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CONSTRUCTION BUSINESS OWNER



CORPORATE CAPABILITIES 2021

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Check 105 on index.

FROM THE EDITOR

KATHY WELLS



Wise construction business owners know it's best to remain adaptable in this ever-changing industry, and it's important to do so with reliable, proven partners. In Corporate Capabilities, a special advertising section beginning on page 34, you'll find some of the best solutions in the business to help you do just that. The companies featured in the pages of this special section supply the top tools, services and resources that can help your company gain an advantage over the competition. Whether you want to streamline company processes, supplement or add to your fleet, venture into another market sector, or adopt a new technology, the companies in this section offer a mix of options to meet your needs.

As many of you wrap up projects from a busy summer, we've just begun to ramp up our ongoing education webinar series, starting with two accounting-focused events later this month. All readers who are interested in focusing on improving accounting and finance processes should register to join both events at constructionbusinessowner.com/webinars.

First up, we've partnered with Center — a Washington-based startup known for its expense management software. The company is focused on helping customers with 50 to 1,000 employees who may be bogged down by manual, inefficient expense processing tasks. Our webinar, "Protect Profit Margins & Improve Cash Flow With Better Spend Management," takes place Oct. 21, 2021, and will share how modern spend management sets the foundation for construction companies who want to remain competitive through better cash flow, more efficient accounting and improved profit margins. Tune in to hear how companies can increase job-costing accuracy for competitive bidding and sustainable profit margins; improve cash flow and accelerate billing with real-time visibility into project expenses; capture accurate spend information, including cost codes and project data, to speed up month-end close; and eliminate paperwork with on-the-go expensing, directly from the jobsite.

Next, we've got another great webinar event covering the topic of money management, fueled by our friends at Built. "Get a Better Way to Pay Your Trade Partners" will take place Oct. 28, 2021, and will educate attendees on the ways tech solutions are helping to simplify construction payments. The events will showcase how to improve your current accounting system, schedule disbursements exactly when and how you want to and improve overall payment efficiency. Join us for this webinar to see how you can spend less time on your payment management and more time building.

Take good care,

Kathy Wells

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CONSTRUCTION BUSINESS OWNER

EDITORIAL
Editor
Kathy Wells
kwells@cahabamedia.com ▪ 205-314-8268

Associate Editor
Alex Headley
aheadley@cahabamedia.com ▪ 205-961-3378

CREATIVE SERVICES
Art Director
Melanie Magee

Digital Project Manager
Greg Ragsdale

Web Developer
Greg Caudle

PRODUCTION
Digital Advertising Traffic
Sonya Crocker
scrocker@cahabamedia.com ▪ 205-314-8276

CIRCULATION
Audience Development Manager
Lori Masaoay
lmasaoay@cahabamedia.com ▪ 205-278-2840

ADVERTISING
Senior Account Executives
Judy Rice
judy.rice@cahabamedia.com ▪ 205-314-8262

Van Imbragulio
vimbragulio@cahabamedia.com ▪ 205-314-8263

CLIENT SERVICES
Sonya Crocker
scrocker@cahabamedia.com ▪ 205-314-8276

EDITORIAL ADVISORY BOARD

Richard D. Alaniz
Partner - Alaniz Law & Associates PLLC

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Publisher
Matthew G. Conroy

VP of Sales
Greg Meineke

Creative Director
Terri McVey

Controller
Brandon Whittemore

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

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ON THE COVER
31 industry partners breaking down barriers & building up bottom lines

Doosan Infracore Sold to Hyundai Heavy Industries Holdings Co.

The sale of Doosan Infracore (DI) to Hyundai Heavy Industries Holdings Co. (HHIH) closed Aug. 20, 2021.Doosan Infracore will become a subsidiary of the newly created Hyundai Genuine (HG) group alongside Hyundai Construction Equipment (HCE) as two independent construction equipment companies under HHIH. HG will act as the intermediary company of HHIH Group's construction equipment businesses and will be leading both DI and HCE to maximize the company's efforts and focus on the construction equipment industry. The plan is to manage overlapping investments and invest heavily in areas like future technologies and innovation. Doosan Infracore will be working to commercialize Concept-X and develop cutting-edge products such as electric excavators, battery packs, hybrid fuel cells and other next-generation products. By focusing on each company's strength, HG will be able to advance the development of these types of products to gain a competitive edge in the global market. Independently, the two companies will grow together, complement each other and even compete in good faith in all areas, including technology, production, purchasing, sales and quality. This will enable the business to expand and associate with other companies operated by the whole HHI group. Visit hyundai-di.com/en.

Curry Supply Co. Hires Esber Nassif as Senior Director of Supply Chain



Esber Nassif

Curry Supply Company has hired Esber Nassif as senior director of supply chain. In this role, Nassif is responsible for the company's overall supply chain operations, including purchasing and inventory of materials, managing vendor relationships and development, inbound and outbound logistics, and sales, inventory and operations planning processes. Esber has a history as a supply chain/procurement leader in advanced manufacturing. He has spent the last 6 years with The Boeing Company, most recently serving as supply chain value stream manager for the 787 Airlines Program. Prior to that, he was with Carter Machinery for 14 years in various finance and senior procurement roles. He also earned his Six Sigma Black Belt certification during that time. Visit currsupply.com.

Maria Silva Joins JLG & Jerr-Dan as VP of Human Resources



Maria Silva

JLG Industries, Inc. and Jerr-Dan Corporation, LLC have announced Maria Silva as vice president (VP) of human resources (HR) for the access segment. In her new role, Silva will lead the company's workplace transformation efforts, including the career growth of existing and acquisition of new team members and the implementation and execution of HR policies, programs and services. Additionally, she will advocate for and lead the Segment's continued "People First" initiatives. Silva joins the company with more than 25 years of human resource leadership and business management experience in the chemical, plastics and oil and gas drilling industries, supporting both domestic and global operations. Most recently, she was VP of HR at Valaris. She holds advanced degrees in industrial engineering and marketing from Universidad de Los Andes and Colegio de Estudios Superiores Administracion and is fluent in Spanish, Portuguese and English. Visit jlg.com and jerrdan.com.

AEM President Dennis J. Slater to Retire



Dennis J. Slater

The Association of Equipment Manufacturers (AEM) has announced that Dennis J. Slater will retire as AEM president, effective Dec. 31, 2021. The AEM board of directors has selected AEM Senior Vice President, Construction and Utility Sector Megan Tanel to succeed Slater and serve as AEM president effective Jan. 1, 2022.



Megan Tanel

Slater, 63, joined AEM's predecessor the Construction Industry Manufacturers Association (CIMA) in 1982, becoming president of CIMA in 1998 and president of the newly formed AEM in 2002, after a merger between CIMA and Equipment Manufacturers Institute (EMI). Slater led the transformation of the association, which has grown by 50% to more than 1,000 member companies, with revenue increasing nearly 700% to $60 million annually. For many years, Tanel led AEM's exhibitions and events initiatives and helped launch World of Asphalt in 2001, served as show director for The Utility Expo (formerly ICUEE) and CONEXPO-CON/AGG, North America's largest construction trade show. She and her team grew AEM trade show revenue by 80% over 12 years, worked internationally to establish strategic relationships with our global partners in support of AEM services, and led the effort to extend key contracts for AEM shows, most notably CONEXPO-CON/AGG. Visit aem.org.

Trimble Launches $200M Venture Fund

Trimble has announced the creation of Trimble Ventures, a venture fund focused on investing in early and growth-stage innovative companies that align with Trimble's mission of transforming work in the agriculture, construction, geospatial and transportation industries. The fund will launch with $200 million allocated for investments and focus on companies with the potential for technology-enabled innovation and disruption in the digital transformation of the industries Trimble serves. In addition to an investment, Trimble Ventures will bring value to partner companies by offering hands-on expertise and insights, industry experience and access to customers, markets and distribution. The fund will invest in early and growth-stage companies with technologies and solutions related to hardware and software applications; artificial intelligence; augmented, virtual and mixed reality; autonomy and robotics; blockchain; the Internet of Things (IoT) and analytics; and sustainability. Visit ventures.trimble.com.

Atlas Copco Power Technique Appoints Wouter Vlamynck as President & General Manager

Atlas Copco Power Technique recently announced Wouter Vlamynck as president and general manager and Abhijeet Jain as vice president and business line manager of power and flow. In May 2012, he was promoted to vice president sourcing in the industrial air division in Antwerp, Belgium, where he stayed for 5 years. Vlamynck will now oversee all of Power Technique North America's marketing, sales and service functions and oversee day-to-day operations. Jain originally joined the Atlas Copco Group in Pune, India, as a manufacturing engineer in 2006. He was responsible for production planning, material flow and manpower allocation for the on-time full delivery to customers. He will now be responsible to achieve profitable

and sustainable growth for the full range of Power and Flow products through unique and effective sales and marketing strategies. Visit atlascopco.com.

▶ CMP Pumping Acquires Febcon Concrete Pumping
Concrete & Materials Placement (CMP), a concrete pumping company serving the Carolinas, has announced the strategic acquisition of Febcon Concrete Pumping, a Michigan-based concrete pumping company. As a leader in concrete pumping, this step further expands CMP's footprint across the Southeast. The Febcon Concrete Pumping purchase includes concrete pumps and welcomes their highly skilled pump operators across Louisiana, Tennessee, and the Carolinas. As CMP acquires strategic locations, it holds steadfast on its commitment to excellence as it deepens its core values: reliability, respect, transparency, quality and safety across the concrete pumping industry. Visit cmppumping.com.

▶ Restoration Builders Adds Hubert Bourque to ESG & Technology Group
Restoration Builders, Inc. has added Hubert Bourque to its ESG and Technology Group. He will guide the design, operations and environmental performance of technologies that align with the company's sustainability and environmental policies. Bourque is the founder of XWM Services, Inc., a Montreal, Canada-based waste management, environmental compliance and renewable energy consulting firm. He is a recognized expert in the field, with a record of building solid relationships with government agencies and environmental groups. Bourque has over 40 years of experience in waste management, environmental compliance and renewable energy industries. He served as vice president at Quebec Operations at Waste Management, administering the $125 million operational entity encompassing three transfer stations, two recycling operations, three major landfills, one dry waste disposal site, and a 450-truck fleet. He represented the company at Parliamentary commissions, public hearings, and consultations. In addition, he served as the liaison to local and provincial elected officials. Visit restorbuilders.com

▶ OSHA Updates COVID-19 Masking Recommendations
The U.S. Department of Labor's Occupational Safety and Health Administration has issued updated guidance to help employers protect workers from the coronavirus. The updated guidance reflects developments in science and data, including the Centers for Disease Control and Prevention's (CDC) updated COVID-19 guidance issued July 27, 2021. The updated guidance expands information on appropriate measures for protecting workers in higher-risk workplaces with mixed-vaccination status workers, particularly for industries such as manufacturing; meat, seafood and poultry processing; high volume retail and grocery; and agricultural processing, where there is often prolonged close contact with other workers and/or nonworkers. OSHA recommends that: 1) Fully vaccinated workers in areas of substantial or high community transmission wear masks in order to protect unvaccinated workers; 2) Fully vaccinated workers who have close contacts with people with coronavirus wear masks for up to 14 days unless they have a negative coronavirus test at least 3 to 5 days after such contact; and 3) Clarifies recommendations to protect unvaccinated workers and other at-risk workers in manufacturing, meat and poultry processing, seafood processing and agricultural processing. Visit osha.gov.

