of distractions, especially with modern "conveniences" such as cell phones. We've all seen him — the guy in full PPE, operating a lift or excavator and yapping on the phone at the same time. Companies may employ strict policies against cell phone use on a site, especially for personal use, but abuse of these policies often gets overlooked under the guise of the "work-life balance" they are trying to promote from the office. This can be an issue. Add to that all the technology in construction software that draws our attention away from our surroundings and to a screen instead while walking a jobsite. Ultimately, safety is the responsibility of the individual. Setting your own boundaries on phone and electronics use and limiting other common site distractions will increase your awareness of your surroundings and will greatly increase the odds of you and your coworkers going home to their families at night."

**- Tom Larson**, Project Manager *(Centrex Construction)*

"Senior management buy-in to safety creates the culture that ultimately pervades on any project site."



**- James P. Laurie III**, Corporate Counsel *(ECC)*



"The most important factor for jobsite safety is awareness. Awareness is the product of training, information sharing and open inquiry. Without awareness, other safety measures are rendered less effective, or even ineffective. PPE, for example, may be useless if the person using it was never trained to identify the appropriate equipment for a given task or to properly fit and wear it. In addition, most of the safety measures we employ in the workplace are human-executed processes, from the rules governing the use of material handling equipment to evacuation procedures executed in the event of an earthquake or fire. If a worker is uncertain or unaware of the appropriate process to follow in a hazardous situation, they present a danger to themselves and others.

The sharing of information is also crucial to a successful safety program. If a piece of equipment is failing in a way that presents a danger to workers, reporting the failure to supervisors and coworkers is instrumental in preventing injuries. Posting information about potential dangers can effectively warn workers of hazards they may not see for themselves.

Lastly, open inquiry provides for a productive exchange that can identify hazards and prompt training and the exchange of information. Employees should be encouraged to ask questions about practices as they relate to safety. If workers feel they are unable to challenge process conventions, this breeds a culture of complacency where safety issues can flourish.

The mind is the most important piece of safety equipment any worker carries. Every employer should acknowledge that the mind is a vessel, and it is impossible to retrieve something from a vessel that was never placed in it. If workers are to be aware of hazards and the actions they need to take, their peers and leaders must make sure they have the correct training and information, and that they have the freedom to ask questions and start conversations about safety in the workplace."

**- Dan Vandehey**, General Manager *(Inter-Pak Supply Inc.)*

# EXPERTS



Clear communication of expectations and rules is the most important factor. We live in a diverse world, so ensuring safety expectations are clearly communicated in multiple ways (written, discussed, text messages, clearly displayed signage and warnings, etc.) and in multiple languages is a must. In this day and age, we cannot just expect that people will know what to do or how to work safely. Expectations must be clearly and regularly communicated in multiple ways.

**- Whitney Pyle**, Chief Operations Officer
*(JGBowers Inc./Advanced Cabinet Systems)*



Like many things in business, we believe that people and culture are central to an organization's enduring success, and this belief extends to safety on the jobsite. It is no secret that safety performance can affect a company's ability to tender projects, receive funding, and even attract and retain talent; yet many organizations still see safety programs as a necessary evil that they must abide by to operate. This is not the case at IMARK. Here, we believe that by focusing on education and training of our workers at the onset will result in both project and safety success. Experience has taught us that these core values are more important to the overall prosperity of our safety program when compared to programs built for compliance and behavior-based rewards systems.

Moreover, we want to ensure that workers have psychological safety in the workplace so that they do not fear reporting, nor will they fear bringing ideas to the attention of management. Ultimately, we know that many of our workers are experts at their craft and have great ideas of how to improve their jobs in a safe manner. If we can work together to achieve safer and improved results, why wouldn't we?

In 2012, we acknowledged that a new generation of worker was increasingly joining our team, and we needed to adapt our safety processes to keep these workers engaged in our program. We moved our safety reporting documentation from paper and pen to a mobile app. This move was beneficial on multiple fronts. The younger generation of workers were able to avoid what they felt were mundane and antiquated reporting processes, and veteran workers embraced the change after decades of doing it the old way. They also were able to provide feedback on documentation performance and add some elements that they felt were missing from the former reporting process. Lastly, this move allowed our supervisors and general contractor partners to receive real-time data faster, more accurately, and with greater usability.

Ultimately, we feel that any organization can create a robust safety program at the field level but if there is no buy-in from ownership, management and the people on the ground, compliance will be minimal or contrived — which does not lend itself to the overall goal of a safe jobsite.

**- Teresa Sims Johnson,** CPHR, HSA, Director, Human Resources & HSE
*(IMARK Architectural Metals)*



It has been our experience that dedication to safety from the top down is the most important factor. When all employees are aware that management emphasizes, stresses and is concerned about all aspects of safety in all meetings, on all jobsites and at every turn, they take safety to heart. It becomes a company culture of safety first, which in turn produces an excellent safety record. Ours begins at new employee orientation, instructions complete with a safety manual and carried through with weekly on-site safety meetings. New project briefings also include the safety aspects of that particular job. Our safety committee constantly promotes safety certifications and reviews any safety incidents. Safety is always a topic at all employee meetings. Should an injury take place, all employees are aware that it means an automatic drug test and safety review.

**- Jonathan W. Thomas,** Director of Human Resources
*(PowerTek LLC)*



Communication is hands-down the most important factor for jobsite safety. This can come in the form of job hazard analysis (JHA), daily toolbox talks and reviewing company safety policies. No job or construction site is the same — they all have their unique hazards, and that's why it is so important to communicate these hazards with everyone working or visiting the jobsite prior to their potential exposure. The jobsite changes frequently, and so do the hazards associated with the progression. A solid communication program will keep the workforce informed of any new hazards that have surfaced during the progress of the project. We all know how important communication is in our personal lives, so why should that differ on our jobsites?

**- Greg Barker**, Environmental, Health & Safety Manager *(HC Contractors LLC)*



To answer your question correctly, there is actually no one thing that is most important. If we try to hang our hat on one element, it's just not going to work. But if I had to name one thing, it would be crystallized in one word: leadership.

Technically, the top three elements should be:

1. Leadership
2. Employee involvement
3. Continuous improvement

There is a textbook worth of reasons for these three elements, because each brings its own food chain of building blocks. Traditional thinking in the safety business tends to be rules-based compliance and system fixated. This mindset achieves very little in the way of incident prevention, but it's a common method of running safety programs, particularly on construction sites. I see this practically every day. It's an exercise in regression analysis, but that's how our industry is programmed to roll.

**- John J. Meola,** CSP, ARM, Safety Manager *(Pillar Inc.)*



Simply put, the No. 1 factor for jobsite safety is the company's culture. Proper PPE, a well-maintained fleet, modern equipment, proper jobsite setup, etc., will not provide the optimum results if a company's culture accepts that jobsite injuries are just the nature of the beast. A culture of working safely within a company has to be all-inclusive and fully embraced. That often means safety committees that meet regularly and contain the full range of stakeholders. Safety meetings should be conducted in an open and nonthreatening environment. Action has to follow the words, and safety initiatives should be routine and reoccurring. Folks want to be recognized, with their safety suggestions welcomed and rewarded.

Annual companywide safety days are also a great idea. If the upper echelons of a company are not committed and passionate about safe work practices, one cannot expect the other stakeholders to be either. A proper company culture of jobsite safety is therefore first and foremost to achieving a safe workplace.

**- David Balkan**, CEO *(Balkan Sewer and Water Main)*



Building a culture of safety within an organization is key. It means all employees are fully committed to achieving safety in the workplace, and that they take personal accountability for the safety of each other. Organizations can empower their employees to create a culture of safety by implementing the following practices:

1. Understand the existing culture of your workplace and your employees' attitudes toward safety. Identify areas for improvement and create a plan that outlines specific goals and objectives. Get everyone behind the plan and communicate their role in making it work.
2. Ensure that your organization's leaders are championing the cause. Make sure your employees feel valued for their safety contributions and that they have the necessary materials and resources to do their work safely.
3. Provide training that illustrates the employees' role in the culture of transformation, not just learning new skills. Use the opportunity to promote the employees' proactive commitment in making the safety culture stronger.
4. Track results and communicate progress. Ensure that employees are owning the process improvements and bringing recommendations forward to implement.
5. Make safety a priority every day. Implement frequent toolbox talks, employee feedback sessions and bite-sized training opportunities. Overcommunicate policy changes, safety protocols and procedure updates. Give employees the opportunity to ask questions and clarify concerns.

Safety training with all its intricacies, local and state requirements, and Occupational Safety and Health Administration (OSHA) regulations can be difficult to navigate. Businesses can ensure a safe workplace when leaders and employees make a personal commitment in championing a culture of safety. When goals are established, trained to, measured, and truly owned by everyone working together, the company will be well positioned to improve safety across the organization.

**- Jaime Vos,** Director, AEM Safety Materials Program *(Association of Equipment Manufacturers)*

Awareness of everything around you is the most important factor for jobsite safety.

**- Ken Easley**, President *(Empire Builders)*



## What's your take?

We want to hear from you! To submit a response to next month's question, scan this code and complete the form.

# Considering a Digital Onsite Construction Management Plan?

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# Why Hope Is Hurting Your Business

How to overthrow status quo & bank on better results



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

## *Just Ask George.*

*Send your questions for Hedley to Editor Kathy Wells at kwells@cahabamedia.com.*

You are 100% accountable for your current situation and the results you're achieving. They are a direct reflection of your leadership. As a leader, you have defined the results your company produces, including the performance, procedures, project types, financial systems, and the employees being held accountable to deliver results. The bad news is you have manufactured the current state of affairs at your company. But, if you aren't happy with the status quo, the good news is you can take action to change it.

### Hope Is Not a Strategy

Still hoping your situation will magically get better? Stop. The betterment of your company can only be realized through decision, action and innovation — all of which require an investment of time, energy and money. Positive change



requires time and dedication to create and implement new systems and strategies. Improvement also requires the owner or president to reshape their role and stop trying to handle it all alone. To accomplish their vision, the company president must change their focus to leading, building new customer relationships, winning high margin sales, seeking projects and niches with low competition, developing key talent, creating and enforcing systems, achieving best-in-class results and implementing improvements. This new focus will cost money, as the president will need to hire new talent, implement software, improve the accounting department, develop field production and job-cost scorecards, build an accurate estimating and cost history system, hold weekly manager meetings with direct reports, implement a customer marketing strategy and focus on moving the company to the next level of success.

**The bad news is you have manufactured the current state of affairs at your company. But, if you aren't happy with the status quo, the good news is you can take action to change it.**

### What You Need to Improve

Consider the following tasks and what might help to improve their chance of success or completion. Note the items that need improvement. As you work through the list, consider how many of these are just hopeful ideas, how many are actions still in progress, and how many you can personally take responsibility for.

- Our company financial reports are almost never produced or updated in a reasonable timeframe.
- Field labor job-cost tracking is not completed often, if ever.
- Project budget updates with estimated final job costs are not up to date.
- We tend to complete projects late and not on schedule.
- We generally don't close out projects quickly and have too many callbacks and punch-list items.




- We don't always meet our bid markup goals on projects, which causes our profit margin to fade.
- We don't produce accurate estimates without missed items.
- We don't track our bid-hit-win ratio or follow up aggressively on bids or proposals.
- We tend to bid on the same type of projects and customers against too many competitors at low prices.
- We don't have a specialty, niche expertise or project type that sets us apart from the competition.
- We need to hire more talented people, but we're too busy to get it done.
- We don't have an ongoing hiring or talent development program to attract and retain great people.
- We're too busy to implement a training and promotion program.
- We don't hold regular manager, supervisor, field, crew, financial or companywide meetings.
- I don't have much time to dedicate to improvement.
- I'm too busy to go out and see repeat or new customers on a regular basis.
- More than five people report directly to me, and I'm responsible for their performance, activity and pay.
- Problems, issues, deadlines and fire drills seem to overtake my days.
- Our customers call me on most important issues and problems.
- I don't have time to meet one-on-one with my direct reports weekly to monitor, mentor or train them.
- Employees ask me to make decisions for them or tell them what to do.
- We don't have enough time to update our business plan or develop new ideas and strategies.
- I make most of the important decisions including contracts, pricing, scheduling, hiring and pay.
- We need a strong management team accountable to achieve results and run the business.
- Our business is stuck. It's not getting better or moving to the next level.

## What to Improve First

It can be difficult to know which direction to take to start improving your business. Your check marks from this list indicate your critical areas for improvement. And there might also be other areas that need some help, standardization, change or innovation.

So, how do you get started on the right path to improvement?