$18 billion

In August 2021, Hurricane Ida struck the Southeast United States and left more than 1 million people, and the entirety of New Orleans, without power, and caused massive damage to structures, homes and roads in Louisiana. The Category 4 hurricane has been ranked as the fifth-largest to make landfall in the U.S., with winds reaching sustained speeds of 150 mph.

▶ 6 General Contractors Come Together to Launch 'Construction Inclusion Week'
Gilbane Building Company, along with five other general contractors, DPR Construction, Turner, Mortenson, McCarthy and Clark Construction Group, have come together to announce the inaugural Construction Inclusion Week, which will be held Oct. 18-22, 2021. Gilbane is chairing the first Construction Inclusion Week with the theme of "Building the Foundation for Inclusion." By signing up to participate in Construction Inclusion Week, firms will have access to materials and resources that support bringing awareness to diversity, equity, and inclusion. Content will be tailored to enable jobsite conversations and office discussions and enable construction companies to plan targeted activities for their organization and trade partners. Construction Inclusion Week demonstrates how a united industry can collectively set expectations for behaviors that champion inclusion and empowers all people to reach their full potential. Participating in Construction Inclusion Week will enhance and deepen connections with colleagues, clients and communities. Those who sign up can access resources to bring awareness to diversity, equity and inclusion concepts for jobsites, teams and companies. Follow Construction Inclusion Week on LinkedIn, Twitter, Facebook and Instagram. Visit constructioninclusionweek.com.

▶ Bentley Systems Announces Seequent's Acquisition of Imago
Bentley Systems, Incorporated, an infrastructure engineering software company, has announced that its Seequent business unit has acquired Imago Inc, a developer of cloud-based software for the capture and management of geoscientific imagery. The acquisition will expand Seequent's technology solutions portfolio while boosting cloud capabilities to help geoscientists and engineers solve earth, environment and energy challenges. Imago's cloud-based platform enables the capture, cataloguing, and review of drilling core and chip images from any source, to support every aspect of the geological process from exploration to grade control. Continued development of Imago's machine learning will lead to a step function in the interpretation of geological data. Mining companies around the world apply Imago's solution in conjunction with geology data management and modeling tools to enable teams to make more confident, profitable decisions using instantly available, high-quality images. Visit bentley.com/en.

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

ASK THE EXPERTS

What are your views on U.S. infrastructure projects?



Barry LePatner
Founder
LePatner & Associates, LLP

In announcing his new $2 trillion infrastructure plan, President Biden stated, "It is not a plan that tinkers around the edges. It is a once-in-a-generation investment in America." Yes, the plan calls for 20,000 miles of rebuilt roads, repairs to the 10 most economically important bridges in the country, the elimination of lead pipes from the nation's water supplies, and a promise to better protect our weakened electrical grid from hackers, but there is a need for serious discussion about just how much good will result from this expenditure over the next 8 years.

For example, our nation currently has well over 5,000 bridges that, like the collapsed Interstate 35 West in Minnesota, are both structurally deficient and fracture-critical, meaning they could collapse if only one part of the bridge fails. There are more than 4,000 dams that are so seriously compromised that they threaten failures that would drown tens of thousands of people in the states living downstream. Our drinking water system is losing billions of gallons of drinkable water that cannot be totally addressed by the funds allocated. And the plan allocates billions for the Amtrak rail system that runs tracks along the Atlantic Coast that, according to estimates from the National Oceanic and Atmospheric Administration (NOAA), will be underwater from rising waters due to climate change by 2050.

This plan is critically important to remediating our ailing infrastructure. But it should be viewed as only a jump-start to much more needed funding to bring our infrastructure into the 21st century.



Mike Bellaman
President & CEO
Associated Builders & Contractors (ABC)

In analyzing the U.S. infrastructure projects that would be included in an infrastructure bill, it is important to answer three questions:

1. What criteria is used to pick the projects? Are the criteria established through a political lens or a taxpayer value creation lens?
2. How are the projects funded? The projects could be funded through government taxes, private investment, public-private partnerships or a mixture of all the above.
3. What are the rules and regulations for competing for and delivering the work? Will these restrict or stimulate free-market behaviors?

This infrastructure bill will pass once there is an agreement on how to answer these three questions. A bill that will best serve America is one that answers these questions in a way that creates affordable, valuable and financially viable, long-lasting projects built through fair and open competition.

What's on your mind?

To submit a question for this section, email Associate Editor Alex Headley at aheadley@cahabamedia.com.

Visit **constructionbusinessowner.com/asktheexperts** for more industry-leading insights.

How Meaningful Time Maximizes Profits

Maintaining customer relationships is key to sales & your success



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.

Most successful construction companies are owned and managed by a dedicated and hardworking entrepreneur who excels at pricing, estimating and building strong customer relationships. These top performers dedicate their time to working with customers to deliver the right projects and performance required to maintain long-lasting affiliations and interactive partnerships. This constant focus delivers exactly what customers want and need. As a result of this dedication, these owners are able to build trust with their best customers. They make finding and developing loyal customers a priority.

Making a profit and growing your construction business can be simple. It starts by creating enough high-margin revenue to cover your job costs and overhead, and meet profit goals. Successful business owners are almost always the biggest revenue generators for their companies. And the fastest way to fix problems with growth is to generate more revenue. This is a task that can't be delegated if it is to succeed.

ARE CUSTOMERS YOUR TOP PRIORITY?

The top priority for any construction business is to make high-margin profits. This requires generating highly profitable revenue, which comes from customers who only hire the best and most trusted contractors. With a steady flow of customers and project opportunities, you will win enough contracts to hit your profit goals. The key is focus. I break down managing a successful construction business into four distinct areas of responsibility and focus:

1. *Get work* — Sales, marketing and customer development
2. *Price work* — Estimating and bidding
3. *Do work* — Project management, field operations and production
4. *Track work* — Financial management and administration

As a construction business coach and consultant, I work with many general contractors and subcontractors. In almost every case in which contractors make high profit margins with steady growth, the owner's top priority and primary focus is to "get work." The best salesperson and customer relationship builder for nearly all contractors is the owner.

There are lots of ways to make a profit, but the easiest way to make more money is to create it. Revenue comes from customers, and to increase profits, you must make building profitable and customers a top priority. Most business owners believe their top priority should be focusing on winning better work and spending more time developing customer relationships. But most owners of underperforming and average construction companies say they never have time to dedicate to their top priority.



ASSESS YOUR PRIORITIES

Think about what really happens at work every day. Most business owners spend at least 90% of their time in the "do work" area by multitasking — managing employees, subcontractors, suppliers and projects. When they're too busy, the only customer contact made is during project meetings and bid negotiations — or haggling over change orders, field problems and schedule updates. The norm is to assume that if you do a good job, they'll keep you on their bid list for their next projects, and award you a contract if you're the low bidder. Wouldn't you get a higher and better return on your investment of time and effort by focusing on customer development that generates negotiated contracts and steady high-margin revenue? Your calendar doesn't lie. How much time do you invest creating deep customer relationships versus getting projects built? When was the last time you made time to take your loyal customers to lunch or a round of golf? Building trusted relationships take lots of quality face-to-face time.

YOU'RE IN THE CUSTOMER BUSINESS

Do you have an action plan to convert a first-time customer into a loyal, regular customer? A customer loyalty program takes concentrated effort. Repeat customers will use your company again if you perform adequately, but only if your price is low. Loyal customers will negotiate with you and use your company on a regular basis because of the relationship, instead of focusing on the lowest price.

Relationships are more powerful than your experience or track record. A strong relationship is the best way to improve your competitive advantage.

SELLING ISN'T EASY

For me, selling doesn't come naturally. I don't like to spend my day cold-calling potential customers who don't want to talk to me. So, what did I do to try to fix the problem? I hired a salesperson to remove myself from the sales process. Guess what? This doesn't work for most construction companies. The salesman kept asking me to go on sales calls with him so I could convince potential customers why we were the best choice.

I finally made the decision to become the No. 1 salesman and customer relationship builder for our company. It's difficult to grow a profitable construction business without the owner doing most of the selling.

MAKE REVENUE A TOP PRIORITY

Successful owners generate profitable revenue by dedicating at least 25% to 40% of their time with customers in face-to-face relationship-building sessions. This includes meals, sporting events, industry meetings and becoming board members of community organizations. To create and commit to customer time, I joined a private golf and country club. Often, when I go to the club, I will spot the owner of a large, respected general contractor in our area with a few guests in tow.

Most contractors only have five to 10 major customers who provide most of their business. Keeping in touch and building relationships with them requires only a small commitment of time and energy. Customer relationship building and a highly effective sales approach must utilize face-to-face appointments with your top 20 past, repeat, current or potential customers. The best way to build customer relationships is in a relaxed setting where you can get to know the person. Every breakfast or lunch is an opportunity to spend face time with one of your targets. Schedule customer time on your calendar. Every week, arrange at least one or two meetings or fun events with customers you would like to develop.

My customer action plan included at least two meals weekly and attending an industry event monthly. By implementing a similar customer action plan, you will see your revenue significantly increase year after year.

CUSTOMER TIME IS MONEY

Meaningful time with customers earns big money. Remember that doing a good job, having quality workmanship, winning bids, answering emails and making phone calls don't count when trying to build relationships. Make it a priority to invest time with customers. This will return more profit than you'll ever make out in the field, so rearrange your calendar, make customers your top priority and watch your bottom line grow. **CBO**

Picking Your Path to Progress

3 routes that can lead to profitable & successful growth



GREGG M. SCHOPPMAN is a consultant with 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. Visit fminet.com or contact Schoppman by email at gschoppman@fminet.com.

Strategic planning always seems to come back to a question of how to grow a business profitably. Going from $50 million to $100 million seems like a linear equation; achieve $50 million more in sales and add the commensurate level of resources to achieve that revenue. If only it were that simple. A firm can certainly take on more projects and find more project managers and superintendents to handle that work — but the devil is in the details. What business infrastructure is required to supervise this added revenue? What is the availability of new work? What is the availability of resources to perform said work? More importantly, is this even the right way to grow the business in a smart, sustainable and profitable manner?

As many organizations seek to grow, the options are unfortunately limited. While the areas in which a firm might grow are infinite, the reality is that only three paths provide a logical way forward.

1. ACQUISITION

Plenty of firms seek a new market and see their quickest path to success in an existing entity. Coupled with a seemingly endless supply of firms with no succession plan it would appear there is a complement of potential candidates to be acquired. But if it were this simple, everyone would be doing it. Mergers and acquisitions take time, patience and a keen eye to ensure the seller is correct and the buyer has a real plan. Bolt on distorted perceptions of a firm's valuation and you can see why it's not as simple as throwing a house on the market.

However, if a buyer and seller can find a happy middle ground, there are a few important questions to ponder before moving forward.

- Who will lead the integration efforts after the sale? How will this new entity be incorporated into the family?
- How will the cultures mesh?
- What will keep the seller's talent in place post-acquisition?
- What is the plan to grow that new entity's business?

First, in what will seem to be a theme as you continue reading, the most important component will come down to people. An acquisition needs care, and thinking it will be business as usual after the sale is a recipe for failure. Secondly, plans should be not only be further refined but also integrated. Each stand-alone component or business unit should have a growth plan that can work both independently of the home office and also in concert with it.

2. ORGANIC GROWTH

Many organizations look at acquisitions and see it as an unmitigated mess. It can be difficult to detangle all the minutia of the acquisition and grow into a new market from the ground floor. Instead, the company may look for opportunities for



organic growth in the market. This is not necessarily an easier path to success, but it does allow for a fresh start as opposed to inheriting generational problems that may come with an acquisition. There are still questions that must be answered before moving forward with this approach:

- Who will lead this endeavor?
- Who are the current players in that market? What do you know about them? If you are entering a new market, how will you anticipate the competition's response?
- If you are entering a new niche/sector, how will the current players react?
- How will you measure success?
- Is your operational model leverageable?

It all comes back to people. So many firms want to grow but they also don't make talent development, as it relates to growth, a priority. If your firm has ambitious growth plans over the next 5 to 10 years, what aspect of your strategic plan aggressively addresses talent?

3. CURRENT WALLET EXPANSION

The most obvious avenue for growth is simply maintaining the course while systematically adding volume in a controlled and disciplined fashion. It may not have the cachet of an acquisition or new city, but it does allow a firm to grow with lower risk. At least in theory. For instance, a firm doesn't simply add $50 million in revenue and not supplement the organization with new resources or levels of management. Adding five to 10 managers and five to 10 superintendents without commensurate changes to the support systems — people, information technology, support, etc. — must be done in such a way that neither overloads the team or the cost structure unrealistically. Here are some questions to consider:

- What is your firm's current market share? What is the opportunity based on the competitive landscape?
- What kept you from growing already?
- To grow, how will the structure of the firm need to change?
- What will keep the firm disciplined to grow within a reasonable constraint? Assuming a robust market exists, what will prevent the firm from growing too large, too quickly?

Many organizations see this as the lowest-risk strategy. But it requires balance to be effective. Do you build the internal infrastructure first and then secure the work or the opposite? Does the firm's overhead structure distort earnings and margins? Operating in this model is a little like driving a big rig with one foot on the gas and one on the brake. Disciplined focus is needed to protect the firm's interest over the long view.

Examine your growth options with an introspective view. Determine why your firm wants to grow and make sure you take a detailed approach to how it will grow.

Each of these options have proven to be successful for many firms, but the truly superior organizations create a plan and work that plan with the same fervor with which they build their projects. CBO

Confronting the Great Resignation

How to counteract the consequences of the labor shortage by centralizing company culture



JEFF BRADFORD is the president of the Nashville office of the Dalton Agency, a full-service advertising and public relations agency with additional offices in Georgia and Florida. Bradford is a former journalist and has over 30 years of public relations and digital marketing experience. He is a writer by training and a marketing expert by experience. Prior to establishing the Bradford Group in 2000, he served as senior vice president of a large advertising and public relations agency and executive vice president of a regional public relations agency. He holds a bachelor's degree in English, with a philosophy minor, from Centre College. He is a member of the Nashville chapter of the Entrepreneur's Organization and a 2021 member of the Forbes Agency Council. Visit daltonagency.com.

The COVID-19 pandemic has created a labor shortage in the United States, putting pressure on nearly every industry across the country, especially construction. CNN reports that America desperately needs 1 million more construction workers, but employers continue to have a hard time finding people to hire.

This is an interesting problem, considering that in the second quarter of 2021, 11.5 million workers quit their jobs, feeding what's being called The Great Resignation — a mass exodus from the workforce.

As a construction business owner, what are some of the ways to attract and retain employees amid the labor shortage and Great Resignation? Here are some tips from my experience running a public relations agency representing several construction companies for more than 20 years.

CREATE A POSITIVE WORKPLACE CULTURE

People want to work for companies that have a good reputation. Creating and maintaining a great company culture is the key to attracting talent. Make your company a place that values each individual and fosters teamwork between employees. When people feel empowered and connected, they're likely to show perform better and be more committed to their job.

Set clear expectations for each position in your company so that employees can receive constructive feedback on their work. When they do well, promote them. Give them opportunities to grow and try new things. Consider setting up a mentorship program within the company so that employees can develop a strong relationship with a coworker that they can grow to trust.

Also, involve employees in business decisions. Although it may sound unattractive at first, hearing their ideas and feedback may spark a conversation that wouldn't have happened without it. Your employees are the ones who keep the business wheels turning, and the fact that you want to hear their opinions will make them feel valued.

LIVE OUT CORE VALUES

A key part of creating a positive workplace culture is your core values — the fundamental beliefs and guiding principles of your company. What matters most to your business? What distinguishes you from your competitors? Be sure they are well-defined yet short enough to remember.

Core values are the backbone of a successful business, and they can help you hire the right people, too. Lead by example and embed these values into your company. Encourage employees to incorporate these values into their everyday work routine.



STAY TRUE TO PROMISES

As an employer, you need to live out your promises. If you promote a healthy work/life balance, consider being more generous or flexible with paid time off (PTO). Allow your working parents to work from home. Pay them a higher wage to show how much you appreciate their contributions.

The workforce is changing, and people are going to be more attracted to an open position that gives them what they want and need. Although these promises may not come cheap, you'll have employees who feel like they are cared about — and that's worth it.

MAKE EMPLOYEES FEEL SPECIAL

Treat your employees well by recognizing and rewarding them for their work. Schedule regular check-ins or reviews to discuss what is are going well for them, in addition to what is not going well. Positive reinforcement is the key.

Consider setting up an employee of the month program to show them how appreciated they are. Or go the extra mile and buy ads in a local publication to show the community what makes your employees so great. If people feel like they are valued, they're more likely to share their experience, which can generate interest in your company from their acquaintances.

PROMOTE YOUR COMPANY

Good publicity doesn't have to cost you a lot of money. There are plenty of strategies you can use to promote your company — and its employees — at the click of a button.

Share strategic content about company accomplishments, employees or projects to social media platforms such as Facebook, Instagram, LinkedIn and Twitter. These networks make it easy for users to stumble upon your content if you are using them correctly. This gives your employees the opportunity to share your posts with their networks, spreading the word about your company and how much they like working for it.

Let local media know if you have a big announcement such as a new hire or project update. If they decide to cover it, this can help spread the word about how much you value your employees or what cool things you're working on. Build relationships with media so that when you have something newsworthy, they'll be interested in it and willing to share.

The labor shortage facing today's American businesses may be one of the toughest times the workforce has ever experienced, but it doesn't mean your business has to suffer. You can pivot and plan ahead by developing a welcoming company culture in which all employees can thrive. Attracting and retaining talent all depends on how you run your business — if your employees are happy, you likely will be, too. CBO

Building a Sustainable, Scalable & Sellable Construction Company

How owners can keep an eye on their endgame from the beginning

BY MICHELLE SEILER TUCKER

Building a sustainable, scalable and sellable business is something all business owners should strive for. Unfortunately, too many entrepreneurs fail to build their business properly from day one. They lack the underlying foundation, systems and structure that are essential to all businesses, preventing them from building a profitable and efficient company. Business owners in the construction industry are no exception.

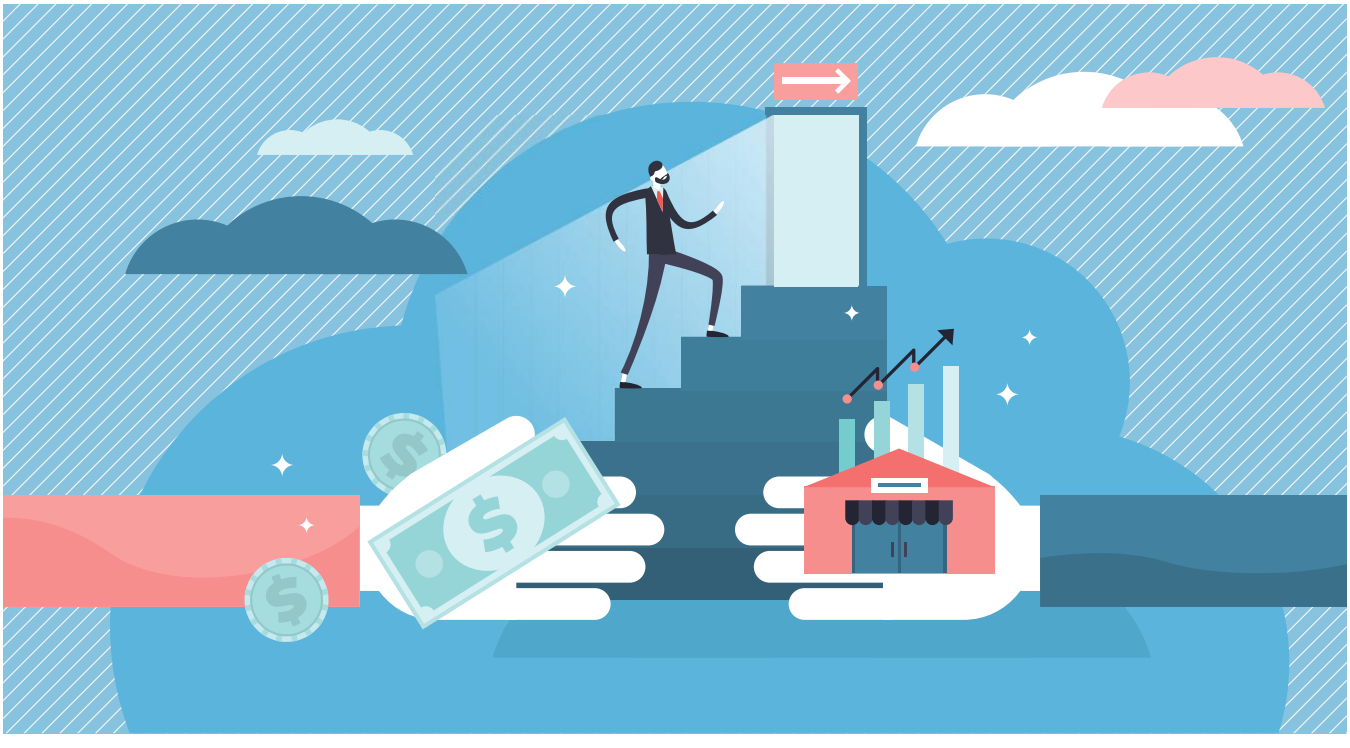
To maximize value, business owners should focus on two techniques: the ST GPS Exit Model and the ST 6 P Method. Doing this will give them an edge over their competitors and attract a multitude of buyers when it comes time to sell.