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1. First, identify areas in your business and roles which need to be standardized, documented, enforced, clarified or improved.
2. Second, prioritize the areas needing improvement based on which will generate the highest return or improved results. Examples:
   - Hire an assistant who will free you from performing many of the busy-work tasks that could be easily delegated.
   - Develop an accurate and detailed estimating template with all the required and potential cost codes, line items, tasks, activities, inclusions, exclusions, allowances, potential missed items, general condition costs, supervision, security, temporary requirements, cleanup, mobilizations, move-ins, delay costs, labor, materials, subcontractors, suppliers, tools and equipment, etc.
   - Decrease the time required to make decisions and answer everyone's constant calls by drafting an organizational chart, workflow, chain of command, clear written job descriptions and levels of authority for all positions.
3. Third, select the improvement item you'll commit to start working on first. Start slowly as it takes dedicated time and money to create strategies, systems, processes and standards. The key is to not only hope it happens but to do it. Dedicate time to improving your business as a priority, and do the work required. Improvement generally requires people to change. But remember: People don't like to change unless they see what's in it for them. Be sure to communicate the big reasons for improvement, and then include your team in

**The key is to not only hope it happens but to do it. Dedicate time to improving your business as a priority, and do the work required. Improvement generally requires people to change. But remember: People don't like to change unless they see what's in it for them.**


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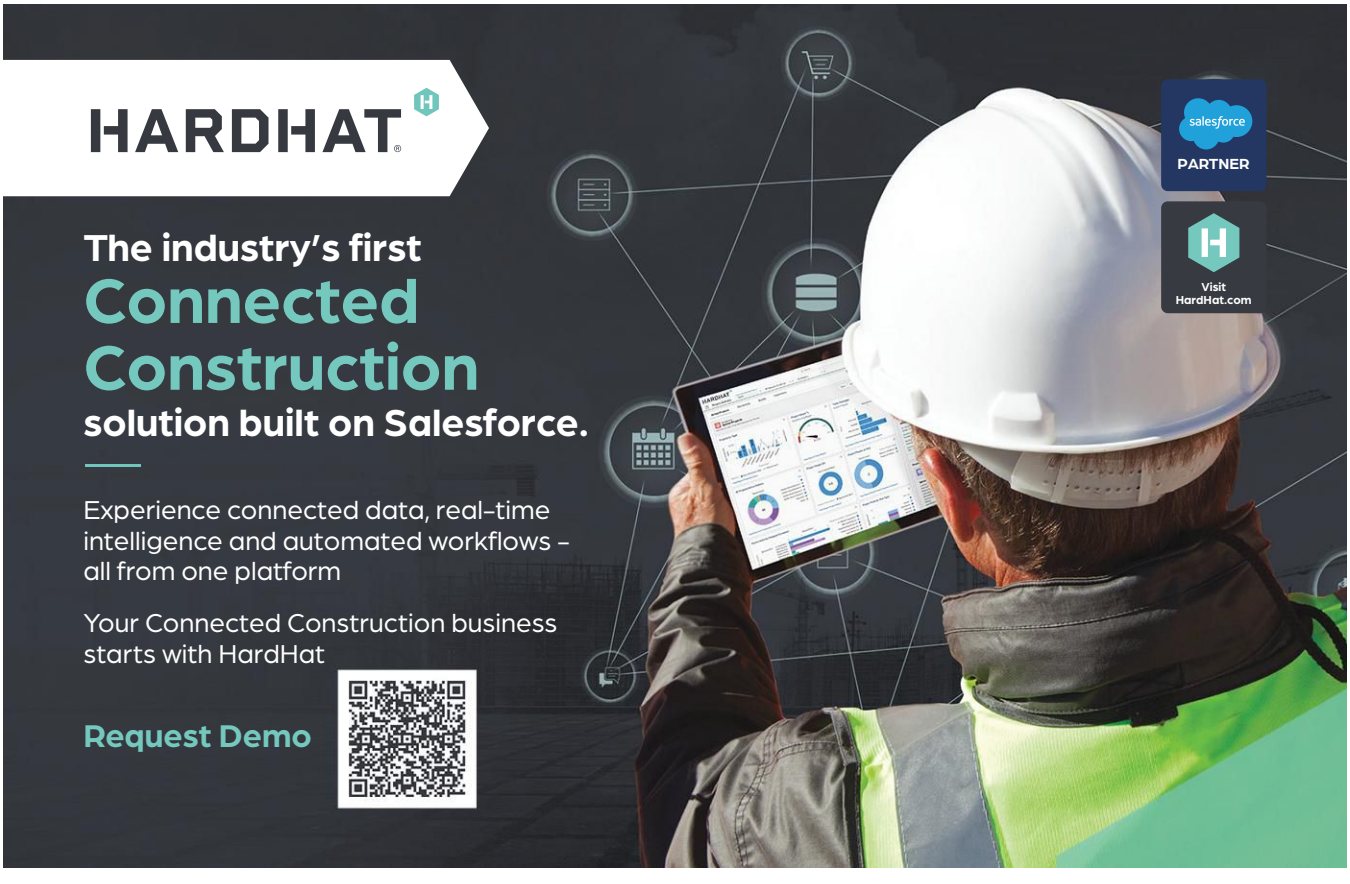
developing the overall strategy to build a better business which will allow your company to grow, profit and generate opportunities for employees.

4. Take one step at a time. Don't get frustrated and let the pressure of changing your old ways of doing business slow you down or stop your improvement program. Be sure to assign some of the next improvement items to key managers or supervisors to get their involvement and earn buy-in. For example, you could assign the task of drafting a field job startup checklist to a supervisor or foremen to create. Or you could assign your estimator the task of selecting a subcontractor bid solicitation software program. As each improvement system is created, have the person in charge of developing it present the new way of doing business to the entire team to gather their input and win their buy-in as well.

## Change Is Your Choice

Remember: Improvement is hard work, and it's slow and painful getting people to do things differently. It's not easy to hire the right person and then let go and delegate to them. It's hard to implement a new software program which will improve your project management and estimating success. It takes a time commitment you don't have to seek new customers who'll negotiate with you rather than ask for another low bid. It's hard to spend the time needed to find projects where you can earn higher margins. It's hard to replace poor performers who have been with you a long time but haven't committed themselves to learning the new technologies required. It's difficult to let go of good workers who have bad attitudes, are not team players and are resistant to change. It's also uncomfortable to invest money and dedicate regular time to making improvements and doing the difficult things you know you need to do.

As the leader of your company, you must take full responsibility for the results you're currently achieving — good or bad. You can choose to do nothing differently and continue to accept subpar results. Or, you can stop hoping for better and decide to commit and invest in your future success, continuously improve, do business differently, and ultimately raise your business performance to a higher level. ▲

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On your side Site

# The Art of Building

An examination of 'The Art of War' relative to the built environment



GREGG M. SCHOPPMAN is a partner at FMI Corporation, 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 multifamily markets. He holds a bachelor's degree and master's degree in civil engineering, as well as a Master of Business Administration. Schoppman has expertise in numerous contract delivery methods, as well as knowledge of many geographical markets. Contact Schoppman by email at gregg.schoppman@fmicorp.com. Visit fmicorp.com.

Sun Tzu's "The Art of War" has been translated and dissected by scholars, strategists and generals. While it can be brutal and draconian in how it views warfare and the enemy, the 13 tenets of "The Art of War" can be applied to the world of construction.

First, it is important to understand the 13 chapters at the heart of the book and, more importantly, a "contemporary" spin.

1. *Laying the Plans for War* — Ultimately, the real success to war is all about the planning. Sun Tzu dedicates an entire chapter to what would effectively be called preconstruction planning.
2. *The Challenge of Waging War* — Sun Tzu reflects on maintaining supply lines in war and keeping up support.
3. *Attack by Stratagem and Win Without Fighting* — Sometimes the best battles are the ones where a shot is never fired, and the enemy lays down their arms at the sight of their combatant. Additionally, there has to be an endgame. Sun Tzu knew that a battle without a picture of "doneness" was one destined for failure.
4. *Disposition of Military Strength* — Every team has to play defense at some point. A great defense can be a great offense when deployed appropriately.
5. *Use of Energy* — Productivity is all about the most amount of output for the least amount of input. Ensure the amount of energy expended is worth the effort.
6. *Weakness and Strength* — This is all about the team's orientation to the competitive advantage and a real belief in what that is.
7. *Maneuvering* — Positioning the troops is critical on more than just a project but for the entire mission. Additionally, an entire organization must ensure there is a reward system that fairly and equitably treats the team.
8. *Variation of Tactics* — Change is inevitable, and the great leaders vary well in advance of the market to capitalize on where the market will be two to three moves from now.
9. *On the March* — Sun Tzu knew that the high ground was critical to success, not just in the battle but in surveying the overall landscape long term.
10. *Terrain* — This is less about the ground and more about an intimate understanding of the climate and the people and ultimately being visible as the leader.
11. *Nine Varieties of Ground* — Sun Tzu was very descriptive on the types of places a battle could be most advantageous. Leaders should be more concerned about "where to play/how to play" and marrying those critical success factors with core competencies.
12. *Attack by Fire* — Sure, fire and trebuchets sound grandiose, but this is more about being disruptive and not being susceptive to attacks by fire.

13. *Employment of Secret Agents* — To avoid illegal and unethical issues, but this is more about market intelligence.

Each of these chapters can be compartmentalized into two categories:

- *Project Tactics* (*Chapters* 1-6) — Elements that can be applied at a more granular project level
- *Business Strategies* (*Chapters* 7-13) — Elements that can be applied to the entire business unit or corporation

For the sake of this examination, each of these "arrows for the quiver" will be provided as questions for a business leader to reflect upon and use in a practical construction setting.

## Project Tactics

### *Laying the Plans for a Project*

- How well does your team thoroughly assess all potential conditions?
- Is your planning process more dictatorial or collaborative? Put another way, do you rely on a series of checklists, or do you have conversations that ask the tough questions?
- Do you spend the commensurate amount of time in the planning phase of a project, or is there a rush to get "put the first shovel in the ground" without real planning taking place?

### *The Challenge of Building a Project*

- Do you always thoroughly trace the supply lines on your project?
- Do your project teams appear surprised by material delays of any kind?
- How well do you maintain morale on a project regardless of how long/short the project is?

### *Attack by Stratagem — Win by Building*

- Do we wait for a customer to drive the project, or do we lead the project proactively?
- How well do you control risk? Put another way, do you have the entire "armed forces" deployed on the project, and if one thing goes wrong, the entire business is at risk?
- Do we know what "done" means, or do we lack clarity on what the true definition of project doneness means?

### *Disposition of Builder Strength*

- Do we play defense too late? Put another way, does our documentation always seem light?
- Do you present an image of strength, regardless of your firm size on a project?
- Are we accurately capturing data and information about projects or just enough to get by?

### *Use of Builder Energy*

- How often do we look at our crew sizes, equipment planning, etc.?
- Do you focus too much on production and not enough on productivity?
- What is the efficacy of our project organization structure?

### *Weakness & Strength*

- What is your real edge on this project?
- Do your people believe in that edge on the project, and are they leveraging it appropriately?

## Business Strategies

### *Maneuvering the Construction Business*

- How well does your team do at conflict resolution at all levels?
- How well does your team provide positive and critical feedback?
- What is your image in the marketplace?
- Does the reward system you have work, both monetarily and nonmonetarily?

### *Variation of the Firm's Tactics*

- How well are you innovating? Put another way, what was the last thing you changed in your business for the better?
- Are you a market leader or market follower?

### *On the March to Building Better*

- Are you actively taking part of the community around you to learn about the community?
- Are you building for now or for five years from now?

### *Terrain*

- Are you visible to your people?
- Are you visible to your customers?
- What do you know about each group?
- What drives each group to do what they do?

### *Nine Varieties of Ground*

- If your business were to grow vertically/horizontally, how would it do it and why?
- What is the compelling reason for growth, and who (lieutenants) would lead those growth initiatives?

### *Attack With Concrete*

- Are you famous for something?
- Do you have gaps in your "defenses" your competition could see? If you answered no, you better think again and look harder!

### *Employment of Intelligence*

- What do you know about your competition, and why do your customers choose them instead of you?
- What do you customers not like about you?
- What is you share of the market?
- Who is your best customer? Why do you call them your best customer?

Each chapter of Sun Tzu's work could have its own book, so it is myopic to think that each can be summarized with two or three bullets. However, these tactics and strategies are to provide builders with a contemplative view on their projects and business to avoid stagnancy. When all else fails, attack with fire. ▲

# The Impact of New Lease Accounting Standards on Key Financial Ratios

Understanding ASC 842 & how to handle future lease obligations



ANDY CHOI, CPA, is an assurance director in the Costa Mesa, California, office of Marcum LLP. A member of the firm's construction industry group, he serves clients in the construction, real estate and manufacturing industries. Contact him at andy.choi@marcumllp.com. Marcum LLP is one of the leading construction accounting firms in the U.S. Marcum provides audit, consulting and taxation services to construction clients ranging from startups to multibillion-dollar enterprises. Marcum LLP's construction services group is dedicated to assisting contractors with personalized and attentive service, strong technical expertise and uncompromising integrity. Regulations related to the construction industry can be complex, making compliance with these laws an ongoing challenge. Visit marcumllp.com/construction.

With the start of 2023, the long-awaited new lease accounting standard implementation date has arrived for private companies. All private companies with annual reporting periods beginning after Dec. 15, 2022, should have adopted ASC 842 by now. The companies should have evaluated all their leases and recorded their 2022 year-end financial statements in accordance with the new standard.

## Recap of ASC 842 Changes

The new leasing standard, ASC 842, replaces the previous leasing standard ASC 840. Under the old standard, accounting for leases required lessees to classify leases as either capital or operating.

Capital leases were recorded on the balance sheet, while operating leases were not recorded on the balance sheet. Instead, operating leases were disclosed on a footnote in the financial statements with total lease payments made for the reporting period and future minimum lease payments under the lease agreement.

The main purpose of the new lease standard is to record all leases — whether capital (which are now known as financing leases) or operating — on the balance sheet. The standard aims to make the "off-balance-sheet" operating leases more visible, clarifying the entity's leasing obligations on the financial statements instead of leaving them embedded in footnote disclosure.

Under the new standard, almost all leases must be shown on the balance sheet with a right-of-use asset and a liability. The purpose of the accounting changes is to make financial statements more legible for their users and to disclose an entity's exposure to all risk and reflect its true financial position.

## How Does This Change the Financial Statement?

As previously mentioned, the main change

**Debt-to-Equity Ratio**

| | *Old Standard* | *New Standard* |
|---|---|---|
| Total Liabilities | $25,765,000 | $32,265,000 |
| Total Equity | $26,665,000 | $26,690,000 |
| Debt-to-Equity Ratio | 0.97 | 1.21 |

Figure 1. Debt-to-equity ratio of a company with a long-term office space building lease

on the financial statements is including a right-of-use asset and a liability for operating leases that were previously not shown on the balance sheet. Figure 2 is an example of the balance sheet of a company with a long-term office space building lease.

As can be seen in the example, the operating lease now appears on the balance sheet in alignment with the new standard, with the right-of-use asset and liability of $6,525,000 and $6,500,000, respectively, adding to the total assets and total liabilities.

The new standard not only affects the presentation of financial statements and related disclosures, but also has a significant impact on financial ratios and financial statement readers' assessment of the company's financial position.

The purpose of presenting financial statements to readers such as bankers and surety companies is to obtain financing and bonds; therefore, companies should evaluate the changes in the key financial ratios that result from the adoption of the new standard.

## Impact on Key Financial Ratios

*Debt to equity ratio*

The debt-to-equity ratio is a leverage ratio that compares the total debt balance on a company's balance sheet to the value of its total equity.

The ratio measures a company's financial leverage and simply presents how much debt a company is using to finance its assets relative to the value of its equity. Under the old standard in Figure 1, the company had a debt-to-equity ratio of 0.97. This means that for every dollar in equity, the company had 97 cents in leverage.

However, with the new standard, the ratio increased significantly to 1.21. The new standard increases total liabilities and results in an increase in the ratio for all companies.

| ASSETS | | |
|---|---|---|
| **CURRENT ASSETS** | *Old Standard* | *New Standard* |
| Cash & Cash Equivalents | $5,000,000 | $5,000,000 |
| Contract Receivables | $35,000,000 | $35,000,000 |
| Contract Assets | $3,200,000 | $3,200,000 |
| Prepaid Expenses & Other Current Assets | $500,000 | $500,000 |
| **Total Current Assets** | **$43,700,000** | **$43,700,000** |
| Property & Equipment | $8,730,000 | $8,000,000 |
| Operating Lease Right-of-Use Asset | - | $6,525,000 |
| Financing Lease Right-of-Use Asset | - | $730,000 |
| **Total Assets** | **$52,430,000** | **$58,955,000** |
| | | |
| **LIABILITIES & STOCKHOLDER'S EQUITY** | | |
| **CURRENT LIABILITIES** | *Old Standard* | *New Standard* |
| Line of Credit | $1,000,000 | $1,000,000 |
| Current portion of operating lease liability | - | $600,000 |
| Current portion of financing lease liability | - | $115,000 |
| Current portion of capital lease obligation | $115,000 | - |
| Accounts payable & accrued expenses | $20,000,000 | $20,000,000 |
| Contract liabilities | $4,000,000 | $4,000,000 |
| **Total Current Liabilities** | **$25,115,000** | **$25,715,000** |
| **LONG-TERM LIABILITIES** | | |
| Operating lease liability, less current portion | - | $5,900,000 |
| Financing lease liability, less current portion | - | $650,000 |
| Capital lease obligation, less current maturities | $650,000 | - |
| **Total Long-Term Liabilities** | **$650,000** | **$6,550,000** |
| **Total Liabilities** | **$25,765,000** | **$32,265,000** |
| **Total Stockholder's Equity** | **$26,665,000** | **$26,690,000** |
| **Total Liabilities & Stockholder's Equity** | **$52,430,000** | **$58,955,000** |

Figure 2. Balance sheet of a company with a long-term office space building lease

| Debt Service Coverage Ratio | | |
|---|---|---|
| | *Old Standard* | *New Standard* |
| Earnings Before, Interest, Taxes & Amortization (EBITA) | $650,000 | $650,000 |
| Current Debt & Operating/Financing Lease | $115,000 | $715,000 |
| Interest Expense | $20,000 | $20,000 |
| Debt Service | $135,000 | $735,000 |
| Debt Service Coverage Ratio | 4.81 | 0.88 |

Figure 3. Debt service coverage ratio of a company with a long-term office space building lease

Depending on the number of operating leases a company has, the impact on debt-to-equity could be larger than expected.

*Debt service coverage ratio*

The debt service coverage ratio is a measurement of a firm's available cash flow to pay current debt obligations. As noted from the calculation in Figure 3, under the old standard it appeared that the company had generated enough money to pay their current debt obligation.

However, with the new standard, the ratio decreased to 0.88. This means the company no longer has sufficient cash flow to pay off the debts that must be paid within a year.

*Working capital*

Working capital is a financial metric that represents a business's available operating liquidity: the difference between a company's current assets and its current liabilities.

Figure 4 shows positive working capital under both standards, which is good, but the new standard lowered the amount of working capital by $600,000. Working capital is one of the key ratios that is evaluated to determine a contractor's bond limit. The lower amount resulting from the new standard could lower the company's bond limit.

As we can see from these examples, the three key ratios were adversely impacted by adopting the new standard. Heavy contractors who lease equipment and contractors who lease long-term real estate could be most at risk.

Figure 4. Working capital of a company with a long-term office space building lease

| Working Capital | | |
|---|---|---|
| | *Old Standard* | *New Standard* |
| Current Assets | $43,700,000 | $43,700,000 |
| Current Liabilities | $25,115,000 | $25,715,000 |
| Working Capital | $18,585,000 | $17,985,000 |

## It's Not Too Late

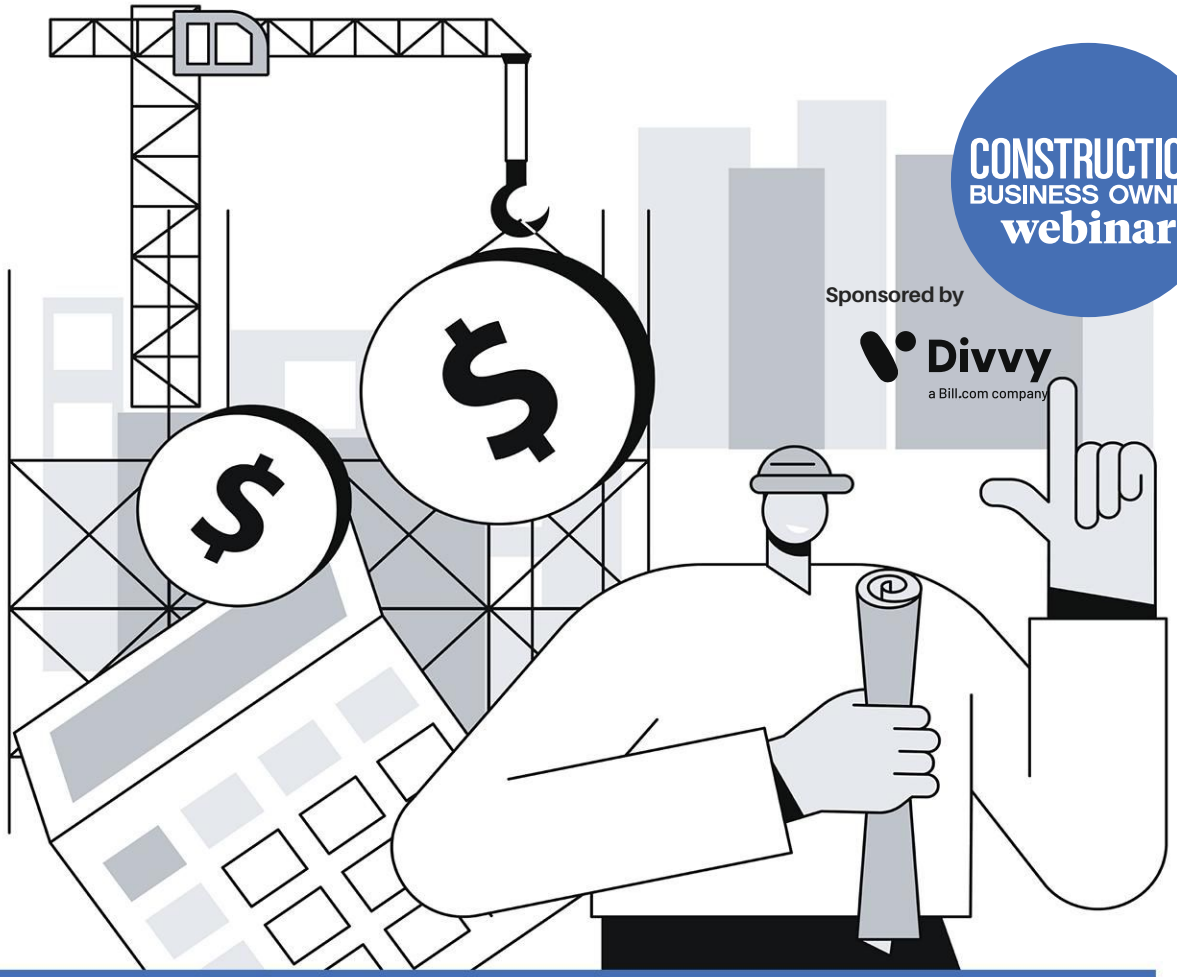
The first year after any significant accounting change is difficult. You may be well prepared and still encounter unexpected situations.

If you have significant operating leases that were presented off-balance-sheet in previous years, you most likely saw significant impacts on the key ratios mentioned above.

If you have communicated about this with your certified public accountant (CPA), surety bond broker and bankers — great job being on top of it.

However, if you haven't yet, it's time to alert all parties to the potential impact so that you can discuss strategies to minimize the impact on your lending situation and surety bond program. Most surety and bank underwriters are aware of and prepared for this new standard.

Communication is key for the first year. Discuss your plans for how the company will handle its lease obligations in the future, find the best structure, renegotiate leases, considering purchase, etc. It's time to plan for the future that would be most beneficial moving forward. ▲



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# The Case for Increasing the Use of Lean Construction Practices

Industry statistics show benefits & resistance to lean construction



DONNA LAQUIDARA-CARR, PH.D., is industry insights research director at Dodge Data & Analytics, where she provides editorial direction to the SmartMarket Report Series, covering such diverse topics as world green building trends, business value of BIM, managing risk in the construction industry, the drive toward healthier buildings, building a safety culture and lean construction. Her insights on these topics have been published in numerous industry publications, and she regularly conducts webinars and speaks about this research at events for diverse organizations, including the AIA National Conference, CMAA National Convention, AGC National Convention, the Lean Congress, Greenbuild, the inaugural WELL Conference and BOMA. Visit construction.com.

By now, most contractors have heard of "lean" construction; it has clearly gained a foothold in the practices of many contractors. However, according to a recent study conducted by Dodge Construction Network for the Lean Construction Institute (LCI), most contractors are still only lightly engaged with lean, even though increased engagement leads to meeting budget and schedule and improved safety.

To gauge the level of engagement with lean, the study asked general contractors about their use of 29 different lean practices on their projects. The general contractors were recruited from two very different sources: Dodge used its own industry-representative contractor panel, and LCI recruited participants from general contractors that are members of their organization. Not surprisingly, there is a striking difference in the level of engagement between these two groups.

- Over half the general contractors recruited by LCI utilize 25 of the 29 lean practices on at least some of their projects, and 11 of the practices are used by 80% or more.
- In contrast, only two lean practices are utilized by more than half the general contractors recruited from the industry-representative panel, with the most widely deployed practice (production scheduling) only used by 59%.

Based on these findings, this discussion will consider the general contractors from LCI as highly engaged with lean and contrast their findings with those from the industry-representative panel. However, it is worth noting that, even in Dodge panel responses, use of lean is still evident among general contractors. Eleven lean practices are used by 40% or more, and eight additional practices are used by over 30%. This clearly demonstrates some engagement with lean across the industry, albeit at a much lower level than that shown by LCI respondents.

All participants using lean practices were asked about the impact of lean on their projects. Among the general contractors recruited by LCI, 73% reported that their lean projects experienced final construction costs lower than the original budget, 80% found that they stayed on schedule or shortened the schedule on these projects, and 66% said their projects were safer.

Far fewer of the less intensive users of lean practices from the Dodge panel reported these positive outcomes, with only 30% reporting lower construction costs, 38% reporting the ability to meet or reduce their schedule, and 22% reporting increased safety on their lean projects. These numbers demonstrate the value of more deeply engaging in lean. However, it is notable that even these less engaged general contractors more frequently achieved these positive outcomes on their lean projects than on traditional ones, with only 21% reporting lower construction costs, 18% reporting meeting or reducing the schedule, and

14% reporting increased safety on their traditional projects compared with the lean ones.

The fact that even those who are less engaged often experience benefits from lean practices is particularly important because it demonstrates that taking an incremental approach to introducing the practices into your organization will provide some benefits from early on, which will likely only increase as you increase your use of lean approaches.

Given the benefits of lean, perhaps the most important question is what is prohibiting wider use of these practices in the industry, and the study provides some insight. Given the wide breadth of the practices included, perhaps it is not surprising that lack of familiarity is the most widely reported factor preventing the general contractors from the Dodge panel from engaging more with lean on their projects, selected in the top three by 53%. However, it is striking that 47% of the general contractors recruited by LCI for the survey agree that they also face this challenge. The breadth of lean as a practice continues to be an obstacle, even for contractors who are already widely engaged in it.