ST GPS EXIT MODEL

The ST GPS Exit Model is a step-by-step guide that all business owners should use to build their business from day one. It allows owners to create the framework for building, scaling and selling their company.

By following this model, owners can keep their efforts focused on what really matters — their desired endgame. Consider the following steps of this model and how they apply to your business:

- *Determine your destination* – Desired sales price: $20 million
- *Know your current location* – Current business value: $5 million



- *Know your timeframe* – Desired timeframe: 10 years
- *Identify your buyers* – Which type of buyers will be willing to pay top dollar for your business?
- *Determine your why* – Why do you want to sell for your desired price?

It's imperative for business owners to take some time to escape the noise and figure out what they really want. Only then will they be able to put the model to use. It will help construction business owners plan their exit strategy from the beginning, understand which types of buyers will be interested in their business and help them develop an understanding of why they want to sell their business that is powerful enough to weather any financial storms they may encounter.

ST 6 P METHOD

The other technique business owners should focus on is the ST 6 P Method. The ST 6 Ps refer to the six areas of business that every owner should focus on from the beginning of a business all the way to end. They are essential to building a profitable and efficient business and are the characteristics every buyer looks for in a company. The 6 Ps are as follows:

1. *People* — The first P refers to the employees within an organization. A company must have the right people in place for a buyer to consider the business sustainable. This eliminates the need to invest time and money into hiring and training new employees upon acquisition. Owners should analyze their team to ensure they have the correct people in the appropriate seats. Once they have done this, they can then ask the "who" question. Who deals with project management, accounting, logistics, etc.? The key here is to ensure that every "who" is assigned to a team member, and not the owner. The business must have a reliable management structure in place, so that when it comes time to sell, the company has an accountable team prepared to run the business and keep its projects on track.
2. *Product* — The second P refers to the products/services the company offers. First, it is important that an owner assess whether its product and/or industry is thriving or dying. Secondly, they must make sure their company services a niche with staying power. Thirdly must ensure they have created multiple congruent revenue streams. For example, in addition to providing various construction-related services, a company might consider also offering HVAC, electrical and plumbing services, or equipment rentals. By diversifying revenue streams and creating additional profit centers, owners can effectively reduce their operational risk.
3. *Process* — The third P is often overlooked, but should never be neglected. Processes are essential to building profits. Having efficient, productive and well-documented processes in place prevents a company from continuously having to reinvent the wheel. Construction companies should have a standard system for running day-to-day and long-term operations. These processes should also be designed with the customer experience in mind. If owners can nail this part, their business will grow exponentially.
4. *Proprietary* — The fourth P, proprietary assets, or intellectual property (IP), can set a company apart by making it unique. It helps to tremendously drive up a business's value. IP includes assets such as brands, trademarks, patents, databases, contracts in place, etc. All buyers are looking for an edge when purchasing a company.
5. *Patrons* — The fifth P refers to a company's client set. Sustainable businesses can pivot when necessary due to adverse market conditions or changing customer demand. A diversified client base makes this possible and significantly minimizes operational risks. For example, construction companies might consider serving residential, commercial and industrial clients. There 80/20 rule states that 80% of a company's revenue comes from 20% of its customers. If that 20% all comes from the same sector, however, and something happens to that sector, then 80% of that revenue is at stake. Through diversification, you eliminate this risk.
6. *Profits* — The sixth P is the most profound P. This is because without profits, a construction company will be neither sustainable nor scalable. Owners should assess whether they have multiple profit centers and recurring income. Another consideration: is the business generating more than or less than $1 million in earnings before interest, taxes, depreciation and amortization. Other than turnaround specialists (which will not allow you to maximize value), a buyer will not be interested in a business that is not making any money. Remember that profits are never a problem, but a result of not operating on the other 5 Ps.

Optimization of the ST GPS Exit Model and the ST 6 P Method are key for owners to start and grow successful businesses. They can develop an understanding of their desired endgame, identify potential buyers and have the knowledge necessary to build the company in all six areas. Owners who follow the advice here will put themselves in the best possible position to build a sustainable, scalable and sellable business. **CBO**

Michelle Seiler Tucker is the founder and CEO of Seiler Tucker Incorporated. She is recognized as a leading authority on buying, selling, fixing and growing businesses. She has been featured in Inc., Forbes, Entrepreneur Magazine and makes regular radio and TV appearances. Visit seilertucker.com.

Defining Diligence & Scope of Work

Understanding the professional liability exposures that plague projects

BY MITCH COHEN

The wrongful performance of professional services can not only result in hefty financial losses, but also structural damages that can cause many problems, from delays to collapses and loss of life. The errors and/or omissions related to engineering and architectural designs, land surveys, construction management and technical consulting are just a few of the areas where problems can lead to significant professional liability issues. Although no one knows the specific causes as of this date, one recent example could be the 2021 Surfside condo collapse in Miami/Dade County in Florida. Professional wrongful acts were also identified as a cause of the 2018 Florida International University pedestrian bridge collapse at University Park in Miami, Florida.

Offered to both design professionals and contractors, today's professional liability coverage forms are designed to manage the risks of specific projects, as well as protect the assets of businesses and owners when things go wrong. For instance, contractors professional liability (CPL) policies are typically written to cover the damages arising from the professional service acts, errors and omissions performed by or on behalf of any construction firm, while architects and engineers professional liability (A&E PL) are specifically employed to protect design professionals from the challenges resulting from their design work.

CONTRACTOR EXPOSURE

However, the exposures suffered by contractors, architects and engineers can be fundamentally different, given their different roles on any given project.



The possibilities of financial loss & catastrophic failure are always there for the unprepared. That's why it's always best to manage even the slightest risks with diligence, foresight & care before they ever occur.

At the most basic level, contractors build from the plans they're given, while engineers and architects are most often tasked with turning the visions of owners into realties, albeit ones that initially only exist as drawings, designs, specifications and blueprints.

A&E EXPOSURE

Let's consider the steps involved in the design of a commercial office building as an example of the architectural artistry and basic engineering needed to create a project's preliminary plans and specifications. Based on years of training, education and experience, both architects and engineers commonly apply the laws of physics and engineering science to designs outlining the physical construction of architectural systems and structures. In most cases, these professional services and the role of each individual party are meticulously set forth in mutually agreed upon contracts written according to the guidelines of the American Institute of Architects (AIA).

Once the initial plans are complete, the architect and engineer's design skills are then merged with the locale's codes and national design standards to develop detailed planning documents that can be placed in service by qualified construction professionals. This can include everything from compliance and material recommendations to the best practices for building specific structures or fulfilling architectural design criteria. Examples could even cite the guidelines provided by the American Institute of Steel Construction (AISC) for the design of structural steel or the American Concrete Institute (ACI) when it comes to the use of reinforced concrete.

And then there's the professional liability factor, which is relatively straightforward for most architects and engineers. Claims, and even possibly litigation, can result from the failure to comply with accepted design codes or standards, errors or omissions made during the project's design and the application of general engineering and science principles and math or computational mistakes that can lead to even relatively minor structural deficiencies.

CONTRACTORS CLOSE THE DEAL

Unlike architects and engineers, contractors have a much more nebulous exposure to professional liability. This is because contractors, unless they're working within a design/build delivery model, have nearly all the responsibility for the structure's construction and little oversight of the project's actual design. Quite simply, they're most often tasked with following the plans they're given. At a minimum, this could include the geotechnical contractor, who builds the foundation; structural contractor, who erects steel components and framing; concrete contractor, who forms and pours reinforced concrete; electrical contractor, who constructs the electrical systems; and mechanical contractor, who installs the ductwork heating and cooling systems.

But situations can still occur even when contractors diligently follow the standard of care during every building phase as well all the accepted construction practices specific to their trade and geographic location. For instance, these contractor's professional liability exposures can be related, but not limited to:

- Budgets that exceed contractual expectations
- Scheduling delays and foul ups that result in the owner's economic loss
- The failure to properly oversee the work of subcontractors
- Poor field decisions that result in delays, errors or omissions
- The hire of incompetent, unskilled or inexperienced personnel and subcontractors
- Construction management issues and problems
- Value engineering decisions that vary from plans and specs and fail to save time and money

Therefore, it is inherently important for every architect, engineer and contractor to not only thoroughly understand the scope of the work and their responsibilities before the work begins, but also the potential professional liability exposures that can plague a project from beginning to end. The possibility of financial loss and catastrophic failure are always there for the unprepared. That's why it's always best to manage even the slightest risks with diligence, foresight and care before they ever occur. **CBO**

Mitch Cohen is a vice president in RT Specialty's Environmental and Construction Professional Practice (RT ECP). RT ECP is a part of the RT Specialty division of RSG Specialty, LLC, a Delaware limited liability company based in Illinois. RSG Specialty, LLC, is a subsidiary of Ryan Specialty Group, LLC (RSG). Contact Cohen at mitch.cohen@rtspecialty.com. Visit rtspecialty.com

How Creative Conflict Can Propel Business Negotiations

Understanding & mastering the evolving nature of B2B transactions

BY BILL SANDERS

The business-to-business (B2B) landscape has changed dramatically over the years. But several megatrends continue to progress, including globalization, technological disruption, instant information exchange and customized solutions versus commoditized inputs. These trends have led to new ways of doing business and new kinds of business transactions. Long-term agreements, exclusivity, strategic relationships, joint ventures and partnerships have grown in place of old-style competitive price bidding.

However, many construction business owners learned to negotiate based on rules that are no longer suited for the current environment.

One thing has stayed the same, though, and that's conflict — all negotiations inherently involve conflict by their very nature. Creativity is the best way to break through the conflict and attain negotiating success in a way that solves the problem and builds a relationship. Fear and avoidance of conflict can lead to poorly negotiated agreements and missed opportunities. Negotiation is now more important than ever in a fast-paced and ever-changing industry. It's time for a more sophisticated negotiating approach.