However, for the LCI respondents, the biggest challenge is a lack of staff with sufficient lean expertise, which is reported by 64%. This is also the second biggest challenge for the Dodge panel respondents. Evidently, the industry is hungry for more internal expertise on lean in their companies.

In addition, the study reveals a more persistent obstacle — one that was revealed in the first lean study Dodge conducted in 2014. The fundamental driver of a commitment to lean construction is often rooted in the perception of the inherent inefficiency of current construction processes and the need to change. Therefore, the understanding that change is needed is an important motivator for increased engagement with lean. The findings still reveal a major gap in that perception: While nearly two-thirds (63%) of the general contractors from LCI rate the U.S. design and construction industry as inefficient, only 30% of those from the Dodge panel agree.

Until this fundamental perception changes, the challenges associated with adopting lean are likely to outweigh the benefits for many general contractors. As the industry faces a looming recession and continues to struggle with worker shortages and supply chain challenges, the increased efficiency offered by lean continue to gain in importance — but first the industry needs to fully recognize the need for change. ▲




# Pivot to Pursue Growth in the Face of Macroeconomic Headwinds

5 industry trends & how you can take action

BY LAURA PENHALE & THOMAS POSTOL

The potential for recession, continued inflation, critical labor shortages and supply chain issues will loom large over construction in 2023. Additionally, many eyes are on interest rates in a virtual wait-and-see mode as to whether they will continue to rise, and by how much.

And yet opportunity awaits well-prepared construction firms that can pivot during uncertainty. The U.S. commitment to national infrastructure improvements and the expected rise in building renovation/rehabilitation work offer hope that construction firms can manage to perform well even through continued uncertainty.

Prepare for opportunity in 2023 with consideration of the following five trends.

## 1. Civil & Infrastructure

Total construction starts are expected to remain flat in 2023, but a significant swing in type of work appears imminent. The construction industry, in pure dollar terms, is likely to see more civil and infrastructure work than single and multifamily housing or some areas of commercial construction that dominated the construction landscape the last couple of years.

Along with the opportunity, however, will come the continued impact of inflation, rising interest rates and other financial factors, such that a project that cost $1 million to build a couple years ago could now cost 20-30% more. Larger contractors may have the equipment and the organizational and financial depth to tackle these shifts, while smaller companies may need to consider options in an effort to participate more broadly.

### *Take Action*

In response to larger scale infrastructure projects and/or the potential for increased infrastructure opportunity in general, joint ventures (JV) could present an attractive way of participating. Traditionally, JVs provide a way for contractors to combine talent, experience, equipment, administrative and financial resources to handle larger projects or backlogs.

For some, entering into a merger or acquisition with a competitor may offer the opportunity to add to your firm's capabilities. If the financials make sense, this can be a tool to add specialized equipment or expertise, or thoughtfully expand into new locations.

## 2. Renovation & Rehab

The current market poses additional challenges as some industry segments and owners move away from new construction toward rehabilitation and renovation projects. The conversion of shopping malls and warehouses for other uses accelerated because of the pandemic and the transition to more online shopping. Mall traffic has slowed in recent years as shoppers visit stores closer to home more often.

Depending on the complexity of a project, rehab work could prove challenging for contractors traditionally focused on new construction. There's no telling what quality of work was done on the facility when it was built or how often or well the building was maintained. Moreover, based on age, the building could contain hazardous materials or historical preservation requirements a contractor may not have counted on.

From a property and casualty perspective, any structural changes add risk. Opening walls adds risk as well, as contractors could encounter water damage, fire sprinkler issues, gas line concerns, electrical damage or any number of unexpected problems that need to be remedied.

### *Take Action*

Consider new technology to help mitigate risk — laser scanning, hygrothermal wall analysis and computational fluid dynamics modeling, among other innovative equipment and methods.

Contractors should stay current on the latest changes in construction codes. For example, many retail renovations in the past may have simply changed a store from one retail shop to another. However, as buildings are being repurposed, retrofitting a storefront into a medical or manufacturing facility could require special or unique modifications to handle the needs of these types of businesses.

## 3. Workforce Challenges

Construction industry labor shortages will continue in 2023. Qualified workers simply aren't available to fill the specialized positions that construction companies need.

Another major factor in play within the construction industry is the stigma blue-collar work carries among many younger workers. The average age of a construction worker in the U.S. is currently 42.5 years old. With many baby boomers still choosing to retire early post-COVID-19, and without an adequate number of young workers filling those roles, the industry will struggle to grow its workforce in 2023 and beyond.

### *Take Action*

To attract from all parts of the labor

pool and upskill experienced workers, the industry will have to improve communication of the benefits of a career in construction to the younger generation. Consider the following ways:

- Increase outreach efforts. Encourage high school students to attend trade schools, and trade school students to join the construction industry.
- Build unique benefits for your workers. This may mean additional total compensation, including benefits, sign-on bonuses, higher salaries and more days off.
- Offer both entry-level job and jobsite safety training.
- Consider ways to reacquire seasoned workers — today's cost of living could be impacting retirement plans, resulting in trained workers willing to reenter the workforce. Acquiring these legacy workers could also produce positive training experiences for younger tradespeople and help improve jobsite safety.

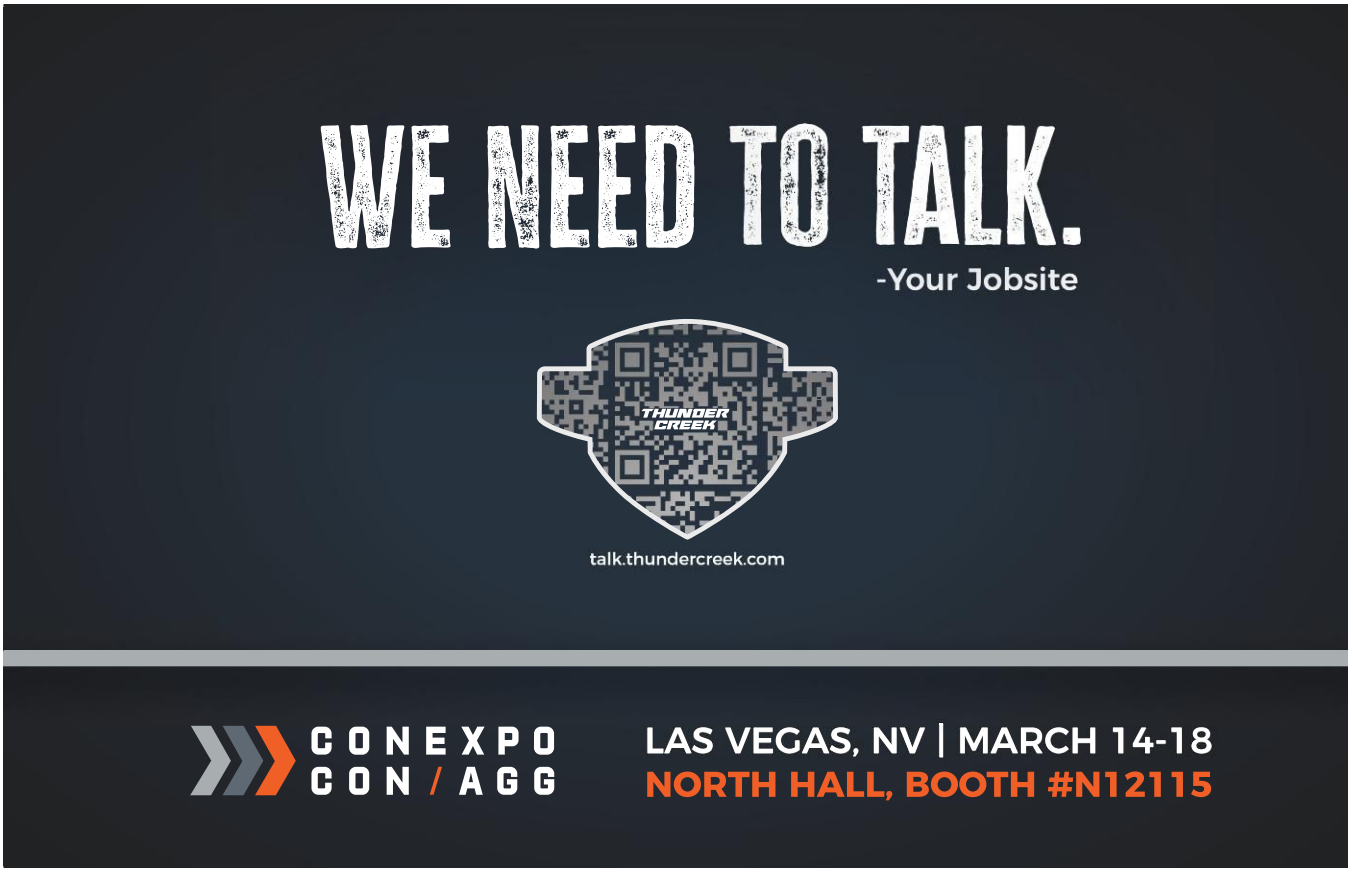
## 4. Supply Chain Challenges, Volatile Pricing

A gummed-up supply chain has slowed some projects to a crawl, while others have been hampered by the ups and downs of fuel and material costs in the past year. It's clear that volatility and inflation are cutting into job project margins. As such, anticipating extended project timelines, material or subcontractor price escalation and additional overhead must be evaluated during the bid stage. One potential remedy to deal with rising material costs is adding a materials inflation clause to your contracts that either places the responsibility with the project owner or, at the very least, the owner and contractor share the additional expense. Contractors may also want to consider discussing whether lower-cost material options would be acceptable to the owner or their representative.

During the COVID-19 pandemic, some construction companies relied on U.S. Paycheck Protection Program (PPP) loans to help with overhead costs. Although PPP is at an end, supply chain uncertainty and inflation are not. Consequently, it's essential that contractors stay current with local, regional and countrywide economic and labor dynamics as they price their work.

### *Take Action*

To minimize the impacts of volatile prices or running out of materials, contractors can increase their inventory and buy in bulk where possible. Furthermore, inventory management is extremely



important in a tight materials market. Make sure that any unused materials are returned to your inventory warehouse for use on future projects, rather than ending up in the trash or left behind.

Stay current on material, labor and economic trends. There is a tremendous amount of data available in each of these areas, as well as industry insights through various associations and publications like Associated General Contractors of America, Associated Builders and Contractors, Construction Business Owner Magazine and Engineering News-Record.

### 5. Cybercrime Threats

As construction companies and other industry stakeholders continue the shift toward technology as an enabler, cybercriminals have followed suit. According to a study by NordLocker, construction was the second-most targeted industry for ransomware attacks between January 2020 and July 2022 because of the high success rate for hackers across the industry. Small to midsize construction businesses are especially vulnerable to cyberattacks because of the limited resources and defenses they've often dedicated to protecting their network environment.

Cybersecurity compliance is important for all government contractors but expect stronger compliance requirements from any business partner you engage with in 2023.

### *Take Action*

Defend your business against cybercrime by obtaining cyber insurance, engaging technology to protect and defend your software and systems, and focusing on employee education and commitment to know and avoid the common mistakes that can lead to a breach.

### 2023 & Beyond

Challenges abound for construction companies of all sizes in the new year. However, opportunities exist for organizations that can shift gears and capitalize on the larger industry trends while mitigating risk and maintaining strong profit margins in the process. ▲




*Laura Penhale is the assistant vice president of Surety Home Office Underwriting at IAT Insurance Group.*



*Tom Postol is senior vice president of Property & Inland Marine at IAT Insurance Group. IAT provides a range of insurance and surety products to the construction industry. Visit iatinsurance.com.*



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# Top Questions Students Ask About Construction (Part 1 of 2)

5 FAQs from undergrads & the advice they seek from educators

BY ASHLEY JOHNSON & ASHLEY WILLIAMSON

Addressing construction's labor shortage goes beyond luring candidates into individual companies with competitive salaries and benefits — it is about promoting and redefining the industry as a whole. In academia, that work culminates at a college level with courses, research and exposure to experiential learning opportunities. Although we spend the majority of our time with those college-age students, the effort to get them into the industry often begins long before.

We educate students at a young age about life and opportunities in construction; those opportunities are not only for high school students but also middle- and elementary-age learners. We do this through several different summer camps targeting underrepresented kids and teens.

At Virginia Tech's Myers-Lawson School of Construction (MLSoC), we combine both old and new school methods to engage students. We still teach lessons through spaghetti towers and Lego brick-building, but we combine them with more unique hands-on lab experiences like constructing wood and concrete items.

Other favorites include introducing students to building envelope systems and heat transfer (i.e., testing out the thermal gun). Although we target our message to different ages, students in every grade level are drawn to opportunities that include hands-on technology, whether it be virtual and augmented reality, drones, exoskeletons, computer modeling systems or robotics.

When talking with college-age students, we focus on their passions: What do they want to do? What excites them? What subject or topic do they enjoy most in school? Many times, their answer describes the construction industry but doesn't actually use the word "construction." They report that their favorite subjects are math, engineering, design or "anything to do with money." They are interested in technology, sustainability and wanting to "make a difference." Many students we meet don't know enough about construction to understand how their interests fit with a career.

The following are a number of areas in which students are confused about when considering a career in construction.

## 1. What are the different industry sectors?

At MLSoC, we teach about the main four sectors: residential, commercial, heavy highway and industrial. But in further conversations, we also show how some companies focus more on subsectors within each of those (i.e., medical or tech-focused projects). These subsectors

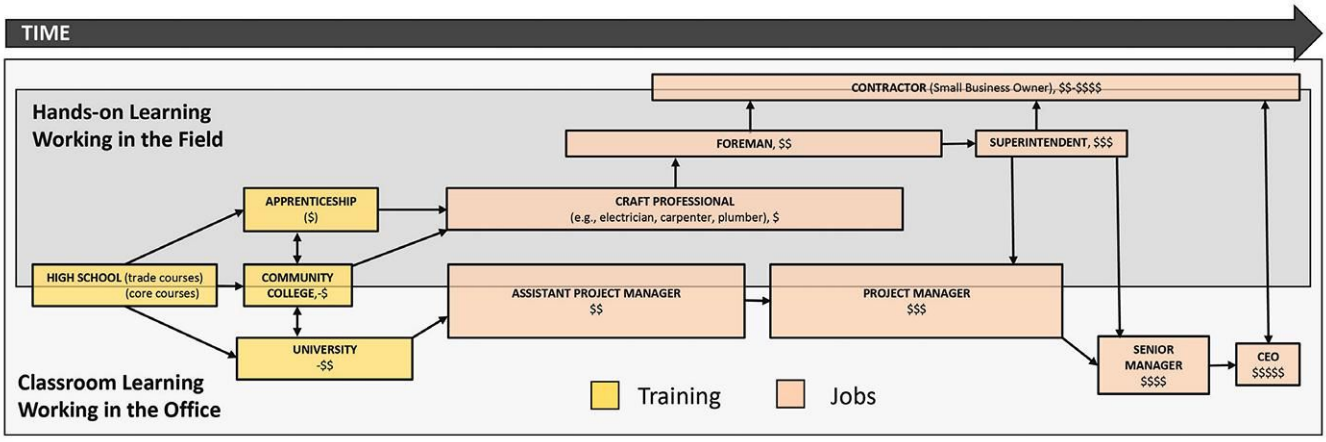



Figure 1. Career pathways in the construction industry

also allow students who have multiple areas of interest to find unique job opportunities through projects such as gas/pipeline, green energy or chemical work. Showing students both broad and specific opportunities allow them to find or create a place in this industry.

### 2. What kind of jobs can I get?

After showing students what the industry can offer them, this is when we show them what skills they can offer the industry. If they enjoy problem-solving, engineering calculations and drafting/AutoCAD, they can become designers and draft a portion or component of a building, road, construction system, etc., using codes and calculations. If they enjoy resource management-related activities, they can work in preconstruction and learn how to bid for work, interview for projects, and create preliminary plans, budget estimates and schedules. Within preconstruction, they can be estimators, schedulers and/or business development professionals if they are passionate about sales and planning. If they enjoy the management side of things, they can become an owner's representative and work with people and other companies to collectively create a solution within budget, time and logistical constraints.

Commonly, when students graduate from MLSoC, they start in entry-level positions such as project or field engineers. Many in these positions are working toward becoming project managers, superintendents or construction managers. The list of possibilities is endless, whether it is starting a company for the entrepreneurial spirit or virtual design for those who are more technology-attuned. The key when talking to these young students who have a world of possibilities ahead is showing the opportunities at their disposal, no matter where their interests lie.

### 3. What are the different paths to a specific position (manager, business owner, decision-maker, etc.)?

This is where we emphasize to students that no two paths are alike — some start as workers or apprentices, earning hands-on construction experience before moving up to foreman, managerial, or executive or business-owner positions. However, others choose to come through a two-year community college, four-year bachelor's program, or a five- or more-year master's program. The difference in what to choose and which path will be most successful depends solely on the individual and their needs. At the end of



the day, there's no one right way to get to a goal — they should weigh the options for what makes the most sense for their future.

### 4. What do construction professionals do day to day?

We show students that, as with any industry, the day looks different depending on the job. In general terms, I like to define it as "managing resources"; it covers managing people, money, equipment and time. Beyond that, we stick to other major themes including networking and teamwork — it is a people-heavy business — coordination, information collection and using the information to ask and answer questions.

### 5. What companies hire construction professionals?

Right now, nearly everyone is hiring, but the right fit is essential for longevity. Many people begin in general contractor or construction management firms when they first start, as it provides opportunities to work in the four major sectors. We encourage students to do their research as they explore potential career paths. Nationally ranked lists are a great resource, but for smaller companies, relationship building is an essential key for recruitment.

Once students have a better idea of the industry as a whole, getting out and trying it is the next step. Ultimately, students don't know what they want until they experience it, so we encourage students to try as many things as they can out in the industry while learning the technical side in the classroom.

As an industry, we can bolster the next generation of leaders by encouraging them to keep an open mind, take advantage of as many opportunities as possible and ask questions. We can also look to enhance partnerships between the construction industry and schools in the communities where we work. ▲

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*Ashley Johnson is an assistant professor of practice and chair of the construction engineering and management program at Virginia Tech's Myers-Lawson School of Construction. Johnson teaches construction students and uses her experience as a project manager in the construction industry to motivate her teaching and advising.*



*Ashley Williamson serves as the outreach and engagement coordinator for Myers-Lawson School of Construction. Williamson acts as the communications and marketing lead for the school and merges industry interests with student-focused events. Visit mlsoc.vt.edu.*



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# 3 Influential Voices of Sustainability

Sustainable methods of building and the strategies that shape them continue to stimulate change across the built environment. As the practice of sustainability becomes more prominent, it gains a stronger foothold throughout the construction industry and drives the transformation of both local and global business operations in many areas, including:

- **Industry and infrastructure**
- **Clean energy, water and sanitation**
- **Recycling and responsible consumption and production**
- **Protection of climate, wildlife and waterways**
- **Sustainable cities and communities**
- **Green building and LEED efforts**
- **Humanitarian efforts (poverty, hunger, equality, health, wellness, education, employment)**

In this section, Construction Business Owner (CBO) Magazine recognizes this year's Sustainability VIP finalists, whose efforts and ingenuity are building a better future. Selected from a group of peer-submitted nominations, CBO's Sustainability VIPs are industry professionals who have developed or supported initiatives within their companies to advance these areas of sustainability and others.

# Michael Capasso

*Founder & Owner*

Green Asphalt



Michael Capasso is the founder, owner and president of Green Asphalt, a New York City company that produces recycled asphalt pavement materials.

Though he earned a bachelor's degree from Cornell University from the Nolan School of Hotel Administration, he was eventually drawn to construction, the industry where his family worked.

"Then I started a company over 30 years ago now and started out as small subcontractor, which led to becoming a general contractor, which then led to the asphalt plant," he said.

He began noticing the climate change in the world and became interested in sustainability.

"I've taken executive education classes at Harvard Business School and the London Business School through the Young Presidents' Organization. One of the things that was a takeaway was that a lot of the change that's needed in the world is incumbent upon business leaders," Capasso said.

"You can't rely on government all the time to do it. It takes business leaders to step up and do it, and that has always stuck with me."

So around 2011, while operating his other company, C.A.C. Industries, he got the idea to recycle asphalt.

"There is an abundance of excess asphalt that gets hauled off to waste sites and dumps. So why not recycle as much as you can?" he wondered.

Additionally, recycling would reduce the company's carbon footprint. While recycled asphalt has been around for a while, "The difference between what we're doing and the typical industry is that we recycle 100%," said Capasso.

"There was technology out there that already existed. We got involved when people were doing it and then enhanced and added our own value to develop our own patents," he recalled.

However, selling others in the construction industry and governments that lay hot mix asphalt on the benefits of 100% recycled asphalt has been difficult.

"The biggest challenge we face is that a lot of customers don't care as much about that as I do, and until we get to that inflection point, it will be a challenge," he said.

"The New York City Department of Design and Construction is very much interested in it, and they're developing performance dates and mix specifications to allow for the highest recycled content. But we've been challenged by other agencies where they haven't necessarily embraced it as much."

Capasso says government entities and companies should start thinking about the environment.

"We see the impacts of climate change and the environmental effects on the earth. I think that's probably the biggest reason. If you can reduce carbon footprint emissions in every process we do across the globe, and we collectively all do it, we'll have a cleaner, greener, healthier planet for generations to come," he said.

Another challenge was the COVID-19 pandemic, which struck the city hard in 2020. "The biggest challenges have been that a lot of projects that were supposed to come out for bid have been delayed due to the pandemic, so there's been less of an opportunity to supply asphalt," he said.

**"If you can reduce carbon footprint emissions in every process we do across the globe, and we collectively all do it, we'll have a cleaner, greener, healthier planet for generations to come."**

What is needed to foster a greater adoption of products like his would be customer acknowledgement of carbon footprint emissions and for government agencies to start mandating the highest recycled asphalt content as long as it meets performance standards, according to Capasso.

To help, he has hired two people to join his team and get out to industry functions, conventions and conferences to meet with asphalt plant owners and invite them to visit his plant to better understand the process.

"We're willing to contribute more time, energy and capital to get the message out and hopefully get them to adopt to this process," he said.

But despite the difficulties, Capasso would advise businesses to still look for ways to benefit the environment.

"It takes the private business community to really make a huge impact and change in the world. Don't wait for the government to mandate regulations."

In his off time, the married father of four stays busy. He is a member of Young Presidents' Organization, and C.A.C. has an arm called C.A.C. Cares that gives back to communities with activities such as planting gardens, building playgrounds at schools and donating turkeys at Thanksgiving.

Capasso says the best piece of advice he ever received was, "Don't be afraid to take on a challenge that you really believe in."

"I find it rewarding knowing that we took on a challenge that no one thought was possible, and I find it rewarding that we have the ability to make a change to the environment."

# Jacob Gardner

***Project Manager***

**Cunningham-Limp Development Co.**



When Jacob Gardner graduated from Eastern Michigan University in 2009 with a bachelor's degree in construction management, he could hardly have imagined the kinds of building projects he would one day help lead. Gardner is a project manager for Cunningham-Limp Development Co., a real estate firm specializing in development, design and construction, headquartered in Novi, Michigan.

Recently, Japan Solderless Terminals (JST), a global manufacturer of interconnection products, hired Cunningham-Limp to construct several commercial office buildings for a new campus in a wooded section of Farmington Hills, Michigan.

The catch: JST wanted the buildings made of wood and for the construction to have little impact on the surrounding forest and local animal life. To succeed, the project would have to involve both American construction expertise and Japanese timber craft.

"I don't think anything could have prepared me for what I'm doing now," Gardner said. Working with a Japanese designer and other consultants, Gardner and his team have been hard at work to make the client's request a reality. That includes collaborating with Japanese craftsmen who will work on finishes for the buildings. Construction is set to be completed in 2025.

"The primary goal of the project is to utilize the existing natural landscape with as little disruption to the current ecosystem as possible, to carry out daily life while preserving the forest," Gardner said. The mandate has even included not disturbing migration patterns of the local wildlife, according to Gardner. Such a project was a first for him. It required him to organize the construction in a new and unfamiliar way.

"Before we broke ground, we spent several years identifying the plant life and the ecosystem to really understand the birds and deer and all the animals that were traversing the property. So, when we planned the building, it was planned to impact them as little as possible," he said.

"It's humbling working with a design firm out of Japan that has a vision that's coming to life."

In fact, one of the most challenging aspects of the project was learning to work in a more methodical way in concert with his Japanese collaborators.

"It was very, very methodical. The hardest part is slowing down to understand their beliefs and be in alignment with them. This is a perfection job and not a production job. So, taking a step back, slowing down and making it as perfect as it can be has probably been the most challenging, aside from trying to learn Japanese," he said.

The work has continued even through the COVID-19 pandemic, which had only a minimal impact on the project. But Gardner did run into a few snags along the way.

"Procuring some of the timber has been slow and problematic. Electrical equipment has been challenging, and then there's the manpower aspect. I think everybody's struggling for a little help on the manpower side of things," he said.

**"Before we broke ground, we spent several years identifying the plant life and the ecosystem to really understand the birds and deer and all the animals that were traversing the property. So, when we planned the building, it was planned to impact them as little as possible."**

The buildings, besides being made of wood, will also have features such as green roofs and geothermal systems, and Gardner thinks others in the construction industry should do more to embrace sustainability more fully.

The project is so unique, they have invited others in the construction community to see the work.

"We're showing clients and architects and engineers," said Gardner. "Everybody is in awe. Some people dive in, and some people walk away. But it's been mostly good reactions with questions like, 'How do we do more as well?'"

"This project is a showcase for just about everybody who worked on it, mainly because it's different. It's unique. It's challenging," he said.

When he is not on the job, Gardner enjoys spending time with his three children. But colleagues praise his work ethic and organizational skills on such a major project. In fact, he merited 12 nominations for CBO's Sustainability VIP 2023, all submitted by coworkers and industry partners who respect his work. According to one nominator, the sustainable elements of the JST project will not only become the most sustainable project elements in the state of Michigan but will prove revolutionary for years to come on a global scale. "None of this would be possible without the incredible dedication and expertise," she said.

In the end, Gardner believes working on the JST building project has changed his perspective on construction.

"Honestly, it has made it not all about the building. It makes it more about what we're impacting."

# Joel Honeyman

*Vice President of Global Innovation*

**Bobcat Company**



> **We don't believe sustainability is a trade-off — customers and operators don't need to trade off sustainability for performance. We believe you can do both.**

Joel Honeyman grew up on a farm in North Dakota. He attended North Dakota State University, where he earned an undergraduate degree in mechanical engineering and a master's in agricultural economics.

He has been employed at Bobcat, a global brand that manufactures farm and construction equipment, for almost 26 years.