Business negotiators must address the evolving nature of B2B transactions.

While common advice such as "don't split the difference" and "don't concede first" will always be a necessary part of a negotiator's toolkit, these tips miss the point of conducting a negotiation within a relationship setting.

NOT ALL NEGOTIATIONS ARE THE SAME

There are three major regions to consider with creative negotiations: bargaining, creative deal-making and relationship-building. Understanding the type of negotiation — and which region it falls into — will help you use the appropriate strategies and tactics.

The first region, bargaining, is the domain of The Gamesman. Buying and selling of true commodities (lots of options for the buyer) or one-off sales or purchases are typical examples. Here, like in the game of poker, a certain amount of



There are three major regions to consider with creative negotiations: bargaining, creative deal-making & relationship-building. Understanding the type of negotiation — & which region it falls into — will help you use the appropriate strategies & tactics.

gamesmanship, bluffing and misdirection goes on. Bargaining can be best thought of as a zero-sum contest, typically over one main issue like price, where anything you win comes out of my pocket and vice versa.

Bargaining negotiations center around power or leverage and the side that understands and best uses their leverage usually comes out on top. Business owners fail to appreciate is that they almost always have more leverage than they realize. Negotiators need to recognize the tactics used by aggressive bargainers and deploy countermeasures. Bring creativity to the table by using key bargaining strategies for planning, discovery, leverage-building, target-setting and -making and winning concessions.

The next region is creative deal-making. This is where The Trader flourishes. When bargaining alone won't get the deal — or when possible but perhaps unseen synergies exist between the two sides — the nature of the deal might be expanded to the benefit of both. The Trader works to discover concessions they can afford to make that are highly valued by the other side, while getting something of even greater value back in return. Traders create value by expanding the pie so that each side gets a bigger slice. While there's still conflict between the sides, there's also a sense of collaboration as they work together to hammer out a mutually beneficial solution. This opportunity for a bigger and better deal is lost if both sides are stuck in the bargaining model.

The final stop is relationship building is where The Partner is found. When good business relationships work, they can be so important that keeping the relationship healthy may be the goal. Negotiating in this realm takes on a new perspective, where looking out for the interest of both yourself and your counterpart is equally essential. Relationships entail many ongoing negotiations — over time, things can go wrong.

The Partner uses different strategies and tactics, such as vigilant monitoring and rigorous communication to make sure things continue to work out as originally envisioned. It's all too easy to hope for the best once the contract is signed. At some point, the deal may change from what was originally negotiated. There is a danger of making the costly mistake of negotiating in the relationship mode when the other side keeps pushing a hard bargain. Watch out for this pitfall and be prepared to move back into bargaining mode.

CONFLICT CAN CREATE BETTER AGREEMENTS & RELATIONSHIPS

Most people dread negotiation because conflict is present at every level of negotiating. After all, if you want something and I want something else, that's conflict. Most people are conditioned to avoid conflict. But look at it from a different angle. Not only better than what you might think you want for yourself but also better for your counterpart.

Rather than shrink or shy away from conflict, embrace the inherent conflict and allow it to spark ideas that lead to well-crafted, mutually beneficial agreements. Agreement-making is one of the most important skills anyone in business can possess. Skillful negotiating makes people more successful on the job, more valuable as employees or team members and leaders. It makes everyone's jobs easier and — your life, and the lives of those you work and deal with — run more smoothly.

With the fast-paced changes occurring in today's world, the way we do things is irreversibly impacted. Computers killed typewriters; digital cameras changed the face of photography; and cellphone technology forever changed not only the way we communicate, but also how we conduct business.

Negotiating is more important than ever. Existing agreements may no longer be workable and will need to be renegotiated. Resolutions to problems, compromises and new, more creative deals need to be worked out.

Professionals with the skills to negotiate creative deals, find workable solutions, and rebuild relationships are more in need than ever. To get by and prosper in the current and future, massively disrupted business world, we all need new and innovative solutions — and the skills to create them. **CBO**

Bill Sanders is CEO of Mobus Creative Negotiating, a firm founded by the late Frank Mobus. Mobus's nationally recognized experts provide public seminars and private, in-house corporate training, coaching and consulting to Fortune 500 companies. He is the author of "Creative Conflict: A Practical Guide for Business Negotiators." Visit mobusinc.com.

Prioritizing Technology in Construction

3 ways modern solutions can help your business tackle industry challenges

BY DUSTIN STEPHENS

In early 2020, the construction industry was experiencing levels of growth not seen since the Great Recession, while also navigating obstacles that have plagued the industry for years, including a qualified worker shortage and slower rates of adopting new technologies.

With the COVID-19 pandemic came a host of other challenges that have forced many to adjust their day-to-day workflows to keep their construction companies in business — and technology has played an integral role in this process.

Mobile and cloud-based technologies have kept teams connected and projects moving throughout this period of disruption and uncertainty. Some businesses used the downtime to overhaul their technology solutions, and others sought temporary fixes to quickly increase mobility among their teams.

While most agree that technology is an important part of a construction business, with so many competing priorities and so little time, technology often gets put on the back burner.

However, technology should become a top priority for construction firms and throughout the industry. Its benefits and efficiency gains are countless, including increased mobility, better business visibility and greater collaboration.

1. INCREASED MOBILITY

In recent years, mobile solutions have gained popularity in the industry, especially on the jobsite. The 2021 Construction Hiring and Business Outlook report, conducted by the Associated General Contractors of America (AGC) and Sage, found that 68% of contractors surveyed are using mobile software for daily field reports, 60% are using mobile technology for employee time-tracking and approval, 56% are using it for field access to customer and job information and 55% are using mobile technology for the sharing of drawings, photos and documents.

These apps help simplify workflows and free up employee time. Cloud adoption rates have been lower when it comes to project management and accounting solutions but, with more back-office teams working remotely, there has been greater interest in cloud-based solutions.

There are several options for migrating on-premise solutions to the cloud. These include a self-hosted private cloud, a third-party hosting provider, a software-as-a-service (SaaS) subscription and add-on mobile applications that integrate with existing solutions. When determining which path to the cloud makes the most



sense for a business, it is important to make a list of business requirements to ensure that potential solutions will fill those needs. Consider factors such as features and functionality, security, support and whether a solution will integrate with a company's current solutions.

Regardless of the cloud option, increased mobility and real-time access to project-critical information can have profound effects on productivity.

2. IMPROVED VISIBILITY

Having clear visibility into all aspects of a business is essential to spot issues and take corrective actions quickly, but construction businesses generate a lot of data and sorting through all of it can be tedious. Luckily, technology such as accounting and project management solutions provide firms with the vital information they need to make the best decisions for their business.

Top solutions make it easy to perform time-consuming manual tasks — robust reporting systems, automated alerts and detailed dashboards help ensure teams always have a real-time snapshot of where they stand on a project. A solid reporting system can synthesize all data into meaningful project summaries, field reports and financial statements, while an automated alert system can provide more immediate and actionable information. It filters through high quantities of information and can send a text, email or desktop notification when certain conditions are met. A comprehensive dashboard, which provides a visual snapshot of key performance indicators (KPIs) and other business metrics all in one place, presents information clearly, quickly and compellingly.

All of these tools provide invaluable insight, helping teams understand why a business is performing the way it is. More than ever, technology is helping businesses predict the future. Predictive analytics, artificial intelligence (AI) and machine learning are already being utilized by some technology vendors to help alert a business to any potential issues immediately. For example, some accounting solutions can comb through data and score transactions for the likelihood of an error or conflict and flag transactions that are outliers. Correcting issues as they come up enables firms to consistently have a clear financial picture, freeing up more time to focus on business strategy.

3. GREATER COLLABORATION

Technology certainly helps ease frustrations and increase efficiency, but it also encourages more effective communication and greater collaboration. Employees can be more productive knowing they are working off the latest version of a document or have the most up-to-date numbers for a project. Teams in the field and back-office benefit from these streamlined and automated processes. It also makes collaboration easier with all project stakeholders, including subcontractors and vendors. Having this level of control and confidence in project workflows is crucial as businesses grapple with challenges, such as disruptions to the supply chain, which can often lead to projects taking longer and costing more in the process.

Technology can foster a more collaborative environment not only among teams, businesses and projects, but also across the entire industry. Many leading technology providers recognize that it benefits everyone when they make it as easy as possible for their solutions to seamlessly integrate with those of other providers in the industry. They understand the need for technology vendors to work together, with many supporting open application programming interfaces (APIs) and pushing for a universal construction integration platform. Adopting a universal integration platform would ensure vendors could integrate with new solutions down the road, as data would be universally configured so that it could be translated to any platform, system or application to fit the ever-changing needs of the industry.

Technology can foster a more collaborative environment not only among teams, businesses & projects, but also across the entire industry.

The Construction Progress Coalition (CPC), a nonprofit organization uniting architecture, engineering and construction professionals, technology solution providers and their governing organizations, is pushing for a shared language to define project interoperability standards. It is also working to transform the future of digital project delivery through a common data exchange (CDX), which would use a standard format for storing and exchanging information. Once a CDX becomes an industry standard, data could easily be imported and exported between different systems, achieving greater collaboration across the industry.

As the industry continues to innovate and embrace new technologies, construction businesses have more options than ever. Technology needs to become an integral part of business planning, so teams are empowered to find the best mix of solutions that address their unique needs. Taking the time now to put the right technologies in place can help set up a business for a prosperous future. **CBO**

Dustin Stephens is vice president of Sage Construction and Real Estate. With more than 25 years of experience serving the construction industry, Stephens is responsible for go-to-market strategies and building partner and customer programs for Sage's construction business in North America. Visit sage.com.



Constructively Building Character

5 ways to navigate relationship roadblocks with trust & positivity

BY JOE EGAN

Being a construction contractor requires, persistence and a willingness to take risks. It requires will and discipline to succeed, not the unreasonable overly optimistic Pollyanna approach.

Construction is a competitive industry that can be harsh at times. And often, competition is such that second place is reserved for the first loser. When you don't come out on top of the competition, survival requires the resiliency of a rubber band snapping back from being stretched and you can only allow a brief period of disappointment and frustration after being bested before you must try to win the next construction project.

It hurts to try hard and still experience failure, especially when the cycle can be relentless. But even failure has merit and can help you build character in a way that also builds your business.

1. CHARACTER

You will have character-forming experiences often in this industry. Character-building comes from experiences that illicit strong positive or negative emotional responses.

When you are in a situation and you are feeling something, can you put your finger on what it is you are feeling and why? Can you control it? Whether your emotions are positive or negative, they must be managed through emotional intelligence, which has two elements: internal and external.