"Growing up on a farm and working around equipment and machinery is in my background, and Bobcat, obviously, was a natural fit," he said.

Early in his career at Bobcat he worked in sales, and, for nearly a decade, was the company's vice president of North American sales.

"I spent a lot of time with customers and understanding customer needs and working with our dealers. That helped me to look at these broader problems that we're trying to solve for our customers in the field," he said.

But five years ago, Bobcat launched a unit dedicated to innovation and tapped Honeyman to lead the group. Under his leadership, the unit began developing sustainable products for customers seeking to fulfill their own green initiatives.

"What our customers say is what we have to react to, and we certainly have a segment of our larger-scale customers, working on larger types of projects, who have an interest in having sustainable solutions on the site when those projects are being built or constructed. That's where a lot of our impetus for our sustainability efforts started," he said.

According to Honeyman, the innovation team focused on not just sustainability, but improved performance as well.

"We don't believe sustainability is a trade-off — customers and operators don't need to trade off sustainability for performance. We believe you can do both," he said.

Among the innovations for sustainability are two models of compact excavators which use a battery pack that drives the hydraulic functions of the machine. In addition, Bobcat recently introduced an all-electric T7X compact track loader. Instead of a hydraulic system, the machine uses an electrical drive system of electric motors and ball screw actuators. Moreover, the T7X emits zero emissions. In addition to accelerating the future of zero-emissions technology and how work is done, this solution aims to transform how the world runs jobsites, builds cities and thinks about a sustainable future.

Honeyman states that even through the recent COVID-19 pandemic, he and his innovation team continued working on new technologies.

"There were impacts within the supply chains to some components, but we kept our development going throughout the pandemic. We were able to launch some new products last year, and also keep some other ones on the drawing board that will be coming out in the future," he said.

The Bobcat innovation team has fostered collaborations with groups like the California Air Resources Board on their initiatives and with government entities that now mandate green solutions in construction equipment.

Honeyman thinks a more widespread adoption of eco-friendly equipment will take time, but he would like to see a greater acceptance of eco-friendly equipment options.

"I think it's for customers to experience it and understand that sustainability doesn't mean trading off other performance characteristics of equipment they might be used to. Once they start to experience those things, I think that will start to change their minds," he said.

"Keep an open mind to the new technologies," said Honeyman. "Be willing to try and experiment and understand those other benefits that might be out there."

In addition, he believes companies in the construction equipment space should always aim to understand what the customers' applications are for the technology and how well it can perform in a way to help their customers get their jobs done more efficiently.

To continue fostering sustainability, the innovation team will keep developing products for customers that want more eco-friendly options, he added.

Honeyman is married with three children. He is also a member of the Futures Council of the Association of Equipment Manufacturers and a board member of the North Dakota State University Development Foundation.

According to one nominator, Honeyman's enthusiasm for innovation and compact equipment ingenuity inspires not only the core team that has been built around him, but all Bobcat employees who are fiercely dedicated to the advancement of sustainable construction equipment and technology. His advice to other innovators: "Keep technology simple. Solutions need to be simple, and they need to be reliable and work."




# 7 Tips to Get the Most Out of CONEXPO-CON/AGG 2023

Preparing for the largest construction trade show in North America

BY ALICE BANACH

Attending a trade show may be one of the best experiences you can have, especially if you are in the construction industry. Not only can you see the latest heavy equipment, such as excavators, wheel loaders, articulated dump trucks and dozers, but there are plenty of networking and educational opportunities available.

Before you leave home, you need to be prepared. CONEXPO-CON/AGG, taking place March 14-18, 2023, in Las Vegas, Nevada, covers more than 2 million square feet of exhibitor space and features over a thousand exhibitors and approximately 150 educational sessions. You'll need a game plan prior to attending the show.

Follow these seven tips on how to prepare yourself for the largest construction show in North America.

## 1. Identify Your Goals

Attending a trade show can be a big decision: It takes money, time and energy. So, to make it worthwhile, you need to clearly define your business goals before you go. Identify what it is that you want to achieve by going to the show.

Do you want to build contacts or add a new piece of equipment or attachment to your fleet? Or maybe you're interested in learning about the latest technologies for hybrid and electric-powered equipment or new developments in telematics to identify efficiencies.

Setting clear goals also assists you in

measuring your success after the trade show is over to see if you have achieved your goals and whether it is worth attending the event again.

### 2. Register Early

It's a good practice to register for trade shows in advance since many have limited availability and different pricing structures based on when you register. You can generally save money by preregistering rather than registering at the door. Most shows, including CONEXPO-CON/AGG, have easy online registration procedures.

Preregistration also gives you an earlier opportunity to select the seminars that may interest you during the trade show. These do fill up quickly, so the sooner you register, the better.

### 3. Plan Ahead

Identify the exhibitors you want to see, and map your route to get to their booth locations. Make sure to allow enough time to ask representatives about their equipment. At CONEXPO-CON/AGG, you'll have the opportunity to see and touch equipment in outdoor exhibits and jobsite settings on the Festival Grounds. During live equipment demonstrations, manufacturers will showcase new technologies and autonomous construction equipment, such as dozers and excavators.

### 4. Dress Professionally

Following the correct dress code is recommended at trade shows. Remember, you are going as a business professional, so make sure to dress appropriately for your role. This could mean wearing business professional attire or business casual paired with comfortable shoes. Dressing professionally can leave a lasting impression on those you meet.

### 5. Network With Others

Be prepared to have fun and be sociable. Networking at the show and organized social events is a great way to connect and build relationships with others in your industry.

You may also benefit from networking if you're looking for career advice or want to stay updated on the latest industry trends. Take plenty of business cards — handing out business cards will help you look professional and prepared when networking.

### 6. Take Advantage of Learning Opportunities

At CONEXPO-CON/AGG, you'll be able to learn about new trends and products, the construction industry and new ways to use your equipment from industry-leading experts. The trade show offers hundreds of expert-led sessions and a healthy range of classes that can help expand your knowledge and provide you with skills and solutions to help improve your business.

## ATTEND THE SHOW

*Ready to attend CONEXPO-CON/AGG this month? Plan ahead for a productive visit to the industry's largest trade show in North America. There will be many heavy construction equipment manufacturers displaying next-generation technology. Register today at conexpoconagg.com.*







### 7. Regroup & Follow Up After the Show

Once you're back from the trade show, evaluate your participation and think about what you learned or what you could do differently next time. If you didn't get to visit as many booths as you wanted, make a note for your next show.

Be sure to record the contacts you made and send an email or a phone call to thank those who took time to talk with you and those for whom you may have follow-up questions.

During CONEXPO-CON/AGG, you'll have opportunities to learn about different equipment technologies, network with others and hear from industry-leading experts to improve your business. Follow these tips to make your participation a success. ▲

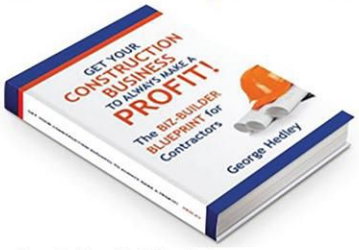
*Alice Banach is a senior marketing manager at DEVELON (formerly Doosan Infracore). She manages the brand's print and digital marketing tactics and has more than 20 years of experience in a variety of marketing communication roles. Visit na.doosanequipment.com/en/develon.*



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# 5 Equipment Manufacturing Trends to Watch in 2023

Challenges & opportunities to keep in mind this year

BY STAFF WRITERS, ASSOCIATION OF EQUIPMENT MANUFACTURERS

With 2022 firmly in the rearview mirror and the new year now underway, it's clear many of the opportunities and challenges impacting equipment manufacturers today are poised to remain as relevant as ever in the weeks and months ahead. While it's a fool's errand to try and predict exactly how 2023 will unfold for the industry, equipment manufacturers would be wise to pay close attention to a number of trends and how they may evolve in the near term. With that in mind, the Association of Equipment Manufacturers (AEM) caught up with several staff leaders to hear which ones, specifically, are top-of-mind for them at the moment.

## 1. The Industrywide Emphasis on Organizational Culture



*— Jaime Vos, Senior Director of Revenue Development & Cultural Innovation, AEM*

With so much change taking place in 2022, organizations in many industries, including equipment manufacturing, are being forced to respond by reexamining their business models. Supply chain issues, increased competition, technology advancements and economic uncertainty have all placed pressure on companies to adapt, innovate and rethink how they do business.

In addition to these challenges, leadership will also need to address the morale of their workforce this year. What many have called the "great resignation" has affected organizations of all sizes and made employee retention the single most important issue of 2023. After struggling through the COVID-19 pandemic, people are now reevaluating their role in the workplace. Many have placed a stronger value on their health and have chosen to accept other opportunities better aligned with their personal well-being.

Taking this into account, organizations will need to create a shared vision that supports the following areas for its employees:

- Employee values
- Work-life balance
- Creativity and collaboration
- Mental health awareness and support
- Hybrid telecommuting models
- Opportunities for career growth

Studies show that employees who feel recognized, respected and supported do more than what is expected. If organizations want to strengthen employee retention, leaders will need to communicate openly with workers, listen to their concerns, address issues in real time and provide opportunities that empower a healthy culture.

Employees want to feel valued in their roles. Organizations that create a shared vision of well-being for their staff will see their culture empowered, inspired and committed to a prosperous new year.

## 2. The New Normal of Employee Training & Development



*— Julie Davis, SHRM-CP, Senior Director of Workforce & Industry Initiatives, AEM*

Workforce issues remain so prevalent in equipment manufacturing today, that it's simply not enough to foster a strong organizational culture in order to meet workforce demand.

Fewer people working, coupled with more jobs, more diversity in available jobs and more competition across industries make workforce arguably the most pressing issue as 2023 gets underway. Because of these challenges, employee training and development should be a top priority for equipment manufacturers in 2023 and beyond. While employee training and development may be a budgetary afterthought for some equipment manufacturers, it's becoming increasingly clear upskilling, re-skilling and new-skilling employees on an ongoing basis is becoming the new normal, and here's why.

Consider someone who has an engine spread out in a garage, is wiring his or her friend's hunting cabin, or is the neighborhood handyman and, based on his or her hobbies, interests and personal aptitude, the person would be a good fit to work in the skilled trades. Imagine being able to cast an organizational hiring net to consider people based on the skills, talents and interests that would make working in the skilled trades good fit instead of hiring someone based on skills used in a job a person could get as a 20-year-old. (Let's face it, none of us were working in the job we wanted at that point — we were working in the job we could get.)

This is exactly how skills-based hiring works, and it results in having a wider talent pool from which to recruit. The catch is equipment manufacturers must be able assess individual skills and then train them to competency. (This can be done either by partnering actively

with education, possessing trainers or a combination of the two.)

The government funded the Apprenticeship Building America grant program to the tune of $121.7 million dollars in 2022. Why? Because apprenticeship and work-based learning programs done right continue to be a proven way to train, attract and retain workers. Can't set one up? Think again. Partners like Apprenticeship Works, JFF and GPS Education can guide organizations through the process both efficiently and effectively.

The workforce is aging, and employees at every level with critical masses of knowledge are walking out the door every day. What questions are asked before they leave, and how is their knowledge being captured and transferred to the person who will be taking their place? Four years ago, before the surge of retirements that came with COVID-19, Forbes shared the following responses from surveyed baby boomers:

- 57% have shared half or less of the knowledge needed to perform their job responsibilities with those who will assume them after they retire
- 21% have shared none of their knowledge
- 18% have shared all their knowledge

Transferring knowledge is poised to work best when training and development is already normalized within a company's culture. Trainers and educators are taxed to keep pace with technological advancements, yet new skill sets are needed every day.

There is no automation to offset workforce shortages without upskilling or new-skilling workers to use advancing equipment. Ready or not, partnering, internal training and ongoing learning is here to stay.

### 3. The Ongoing Impact of Supply Chain Issues



*— Kip Eideberg, Senior Vice President of Government & Industry Relations, AEM*

It has been an issue for several years, and unfortunately equipment manufacturers will continue to hear about it for a while: the supply chain. There is no denying the 2020 COVID-19 pandemic turned the world on its head, but it was tough to predict just how long the supply chain would be impacted. A recent AEM survey of 179 equipment manufacturers revealed that 98% of equipment manufacturers are still battling with an unreliable supply chain — and more than half (58%) are experiencing worsening conditions.







AEM confirmed that the two driving factors of these supply chain woes stem from workforce shortages and access to intermediate components for production. These things coupled together paint a stark picture, but there are reasons to be optimistic that supply chain challenges will start to abate over the course of this year.

One thing is certain: Equipment manufacturers remain willing to rise to the occasion and adapt.

AEM continues to survey its member company executives to better understand how they are impacted by continued high inflation, strained supply chains and global instability, and to provide elected officials with the data points they need to move legislation that will revitalize U.S. manufacturing and bolster U.S. global competitiveness. Republicans and Democrats can take immediate action to alleviate these problems by prioritizing an extension of research and development (R&D) expensing, enacting meaningful permitting reform, removing tariffs on a host of critical components, and reaching a bipartisan, long-term agreement on the debt ceiling this year.

## 4. The Rise of Alternative Power



*— Jason Malcore, Senior Director Safety & Product Leadership, AEM*

Governmental agencies and nongovernmental organizations throughout Europe and across North America and Asia continue to look for new opportunities to transition their automotive and equipment fleets toward new decarbonized technologies. These pressures and motivations reveal themselves in the form of new rules and regulations on internal combustion engine emissions and incentive programs for zero-emissions equipment purchases.

In addition, increasing customer demands for hybrid and zero-emissions vehicles also highlight the industry's evolution and direction in this space. Some examples of anticipated industry pressures in 2023 are as follows:

- California Air Resources Board's (CARB) continued rule-making and public workshops regarding the next stage of California's engine emissions regulations.
- The implementation of the Inflation Reduction Act's tax incentives for the electrification of light duty, commercial and heavy-duty vehicles.
- Federal and state executive announcements to decarbonize the U.S. economy.







- Zero-emissions requirements for small engines under 25 horsepower.

Diesel fuel is the primary power source for the nonroad equipment industry, and it will likely continue to be for the foreseeable future. However, if one thing's for certain, it's this year will spotlight the many alternative power challenges and opportunities facing the nonroad equipment industry and represent an inflection point for new power sources over the coming decade.

## 5. The Acceleration of Communication & Connection



*— Kate Huskin, Senior Director of Communications, AEM*

The key to driving change in an organization is rooted in an organization's ability to communicate effectively and build lasting connections with important stakeholders. In 2023, communications will take on a leading role in helping organizations address challenges, identify opportunities and drive success.

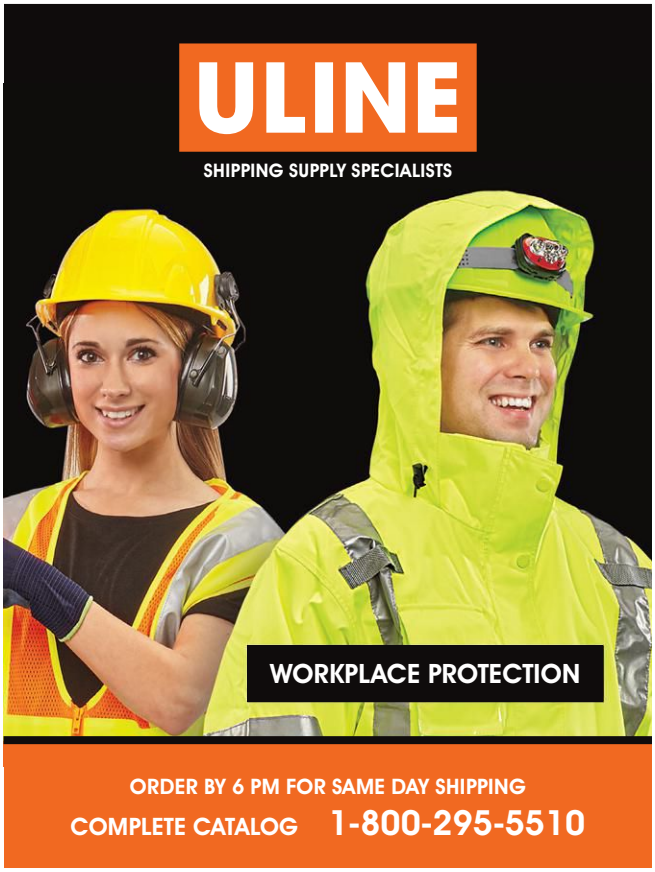
Effective communication happens from the inside out, and a renewed focus on internal communications will be needed to help organizations establish and "walk the talk" of their culture, putting actions behind the words on their websites and internalizing how they wanted to be viewed and accepted by their employees, prospective employees, customers, partners and the marketplace at large.

During the pandemic, communications leaders across the globe were faced with unprecedented communication challenges that required a new playbook for sharing up-to-the-minute information.

This has forever changed the way we look at crisis communications, and communications and public relations teams are in a new normal.

The equipment manufacturing trends listed above, from organizational change and employee training and development, to supply chain challenges and the rise of alternative power, are challenges that will be driven by communications and an organization's ability to connect and support its internal and external stakeholders. ▲

*The Association of Equipment Manufacturers (AEM) is the North America-based international trade group representing off-road equipment manufacturers and suppliers with more than 1,000 companies and more than 200 product lines in the agriculture and construction-related industry sectors worldwide. The equipment manufacturing industry in the United States supports 2.8 million jobs and contributes roughly $288 billion to the economy every year. Visit aem.org.*


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# Why Contractors Need to Automate Logistics Processes

Examining the impact of a transportation management system

BY SAM POLAKOFF

The construction industry faces many challenges that other industries will face in 2023 — labor shortages, cost overruns, project delays and inadequate communication. According to the U.S. Bureau of Labor Statistics (BLS), construction employment continues to grow, and the market will continue to rise, primarily because of the $1.2 trillion infrastructure investment.

According to industry analyst Deloitte, "Companies building infrastructure projects are likely to remain relatively insulated from an economic slowdown, driven by strong infrastructure buildouts and the substantial project backlogs contractors have in their pipeline."

Tech-savvy companies should be able to overcome industry challenges, grow and thrive. Automating business processes, especially around transportation, helps construction businesses improve efficiencies, increase productivity and maximize communications.

## The Benefits of Automating Construction Transportation Processes

Construction businesses are often managing multiple jobs at the same time. Management must ensure that the right materials are going to the right job. These materials must arrive at the right time and be placed at the right location at the jobsite. If a project crew is dispatched to a location on a jobsite to begin work and the materials aren't there, money is lost,

and time is wasted as crews wait for the materials to arrive.

The same goes for equipment on the jobsite — it needs to be dispatched to the correct location at the right time. If the equipment is unavailable or at the wrong location, crews must wait. With labor shortages a significant challenge in the construction industry, crews waiting for equipment to arrive means wasted labor. Even worse, suppose a crew has poured concrete but needs to wait for a roller to smooth it. The concrete may harden and need to be removed before the right equipment arrives, which would mean lost dollars to the bottom line.

Consider a heavy truck driving through a jobsite loaded with materials. How can this truck stop quickly if a worker walks into its path? The answer is it can't — an injury (or worse) can occur. With a transportation management system (TMS) in place, workers can be made aware of delivery schedules so they can stay out of the field. Many construction firms are starting to deploy automated equipment on the jobsite, which can be communicated with and told to change their transport path should workers be in the field and close to the equipment.

As fuel prices continue to rise, a TMS allows dispatchers to optimize routes to and from the jobsite and in the field. Every second that construction machinery runs, it eats fuel. Telematics, GPS and electronic logging devices (ELD) on equipment can pinpoint the exact location of a machine, allowing managers to track fuel usage and know whether the engine is running correctly or needs maintenance. Managers can also monitor drivers to see if they are running the engine too high or idling too much, which wastes fuel.

## How a TMS Can Improve Your Construction Business

A TMS helps to plan, execute and optimize the movement of construction goods and materials. With a TMS, contractors can schedule in advance the need for a truck to arrive at a jobsite, the type of truck and the exact location where the truck needs to go.

Contractors can often use a TMS to choose a truck from their list of current haulers or get exposure to new trucking firms. Finding the correct type of truck and contracting drivers and equipment takes a vast amount of time if done by hand — often, many phone calls need to be made just to secure one truck. If this process were automated, workers could spend more time focusing on core competencies and moneymaking procedures.

Data can be collected through transportation management processes, allowing firms to monitor key performance indicators (KPI) and seek improvements. A TMS collects information on truck drivers and trucking firms to ensure deliveries are made on time to the correct location. Managers can also review trucking routes daily to ensure the most efficient routes are utilized. TMS systems can report on the data collected to identify areas of cost and operational improvements.

With a TMS system, contractors can also facilitate freight billing and payment. Ensuring the construction business pays the best rate for a specific truck and lane will keep costs in tune with the budget. Freight bills are often fraught will errors. Making sure the bills are correct and paid on time helps minimize accounting personnel spending time managing errors and budgets.

## What to Look for in a TMS

Transportation management systems for construction firms should have the following features to maximize benefits:

- Inbound and outbound shipment visibility with the ability to send alerts if an issue arises.
- Automates manual tasks for searching for, selecting and securing trucking capacity using contract and/or spot rates.
- Automates dispatch operations and plan routes.
- Freight bill audit and pay capabilities.
- Direct communication with drivers via mobile devices to make changes in routes or delivery locations and to determine the correct estimated time of delivery.
- A cloud-based system that is easy to deploy and support, as vendors are responsible for implementation, support and updates. Cloud-based TMS systems reduce reliance on your information technology (IT) department and help shorten the return on investment.
- Easy-to-use functionality for any size construction firm.
- Business intelligence reporting and analytics for continuous improvement.
- Manages documents to improve compliance and streamline invoicing and settlement.
- Connects with ELD, telematics and GPS devices to track hours of service and truck locations.
- Scales as your business grows.
- Integrates with other systems and operations, such as accounting.

Some transportation management systems are available for free for limited functionality. Make sure that the free model you might be considering meets your needs and is easy to upgrade when additional, paid features are needed. ▲

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*Sam Polakoff is CEO and founder of BrillDog, a supply chain software platform focused on the needs of small- to medium-sized companies. BrillDog provides real-time supply chain analysis, transportation management, global sourcing, freight bill audit and pay, and actionable insights in a scalable, affordable cloud system that is easy to use and becomes more valuable the more it is used. Visit brilldog.com.*



# New Products to Watch

Selected by the editors of Construction Business Owner, these new-to-the-market products are just a few of our favorites recently released to the construction community. Stay tuned in every issue to find out what you need to know about the latest gear, solutions & industry-leading innovations.

## BOBCAT ▶

R68P rammer

**Released: 10/13/22**

**Availability: North American market**

**What's new?** A high-performance machine that is user-friendly and engineered to last. Highly efficient in confined work areas and reaches places other equipment can't. Directs all compaction power onto any target surface while maintaining optimal balance.

**Specs:** The R68P rammer features best-in-class balance that enhances precision and makes direction changes easier. Contains a gas-powered Honda engine. Maximum compaction performance of nearly 20 inches. Optional foot sizes are available for different compaction projects.







## ◀ GENIE

GTH 1256 telescopic handler

**Released: 1/9/23**

**Availability: North American & Latin American markets**

**What's new?** The 12,000-pound capacity telehandler is purposefully designed to improve durability, lower total cost of ownership and provide maximum productivity on the jobsite. Focused on simplifying fleet ownership and maintenance, the GTH-1256 shares many features and parts across the other GTH product line. A new cab design features enhanced visibility of all four tires, a 7-inch display, reverse backup camera, rear proximity alarm and full air-conditioning system.

**Specs:** Delivers more capacity at maximum lift height than any other telehandler in its class. That's 6,000 pounds at a max height of 56 feet, 3 inches and 3,500 pounds at max outreach of 42 feet. Powered by a side-mounted 120-horsepower Deutz engine with four-speed powershift transmission, the GTH-1256 delivers 15% more efficiency in power transfer for picking and placing activities. New limited slip differentials on both axles and full-time four-wheel drive provide the torque and traction needed for any jobsite, while single-reduction, planetary, specialty and transaxle lines deliver the reliability, power and performance for rough terrain.

## METABO ▶

WEP 19-150 Quick M-Brush angle grinder

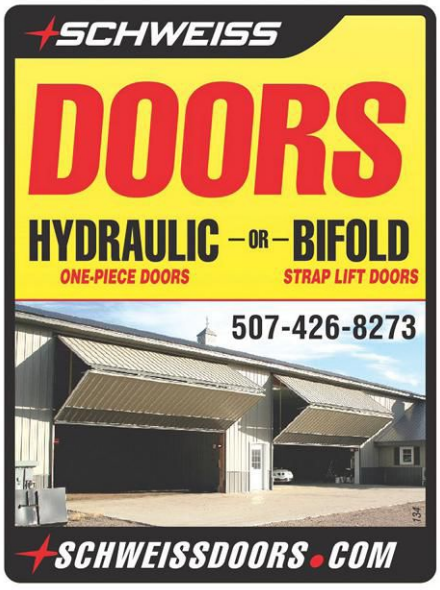
**Released: 9/1/22**

**Availability: North American market**

**What's new?** The angle grinder features a powerful 1,900-watt and 14.5-amp motor with a newly optimized armature for increased power and faster heat dissipation. In addition, safety features include Metabo's exclusive S-Automatic Safety Slip Clutch as well as electronic cutout and a nonlocking, ergonomic paddle switch design for added safety and comfort. The grinder has a no-load speed of 9,600 rpm. It comes with a standard guard and a clip-on type 1 cutting wheel guard, for Occupational Safety and Health Administration (OSHA) compliance when using type 1 cutting wheels.

**Specs:** Metabo's Tacho-Constamatic (TC) electronic offers speed stabilization for maximized productivity, soft start for easier handling, and overload protection for longer motor service life. The Metabo Quick System is also included with these grinders. The Quick System provides tool-free wheel change at the push of a button. The angle grinder also has an offset two-position anti-vibration side handle and quick positioning guard with seven detents for safe use in any grinding or cutting position.








## ▲ PETTIBONE

### Speed Swing 445F2 rail crane

**Released: 1/26/23**

**Availability: North American market**

**What's new?** Designed to accept more than a dozen attachments for laying rails, setting ties and numerous other maintenance-of-way tasks. Durably built for challenging railroad applications, the 445F2 offers planetary front and rear axles with front differential lock. Four-wheel outboard dry-disc service brakes provide sure stopping power, and a hydraulic release parking brake is standard. The spacious, climate-controlled operator cab includes a digital display module, full instrumentation panel and precise, pilot-operated controls. Tinted safety glass and a rearview camera help ensure safe operation at all times.