Internal emotional intelligence is your ability to detect and manage your emotions. External emotional intelligence is your ability to detect and manage your reactions to the emotions of others. Emotional intelligence is one part of the picture, and the things we choose to dwell on is another. Predominately positive thoughts lead to positive character, while predominantly negative thoughts lead to negative character.

2. PROBLEM-SOLVING

When setbacks inevitably happen and your customers complain, their intuition tells them whether you can be trusted to solve the problem. Initially, the question about who is right and who is wrong doesn't matter. Instead, show empathy, apologize, thank them and make decisions for what is in their best interest. What matters is getting into position for your next sale. Don't make excuses — people usually don't care why the problem occurred but just want to know what you are going to do to resolve it. Overmanage your customer complaints. View it as



an opportunity to solidify, not destroy, your relationship. And keep in mind, just because some of your customers don't complain doesn't mean they are happy with you. They may just let you fade away.

3. PREPARATION

Unforeseen conditions and surprises happen in construction more than in most industries. We don't get to rehearse, so conflict and problems are always right around the corner.

Recognize that some conflicts can be a waste of your intellectual and monetary capital, resulting in hollow victories tantamount to a defeat. If you position yourself for a win-lose conflict, such as drawing a line in the sand, then prepare yourself for stress, payment disruption, potential lawsuits, tarnished reputation and rejection from future bid lists. Stick to the facts and manage your emotions. Be considerate of the other person's position even if you don't agree with it.

When deciding whether to enter a conflict, ask yourself, "If I do this, how will I feel 6 months from now?" Be principled about choosing your conflicts. Do not choose conflict as a remedy for retaliation or antagonism. That may feel good in the short term, but it will take you off the high road and lead you down the low road of bitterness and regret. Resolve conflicts with a triage approach that includes negotiation, arbitration, mediation and litigation.

4. NEGOTIATION

Negotiating requires compromise, each party has to give something up in order to have their needs satisfied. Make a list of what you are willing to give away to get what you want. Don't give anything away unless you get something in return. Bear in mind the wise words of former first lady Eleanor Roosevelt, "Never allow a person to tell you no who doesn't have the power to say yes." The ability to negotiate with someone requires an open and honest rapport so problems can be settled objectively without drama.

Failed negotiations can result in arbitration, mediation or litigation which typically stems from bad faith, hurt feelings, hard-headed egos and an unwillingness to admit weakness. These methods are time consuming and require expensive payments to a third-party to convince you of your weakness, liabilities and vulnerabilities. Litigation is short for "scorched earth" and is a last resort.

5. BRIDGE-BUILDING

Imagine relationships as a bridge with your company is on one side and the customer on the other. The reason for the bridge is to transfer money from the customer's bank into your bank. Money is transferred when you do two things for your customers: solve their problems and make them feel good. Trust is the brick and mortar of the relationship bridge. The customer trusts that you will fulfill all that is required and that you won't take advantage of their vulnerabilities. If there is no relationship bridge, then no money is transferred.

Relating to the customer starts with first impressions. People tend to evaluate others quickly. A first impression is a powerful thing and can heavily influence a relationship. You only have one chance to make a good first impression. Keep these tips in mind when you meet a new customer to make sure you start building trust right away.

- *Smile* — A smile makes you likable and approachable. Smiles are understood by everyone and cannot be falsified.
- *Empathy* — Empathy is having the ability and the desire to share the feelings that someone else is experiencing.
- *Honesty* — Your customers require absolute honesty. Honesty is a discipline that demands not only external truth-telling, but also the internal willingness to recognize your strengths and weaknesses.
- *Promptness* — When you are not prompt, your customer feels ignored and worries about their worth and value to you.
- *Listen* — Listening is more than an act. It is a discipline, especially when everyone wants to get the last word in.
- *Solve problems* — Problem solvers look for answers, not errors or blame. Problem-solving requires both reporting the problem and offering at least one solution.

I believe honesty is a major factor in success. Honesty is analogous to the word construction, the way something is built. Arrogance, on the other hand, is a negative trait which eventually leads to both business and personal failure. Arrogant people tend to think the most important is the one in their mirror and have great difficulty playing the required subservient role to a customer.

If the construction industry had a map to success, I believe the words would be easy to read and the directions would be simple to understand. But, the actual route would not be simple. The map would illustrate many roadblocks, challenges and blind spots. Successful travelers have the street smarts to know that peril and unfortunate situations may be waiting around every corner. To successfully navigate the route requires a positive mindset. Success is about doing hundreds of things right and successfully managing the hundreds of things that go wrong. **CBO**

Joe Egan is president of Egan Connection Inc., a construction consulting, coaching and training company, and also president of Egan Publications Inc. for the authorship and publication of his three books: "The General Contractor — How to be a Great Success or Failure", "Construction Project Management — How the Great Ones do it" and "Building Positive Character – 50 Tips on Empowerment, Overcoming and Success." Egan is also an adjunct professor at Minnesota State University School of Construction Management.



Infrastructure Bill Passes, Industry Struggles Remain

A look at financing as a stopgap for shortages & supply chain issues

BY CHRISTOPHER DOYLE

After decades of gridlock and inattention, there appears to be a breakthrough on infrastructure investment. Passage of the currently proposed plan will provide the most significant investment in highways, ports and other critical projects in decades and would bring with it extraordinary opportunities for growth. But silver linings often conceal dark clouds. How will contractors and subcontractors, already facing labor crunch and historic supply chain challenges, find the needed resources to complete projects currently in the pipeline and strengthen their position?

In July 2021, the United States Senate passed the $1.2 trillion bipartisan infrastructure plan, and an even larger $3.5 trillion plan is still under consideration. The Infrastructure Investment and Jobs Act (IIJA) provides $550 billion in spending on vital new road, bridge, water, utility green energy and broadband projects. Taken together, the proposal represents the most significant investment in critical infrastructure projects in decades. While this substantial infusion of money into important projects is a net positive for the industry, it will also exacerbate current difficulties and create new challenges by forcing housing, commercial and infrastructure projects to battle for labor and materials.

MORE MONEY, MORE PROBLEMS

When the COVID-19 pandemic struck in 2020, the construction industry was not spared from the economic downturn. Construction employment plunged by 15% — 1.1 million jobs — in the first two months, nearly identical to the drop experienced across other sectors. The federal Paycheck Protection Program (PPP) allowed the industry to keep many workers and projects online. Demand for housing exploded, leading to a record in new home starts, which even now shows little sign of abating. Homebuilding growth buoyed the entire industry last year.

In contrast, commercial construction experienced little overall growth in 2020, and not much has changed in 2021. According to the Association of General Contractors (AGC), nearly 4 in 5 contractors reported one or more projects had been canceled or postponed since the beginning of the pandemic. At the same time, only one-fourth reported winning new work or add-ons to existing projects because of the pandemic. Commercial contractors are struggling to recover, and the pandemic has exacerbated longtime, systemic challenges. Perhaps the greatest challenge facing commercial construction



industry is a dramatic shortage of skilled workers. The AGC believes that an additional 430,000 workers this year and 1 million more over the next two years are needed to keep up with demand. Finding skilled workers has long been a problem in commercial construction. And COVID-19 has only made it worse.

According to the U.S. Chamber of Commerce, 88% of contractors are finding it difficult to attract skilled construction workers, with 45% reporting a high level of difficulty. There have been improvements on the labor front in 2021 but, overall the industry is still losing more people than it is bringing in.

The second major challenge is a critical shortage of building materials. The pandemic devastated supply chains across the globe, and the torrid U.S. homebuilding boom is swallowing up lumber, concrete and other essential materials. Nearly half of commercial construction contractors say that lack of available materials is a top concern, and 71% say they face at least one major material shortage.

These supply chain issues are increasing project delays and raising prices. In two years, the price of lumber has jumped as much as 73%, and iron and steel by over 50%. Even if building supply production stabilizes, the ongoing pandemic can force sudden, major disruptions in the supply chain. Of course, these issues certainly affect every sector of the economy, but the price of potatoes and cooking oil hasn't skyrocketed over the last year. How can contractors and subcontractors adapt to meet these challenges? Predictable, reliable finance options are necessary.

CASH FLOW & GROWTH

Today, it is commonplace for contractors and subcontractors to lack financing to bid on projects and grow. The truth is supply chain finance in the construction industry has been broken for decades, as traditional lending services typically leave contractors and subcontractors behind.

With so many projects already waiting at the starting gate, the skyrocketing home building industry and now potentially hundreds of major infrastructure projects joining the pipeline, contractors and subcontractors face even greater competition for resources and workers.

Every subcontractor faces the same dilemma: needing to pay for materials, labor and general and administrative expenses each month. Project payment is contingent upon multiple factors, with the potential for delays in the payment chain. Subcontractors and suppliers are typically the last to get paid, often waiting 60 to 90 days for completed work. Cash flow alone is too unpredictable to pay on time for labor or materials, let alone finance the expenses that come with scaling a business.

Cash flow issues simply do not discriminate in the construction industry. Today, subcontractors sit at the bottom of the payment stream. More established subcontractors have a variety of options at their disposal, but young business have a tough time getting the financing needed to succeed. For any up-and-coming construction entrepreneur, the question is how do you access the construction financing options available to the major players and utilize them to scale your business?

Flexible financing options have become integral to conducting business in this turbulent market. Without a landscape of supportive and flexible financing options it will become increasingly difficult to do business at all in our industry. Subcontractors are business owners for whom access to capital isn't a "nice to have," but a necessity.

Lack of reliable funds significantly increases subcontractors' risk of losing a project because poor cash flow can delay on-time payment to suppliers, put critically needed materials at risk, create delays and cost overruns. If you fail to do the work on time, you won't keep the job, and won't get new ones. When a GC replaces a subcontractor, they face expensive rework, change orders and further delays. Reliable, consistent financing ensures subcontractors deliver successful results every time, helping the GCs avoid extra work, stress and potential delays.

Taking advantage of material finance options ensures suppliers are paid cash up front and guarantees materials will be delivered reliably. Not only do material deliveries flow in, but subcontractors have more time to pay for them. What supplier doesn't want to work with a sub who pays cash in full on every purchase? Material financing ensures immediate payment to your supplier, essentially eliminating any credit risk they otherwise would have taken on. In addition, with cash payments come cash discounts — making material financing one of the smartest ways for contractors to get a better deal on their project materials.

In this current market — when the supply chain and prices are terribly unpredictable, finding workers is more difficult than ever and opportunity and competition is set to skyrocket — relying only on cash flow to win and complete projects on schedule is a risky bet. Contractors and subcontractors will need adapt and take advantage of new tools if they want to succeed and grow. CBO

Christopher Doyle is an entrepreneur and business leader with extensive construction industry experience and a record of launching successful startups. He is the co-founder and CEO of Billd, a disruptive payment solution for the construction industry that helps contractors and suppliers grow their businesses with less hassle and risk. Recognizing the cash flow hurdles that contractors face when purchasing materials, Doyle launched Billd to make traditional Wall Street working capital accessible to business owners in the construction industry. Visit billd.com



Protecting Your Business From Fluctuating Materials Prices

How to mitigate risk & structure a plan to cover your projects

BY TIM FANDREY & JP VOGEL

All construction industry stakeholders are aware that material prices, especially lumber, have seen steep increases that are unprecedented in the United States. With the COVID threat rebounding, the demand for raw materials, including materials to construct buildings and other infrastructure only seems to be increasing. From April 2020 through April 2021, prices for plywood rose 86%, steel 67%, copper and brass mill shapes rose 49% and aluminum mill shapes rose 20%.

Despite that reality, projects still need to be completed and most have already been financed based upon material prices that have quickly changed. Owners and developers need their projects built and contractors, subcontractors and suppliers need projects to build. The question is, how do these project stakeholders manage their risks?

KNOWING WHAT'S AT RISK

To get to the root of a problem in almost any scenario, all you need to do is follow the money. The same is true in the construction industry. Construction projects are often slow-moving battleships that are not so easily able to materially change course. As projects are conceived and designed, the most immediate question is how they will be financed.

In most circumstances, construction projects are financed and underwritten based on design documents and contractor bids, which is a process months in the making.

So, what happens when certain material prices on a project suddenly increase by 15% to 25% from the time a bid is submitted, and work begins, or materials need to be secured? Subcontractors and suppliers do not want to be left holding the bag when they are forced to pay more, but contractually they are often in that position.

Prime contractors aren't exactly thrilled when presented a change order and assuming they will pass it through to the owner, you would be hard-pressed to find an owner prepared to raise its costs of construction. All of this creates a contractual quagmire, thus necessitating proper pre-construction planning and utilization of the proper tools.



To get to the root of a problem in almost any scenario, all you need to do is follow the money. The same is true in the construction industry.

PLAYING THE WAITING GAME

There are various tools available from a strategic perspective. One is simply to wait until material prices drop. This is akin to attempting to time the stock market and has its own risks. As people begin to return to their normal lives, ready to spend their hard-earned money, demand for materials and projects only seems to be increasing across the industry.

Relatedly, not all projects can wait. Many companies are facing a desperate need for additional workspace to increase capacity and output to meet increasing demand for products and services. These factors tend to indicate that waiting may not be a viable option for all projects.

UNDERSTANDING CONTRACT TERMS

Another tool is to address material price increases is through contract terms. These are important tools and should not be ignored. For example, by setting a firm notice to proceed date instead of letting the commencement date be determined by the owner, contractors can be more confident in their material price quotes that are typically held open for only 30 days.

Contractors can also use allowances for different items of the project that may be sensitive to material prices increases, instead of quoting firm numbers for items of work. The amount that is spent in excess of the allowance is the owner's risk.

Relatedly, the owner and contractor can agree to set aside a contingency fund and could even earmark the contingency funds to address material price increases.

Another, more direct method, would be to include material price escalation clauses in the contract — this would shift the risk of material price increases above a certain level to the project owner.

While the contractual methods are certainly a necessary part of the risk management portfolio, each contract term proposed necessarily involves shifting the risk of material price increases to one party or another. And even if the risk is shifted contractually, the other party still bears the risk that the risk-bearing party will be able to perform, which may not be the case. Such a scenario would lead to an incomplete project where no one wins. How is this risk addressed?

REVISITING INSURANCE OPTIONS THAT CAN HELP

In response to the unprecedented material prices increases, some insurance providers are offering insurance to provide certainty in an uncertain market. The way the insurance generally works is that a contractor pays a monthly premium for the benefit of receiving an insurance payout if the contractor purchases a certain material or other input when the spot price is above a certain pre-determined price.

This type of insurance most directly benefits subcontractors and material suppliers who purchase raw materials. However, owners and contractors also stand to benefit because the subcontractors and suppliers will be better able to honor their original pricing set in their proposals.

EXPLORING YOUR NEXT STEPS

As the world has recently learned, COVID-19 isn't going away and has created lasting effects on the ways many businesses operate. Commodity markets are still wildly fluctuating. Despite these significant market factors and prices remaining high, all indications are that construction projects are moving forward full steam ahead.

Contractors should be prepared to use the tools at their disposal to manage the risks associated with this market. To best accomplish this, be sure to consult with an experienced construction lawyer. **CBO**

Tim Fandrey is an associate, construction, at Gray Reed, a full-service, law firm in Dallas and Houston, Texas. Fandrey represents contractors and subcontractors on a wide variety of construction matters including construction claims and litigation, lien and bond claims, giving of real time project advice and contract negotiation. Prior to law school, Fandrey worked as a civil engineer for more than 4 years, gaining experience in both the private and public sector as he designed dozens of bridges and roadways for the Missouri Department of Transportation. While working in the private sector, he developed project management skills by managing bridge and roadway design projects. Contact Fandrey at tfandrey@grayreed.com.

JP Vogel is a partner, construction law, at Gray Reed. Vogel guides clients through every phase of commercial construction and helps them to resolve disputes when projects don't go as planned. Vogel focuses on brainstorming new ways for clients to seize opportunities and overcome challenges. His clients are major players across the industry, including owners, general contractors, specialty subcontractors, suppliers and manufacturers. Contact Vogel at jpvogel@grayreed.com. Visit grayreed.com.

EAST COAST DEMOLITION RELIES ON FLEET OF MINIMUM-SWING EXCAVATORS FOR HEAVY-DUTY JOBS

East Coast Demolition is a full-service hazardous material abatement and demolition contractor serving Virginia and Northeastern North Carolina. In the business for over 40 years, its services include the design, management and implementation of abatement and demolition projects ranging from simple residential buildings to complex high-rise structures. "My father started the company and I run it with him and a group of great people," said Ricky Webb, chief operating officer at East Coast Demolition.

Serving the private, commercial, local, state and federal sectors, East Coast Demolition's niche is technically complex demolition projects. "What sets us apart from the rest of the competition — and what we like to pride ourselves in — is that we're a turnkey solution to problems that general contractors and owners might have when looking at a large-scale project," said Webb.

"We show up with clean equipment, clean trucks, we self-perform a lot of the work. We own 15 excavators and 20 tractors so if there's a client that has a need on one job and he needs to speed it up, we can shift all of our resources to that one job to push that job along, and then go back and handle the rest of our work. A lot of it is the employees, and just building the company over 40 years that has put us in this position. It's a lot of hard work. We've put the right things in place over time to be able to put us in this position."

AIMING FOR SUCCESS

The fact that East Coast Demolition has remained successful throughout the highs and lows of the last 40 years says a lot about the company. "We sweat and bleed demolition — it's what we do," said Webb. "When it comes down to it, we're here every single day. We're grinding it out. We're getting it done. We don't want to be a national company. We don't want to be the largest company. We want to be the best demolition company out there — the most reputable — who takes the most pride in the work that they do. And we want people to want us on their projects and to help people out and to be able to grow this business, not only for our employees, but for the area."

ABOUT THE FLEET

East Coast runs a fleet of 15 excavators. In addition to the long-reach specialized demolition excavators the company runs, Webb needed a fleet of excavators that could handle the day-to-day work on heavy-duty demolition sites, but also nimble enough to get around residential areas. "We do a lot of residential demos still," he said. "We do over 100 houses a year, and we also do a lot of gas stations, convenience stores, we do a lot of shopping centers, and we do a lot of 'we need you tomorrow' work." According to Webb, the company required machines that we could move quickly under its blanket permit — they chose Case Construction's CX245D SR. "The short-radius machine can get in tight spots. We don't have to think about this machine being too big for this job or too small for this



job. It's just a perfect all-around machine that we can put anywhere, and we don't have to second guess it." The full-sized CX245D SR excavator is designed to provide increased digging and lifting power in confined work areas, and features a minimum-swing-radius design, compact counterweight and modified boom placement that minimizes the machine's footprint, resulting in a highly productive and maneuverable excavator that's ideal for restricted operating conditions. "It makes it easier for me and my field manager to be able to put a machine on the job. It's got plenty of power. It's able to handle projects that a 300 or 350 could be used on, but it's out there performing well right beside them."

The excavators have been built to achieve faster cycle times and improved control. An electronically controlled hydraulic pump and larger control and solenoid valves boost breakout forces, increase lifting strength and improve responsiveness. These features combine with the Case Intelligent Hydraulic System and its four integrated control systems to make the best use of the machine's hydraulic power and momentum, resulting in added strength and fuel efficiency. "The power on the CX245D surprises us every day," said Webb. "We are putting this machine in situations that we might need two machines on, but it's able to pull large foundations out of the ground, it's able to pull large tanks out of the ground."

"The Case hydraulics and auxiliary hydraulics and the pumps are able to support the attachments that we have. And sometimes we have oversized attachments on these machines that come from our larger fleet and they're able to perform and run those attachments, no issues at all."

OUTFITTED FOR THE TOUGHEST TASKS

East Coast customizes each of its machines to meet the unique demands of demolition work. "That's the fun part about demolition — we're not just getting a dirt digging machine," said Webb. "It starts out that way, but we add all kinds of goodies to [them]. We put rollover protection structures (ROPS) and falling object protective structures (FOPS) on them, we put heavy-duty belly guards on, we put cylinder guards on them, we put auxiliary hydraulics on them ... we put in reversible fans to blow the radiators out throughout the day to get rid of the dust and the insulation that might buildup," said Webb. "We've equipped these machines with the [coupler] that allows us to change attachments quickly and efficiently — the guys don't have to get out of the cab," he said. "We outfit them pretty much with everything you can possibly put on them with the extra cameras and the LED lighting package. We outfit everything we could put on that machine because we're putting it in the worst application it could probably be in, and that's just demolition in general."

LIGHTS, CAMERA, ACTION

Safety and visibility are critical on demolition and abatement sites, and East Coast Demolition crews workday and night. With this in mind, the company selected an LED light package that provides illumination that is more than three times brighter than halogen. The optional LED package includes six LED lights (two front, two rear and one on each side) and an extra sideview camera, in addition to the standard rearview camera and side camera.

The machine is also suited with a three-way camera setup, which provides 270 degrees of visibility around the machine. "The cameras are key," he said. "We are always in tight situations, especially with the short tail machines to have the side camera and the rear camera. It allows us to make sure that before our guys go swinging around and loading out trucks at different angles and picking a pile and sorting the material, we're able to check all of our clearances before we do that. As you can tell, we like to keep our machines nice and shiny and not having scratched-up counterweights and stuff, so it also keeps our guys a little bit more focused on what's around them."