**Specs:** Offers a 49-gallon fuel tank, a 28% increase over the previous model's tank. The added fuel capacity allows for extended working intervals, especially when covering longer stretches of rail maintenance or relocating to a remote jobsite. Offers a maximum front load capacity of 10,000 pounds and maximum side load capacity of 8,000 pounds. Providing 180-degree boom rotation, the machine is primarily used to thread out old rail and thread in new rail. Optional magnet package quickly cleans up old plates, spikes and small pieces of rail. Can also tow rail carts, move rail cars and supply air or hydraulics for hand tools.

## WORX ▶

### Nitro 20-Volt 7-1/4-Inch Sliding Compound Miter Saw

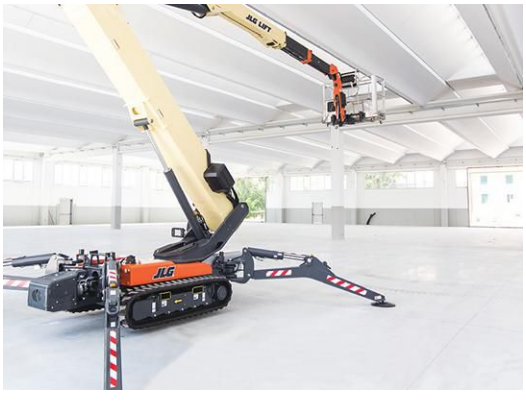
**Released: 1/18/23**

**Availability: North American market**

**What's new?** The hold-down clamp and Power Share Pro battery is ideal for cutting trim and molding, building decks and making custom miter, bevel and angle cuts. The Worx Nitro benchtop miter weighs 21 pounds (with battery) and with its aluminum base construction weighs significantly less than a conventional 10-inch sliding compound miter saw. The hold-down clamp is lever-operated and holds down the work piece on both sides of the blade. This maintains a stationary work piece throughout the cut. The feature offers a safer solution in keeping hands away from the blade during cutting operations.

**Specs:** Power Share Pro batteries provide improved power protection and runtime through an intelligent battery management system with cell-cooling technology. Each battery's cell is wrapped in thermoplastic material to dissipate heat and maximize power and performance. The 20-volt miter saw handles home projects or those at the jobsite. Its cordless versatility allows users to forego the need for a power outlet. The saw can cut crown molding, trim, window casements, picture frames, planks, posts and rails for deck building, and more. The sliding compound miter saw has a no-load speed of 3,600 rpm. Built-in LED lights on both sides of the blade illuminate the work area and create a shadow, which serves as the cutline guide. A dust bag is included. When not in use, a ShopVac can be connected to the dust port.





## ◀ JLG

### Bi-Energy technology for X770AJ and X1000AJ compact crawler boom lifts

**Released: 1/12/23**

**Availability: Global markets**

**What's new?** Bi-Energy technology reduces X770AJ and X1000AJ compact crawler boom lifts' noise and exhaust emissions. The innovative system equips these JLG machines with two full-sized, independent power sources, combining an emissions-free lithium-ion battery pack with a dependable diesel engine to allow operators to work indoors and outside with one machine.

**Specs:** The X770AJ comes with a 100Ah 76V lithium-ion battery pack while the X1000AJ has a 150Ah 76V lithium-ion battery pack; the lithium-ion batteries can be charged from an outlet at any time, including while the machine is in use. Both machines have a Kubota D902 21.6-horsepower at 3,200 rpm diesel engine. With these features, the compact crawler boom lift models are ideally suited for use in cold weather applications and are also useful in airport and aviation, building construction and restoration, cleaning, data centers, electrical, facility and grounds maintenance, HVAC, industrial and petrochemical facilities, plumbing and warehouse applications.

# INDEX OF ADVERTISERS

CONSTRUCTION BUSINESS OWNER

## ADVERTISER INDEX


| Advertiser Name | Page |
|---|---|
| Bobcat | IBC |
| Acumatica | 14 |
| Beneco, part of FuturePlan by Ascensus | 13 |
| Dee Concrete | 41 |
| Dell Rugged Devices | 11 |
| Divvy Webinar | 23 |
| Fringe Benefit Group | 15 |
| Gordian | 1 |
| HardHat Presentations | 38 |
| HardHat Software | 16 |
| Insite Software | 40 |
| Kyocera International , Inc. | 41 |
| Liebherr | 17 |
| Manitou North America | 25 |
| Morooka | 30 |
| National Construction Rental | 40 |
| Progressive Commercial Auto Insurance | 3 |
| Schweiss Doors | 46 |
| Stellar Industries | 31 |
| Superior Glove | IFC |
| Taffy Event Strategies | 28 |
| Thunder Creek Equipment | 27 |
| Uline | 42 |
| United Rentals | BC |
| Worksaver | 37 |


## PRODUCT INDEX


| Company Name | Page |
|---|---|
| Bobcat | 45 |
| Genie | 45 |
| JLG | 46 |
| Metabo | 45 |
| Pettibone | 46 |
| Worx | 46 |


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*(Check Only One)*

- ❑ 12 General Contractor – Commercial
- ❑ 02 General Contractor – Residential
- ❑ 10 Construction – Special Trade Contractors
- ❑ 03 Highway and Street Construction
- ❑ 04 Water, Sewer and Utility Construction
- ❑ 05 Heavy Construction
- ❑ 06 Concrete Work
- ❑ 07 Excavation Work
- ❑ 08 Wrecking and Demolition Work
- ❑ 13 Architecture, Engineering and Construction Management Services
- ❑ 11 Consulting Contractor
- ❑ 99 Other (please specify)

**2. Your primary job title is:** *(Check Only One)*

- ❑ 10 Owner, Partner, President, CEO, CFO, COO, Vice President, Director
- ❑ 11 General Manager, Manager, Foreman, Superintendent, Purchasing Agent, Controller, Accountant
- ❑ 12 Engineer, Architect
- ❑ 06 Consultant
- ❑ 99 Other (please specify)

**3. Approximate annual contract sales volume:**

*(Check Only One)*

- ❑ 01 Less than $500,000
- ❑ 02 $500,001 – $1,000,000
- ❑ 03 $1,000,001 – $2,500,000
- ❑ 04 $2,500,001 – $5,000,000
- ❑ 05 $5,000,001 – $10,000,000
- ❑ 06 $10,000,001 – $20,000,000
- ❑ 07 $20,000,001 – $50,000,000
- ❑ 08 More than $50,000,000

**4. Which of the following products/services are you planning to buy during the next 12 months?**

*(Check All That Apply)*

- ❑ 01 Earthmoving Equipment
- ❑ 02 Trucks, Trailers and Accessories
- ❑ 03 Compact Equipment
- ❑ 04 Lifting and Hoisting Equipment
- ❑ 05 Safety Equipment and Apparel
- ❑ 06 Attachments
- ❑ 07 Concrete and Paving Equipment
- ❑ 08 Survey and Site Prep
- ❑ 09 Compressors, Generators and Pumps
- ❑ 10 Financing and Accounting Services
- ❑ 11 Software and Technology
- ❑ 12 Insurance and Bonding
- ❑ 13 Training and Education
- ❑ 14 Telecommunications
- ❑ 16 Greases, Lubricants and Filters
- ❑ 17 Jobsite Lighting
- ❑ 18 Building Supplies
- ❑ 19 Rental Equipment
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## Annual Value of Construction Put in Place

**December** 2020/2021/2022 Annual Rate Comparison

*This chart compares the two previous years' total value of construction put in place to an annual forecast based on December 2022 figures. (Millions of dollars. Totals may not add up perfectly due to rounding.)*

| | 2020 | 2021 | 2022 |
|---|---|---|---|
| **Total Private Construction** | **1,137,565** | **1,292,857** | **1,427,128** |
| Residential | 691,000 | 810,288 | 857,150 |
| Nonresidential | 446,565 | 482,570 | 569,978 |
| **Total Public Construction** | **352,822** | **347,007** | **382,658** |
| Residential | 9,172 | 8,847 | 9,150 |
| Nonresidential | 343,650 | 338,159 | 373,508 |
| **TOTAL Construction** | **1,490,387** | **1,639,864** | **1,809,785** |

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

**$1,809,785**

DECEMBER 2022 TOTAL ANNUAL VALUE OF CONSTRUCTION PUT IN PLACE

"Despite strong revenue growth last year, architecture firms have modest expectations regarding business conditions this coming year," said AIA Chief Economist Kermit Baker, Ph.D, Hon. AIA. "With ABI scores for the entire fourth quarter of 2022 in negative territory, a slowdown in construction activity is expected later this year, though the depth of the downturn remains unclear."

## AIA Architectural Billings Index (ABI)

| National | | | *Regional – Billings | | | | *Sectors – Billings | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Month | Billings | Inquiries | Northeast | Midwest | South | West | Multifamily Residential | Commercial/ Industrial | Institutional | Mixed |
| Jul-22 | 51.0 | 56.1 | 48.4 | 52.2 | 53.6 | 51.7 | 52.8 | 52.2 | 49.6 | 52.1 |
| Aug-22 | 53.3 | 57.9 | 49.8 | 51.4 | 52.9 | 50.2 | 52.0 | 51.2 | 52.0 | 51.2 |
| Sep-22 | 51.7 | 53.6 | 54.6 | 52.1 | 51.7 | 51.6 | 47.9 | 49.6 | 58.9 | 50.3 |
| Oct-22 | 47.7 | 52.3 | 50.3 | 50.8 | 50.6 | 49.6 | 46.1 | 45.9 | 54.3 | 50.8 |
| Nov-22 | 46.6 | 52.0 | 42.4 | 47.6 | 50.5 | 45.8 | 46.1 | 44.2 | 47.7 | 51.5 |
| Dec-22 | 47.5 | 52.3 | 46.5 | 49.4 | 48.6 | 45.5 | 44.3 | 45.2 | 47.3 | 54.8 |

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

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



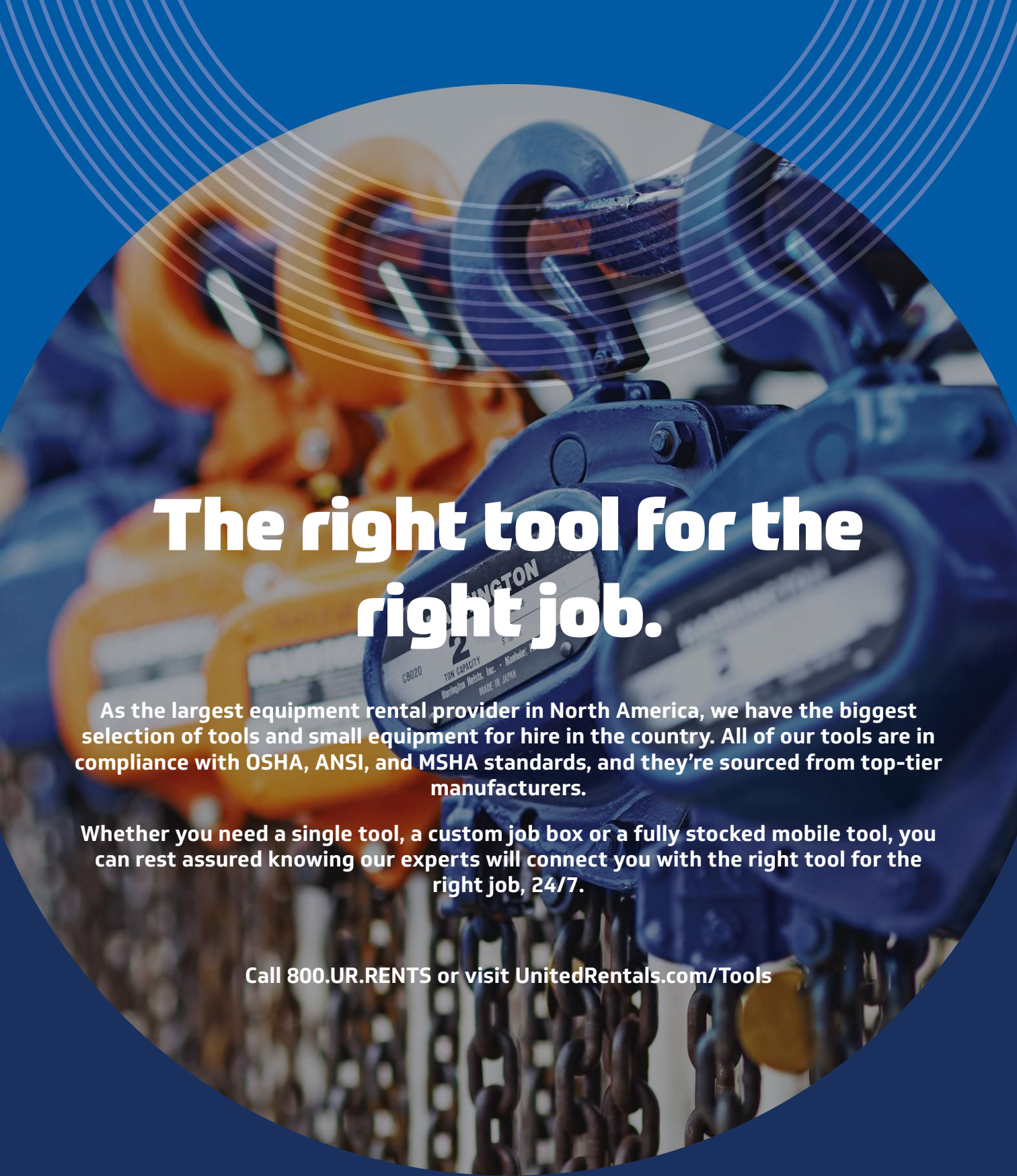

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