FUEL ECONOMY

The CX245D SR excavator meets emissions standards through a combination of selective catalytic reduction (SCR) and diesel oxidation catalyst (DOC) technologies, helping to maximize fuel efficiency, uptime and performance, without the need for diesel particulate filters (DPF) to replace, and no DPF regeneration. "These machines sip fuel compared to some of the same class machines, but at the same time, fuel efficiency is important to us because we're running these machines nonstop," said Webb. "We don't have a lot of idle time. These machines are running at high rpms all day long. At no point do these machines run at a low idle for an 8- to 10- or 12-hour period. Having that fuel efficiency is important because over the annual usage the cost-savings are immense."

BRANDING POWER

One of the many ways that East Coast Demolition sets itself apart is through its branding. Each piece of equipment on its jobsites is kept as clean as possible, with the company logo emblazoned for maximum visibility. "[My dad] always said, 'You want people to know who's doing the job,' and we've just carried that through. Branding is highly important to me. Any company that has a strong position in the current market pays attention to branding. And I want people to be able to look at my jobsite and be able to say that East Coast Demolition did that job. They can see the difference between my jobsite and a competitor's jobsite not only because of my equipment that's logoed, but because the pride that we take in our equipment and the jobsite and how clean it looks." CBO

Nathaniel Waldschmidt is the product manager for excavators and motor graders at Case Construction Equipment. Having grown up around equipment — his father owned multiple dealerships — Waldschmidt brings many years of product and customer application knowledge to his current role developing new products. Visit casece.com.

HOW TO MODERNIZE HEAVY EQUIPMENT TRACKING STRATEGIES ON-SITE & BEYOND

Efficiently tracking heavy equipment assets to ensure proper usage on jobsites, as well as identifying necessary maintenance to keep it all in good, working order, can sometimes be a difficult challenge.

To get the job done, construction business owners and contractors rely on a wide variety of heavy equipment, such as backhoes, bulldozers, cranes, excavators, scrapers, graders, dump trucks, all-terrain forklifts and moving trailers.

For maximum productivity, this heavy equipment must unfailingly be at each jobsite, properly maintained and ready for use without delay, even when worksites and workloads can quickly change day to day. To protect and preserve their assets for as long as possible, it's important that contractors must deter theft and reckless use of their expensive heavy equipment.

THE BENEFITS OF GPS TRACKING

Utilizing 24/7 GPS tracking, as a growing number of contractors are doing, helps to ensure better fleet management and make jobsites more efficient. This approach provides clear operator accountability, helping to reduce asset damage and prolong its usable life — helping you to get the most bang for your buck when it comes to your fleet. While contractors already keep tabs on their assets via phone, text and email on an individual basis, advanced GPS trackers dramatically streamline the process of allocating equipment. It does so by making the entire fleet's location and availability instantly visible.

"Continuous GPS tracking enables contractors to instantly see where all of their heavy equipment assets are at any given moment, so they can know as soon as possible which machines need service, which have completed their projects, and which can be turned



Continuous GPS tracking enables construction business owners & contractors to instantly see where all their heavy equipment assets are at any given moment, so they can know as soon as possible which need service, which have completed their projects, & which can be turned back into the rental company with minimal downtime.

back in to the rental company with minimal downtime," said Ben VanAvery, director of sales and marketing at Advanced Tracking Technologies, Inc. (ATTI), a Houston, Texas-based designer and manufacturer of GPS tracking products.

One example of GPS tracking in use is happening at K&D Construction Services. Robert Hanneman is business development and fleet manager at Chelsea, Oklahoma-based K&D Construction Services, a specialty foundation contractor serving the utilities market in a six-state area with a full suite of construction foundation services.

"We use GPS tracking to know where our equipment is so we can quickly get it to the next jobsite," said Hanneman. "We use it when we schedule so that we know which jobs need which pieces of equipment to ensure that everybody gets what they need and nothing extra. It also helps us keep our drivers safe and accountable for their driving."

REAL-TIME UPDATES

Compared with typical GPS tracking devices that may only update every few minutes, a system like ATTI's Shadow Tracker provides real-time location updates every 10-seconds, as well as location, speed and idle time alerts if something is amiss. This data is transmitted via satellite and cellular networks to a smartphone or PC on a 24/7 basis. The system has access to nationwide speed limits in its database.

According to VanAvery, via a PC or smartphone app, contractors can display the real-time location of the entire fleet on a map and zoom in on any specific vehicle. At a glance, they can see if a vehicle is moving (displays green) or stopped (displays red). If they touch a vehicle icon, the app will display where the vehicle has been, where it stopped and how long it has idled.

"By zooming in or out on the map, contractors can see where the heavy equipment assets are, so it is easy to see if the equipment is being used properly," said VanAvery.

Hanneman turned to a rugged system from ATTI. "The more reliable the GPS tracking system — even in rougher terrain — the better it is for construction, and theirs has been pretty darn reliable," said Hanneman, who uses the devices on about 45 vehicles including semitrucks, 1-ton and 3/4-ton trucks, as well as skid steers, mini excavators, etc.

He appreciates that he can use the one system to track all his construction fleet vehicles. "I did not want to look at multiple systems to see different things, with one set of trackers for the trucks and another for the skid steers and mini excavators."

"We have multiple crews working in multiple states, so being able to track where our vehicle fleet is in real-time 24/7 is a real advantage," said Hanneman. "It also helps if we need to respond quickly to a need for emergency construction, such as for repair after a storm."

Such GPS tracking, of course, helps not only to prevent the theft of heavy vehicles and equipment, but also aids in its swift recovery of the equipment if it does happen to be stolen.

Law enforcement, for instance, could be provided a relatively precise location of anything stolen at virtually any moment in time, making it far easier to locate the equipment. Because users can be notified that the system monitors speed, this capability can also serve as deterrent to speeding helping to minimize the risk of accidents, damage and excess equipment wear and tear.

This facilitates extending the equipment's usable life, while minimizing premature repair and maintenance. With better user driving encouraged by active monitoring, this approach could also reduce tickets and potential liability.

THE PRICE OF PERFORMANCE

GPS tracking can monitor performance and steadily improve the management of your fleet, while also boosting your bottom line. While equipment ownership will always come with a considerable price tag, any solution you can employ to help offset that cost and minimize jobsite risks will help you better gauge your investment(s) and the outcome of every project you tackle. CBO



Del Williams is a technical writer based in Torrance, California.

INSIDE THE RULES, REGULATIONS & RECERTIFICATION REQUIREMENTS REGARDING GVWR & GAWR

Companies with vehicle certification responsibilities are familiar with chassis gross vehicle weight rating (GVWR) and gross axle weight rating (GAWR), and their importance in the labeling portion of the certification process.

Dealers and end users are often accustomed to these ratings from an enforcement perspective (for driver qualifications, bridge weight limits and state licensing/titling requirements) and may request intermediate-, final- and altered-stage manufacturers of new vehicles to change original ratings to lower or higher values to minimize driver requirements or maximize cargo capacity.

These ratings, assigned as part of the certification process, represent that the vehicle meets all applicable Federal/Canada Motor Vehicle Standards (F/CMVSS). Manufacturers prior to the first retail sale — where a vehicle is licensed and titled by an owner in a given state in the United States or sold and delivered to a purchaser at the first retail level in a Canadian province or territory — have the authority to determine final ratings for a new motor vehicle. However, it's important to understand how ratings are established by the original equipment manufacturer (OEM) and implications of changing these ratings before considering such customer requests.

From Title 49, Part 571.3 of federal regulations, GVWR and GAWR are defined as follows:

- Gross vehicle weight rating (GVWR) means the value specified by the manufacturer as the loaded weight of a single vehicle.
- Gross axle weight rating (GAWR) means the value specified by the vehicle manufacturer as the load-carrying capacity of a single axle system, as measured at the tire-ground interfaces.



GVWR & GAWR are maximum weights the completed vehicle & individual axles, respectively, can bear & meet regulatory compliance requirements, durability & OEM warranty objectives.

RATINGS ARE LIMITS

GVWR and GAWR are maximum weights the completed vehicle and individual axles, respectively, can bear and meet regulatory compliance requirements, durability and OEM warranty objectives. Since numerous variables can determine the GVWR and GAWR established by the OEM, ratings should be considered the weakest link in the chain. As such, only the OEM would know which components or limiting factors set these ratings, so consulting the chassis manufacturer is the only way to determine if any rating changes are possible and to what extent.

For example, the F/CMVSS for braking systems requires several tests to be performed at GVWR and GAWR, including for the parking brake system and stopping distances. Assuming they are successful, weight ratings for these tests become factors used in the chassis configuration and ratings assigned by the OEM.

However, the OEM may equip the chassis with suspensions, wheels, axles or tires with GAWRs totaling higher than the GVWR. This is common for chassis up to the Class 5 and 6 GVWR range but does not automatically mean a higher GVWR is possible.

More robust axle capacities allow weight to be distributed in a range to accommodate a greater variety of build configurations and applications for the same chassis, when loaded to its GVWR, without exceeding axle capacities. In heavier applications, where chassis are spec'd with a GVWR equaling the sum of axle capacities, this spec'ing norm limits how the vehicle must be configured and loaded to its GVWR. Otherwise, GAWRs can be exceeded if weight is biased forward or rearward of where total weight must be centered to maintain axle limits.

CAN YOU ADD AXLES TO INCREASE GVWR?

This brings up a common misconception that GVWR can, or must, always be the sum of the GAWR values. However, this is not the case. Even though the chassis may have more axles than it did originally, it does not mean it's otherwise able to meet all brake system performance requirements at a higher GVWR. Also, because other factors (such as durability) can limit GVWR, this weakest link value could be determined by another factor that's not related to the brakes. Additionally, OEM incomplete vehicle documents (IVDs) often contain prohibitive language for changing GVWR, preventing the final-stage manufacturer from using OEM IVD guidance as a basis to certify the vehicle.

Warranty coverage can also be affected by these changes. Therefore, the only path forward would be if the OEM can provide an engineering review or other supporting information to the contrary for a given chassis.

WHAT ABOUT LOWERING GVWR?

Another misconception is that lowering GVWR is an easy process because the chassis is already capable of more weight, so this is a better rating scenario. While this may seem accurate from a chassis capability perspective, such changes require OEM consulting guidance. Lowering GVWR could place the vehicle in a range where more regulatory compliance requirements apply (for which the intermediate-, final- or altered-stage manufacturer would become completely responsible).

For example, end users and dealers may request changing an off-the-lot chassis with a GVWR above 10,000 pounds to a value of 10,000 pounds or less in an attempt to prevent motor carrier operational requirements that would otherwise apply to the vehicle. This can void IVD guidance and pass-through certification, since numerous F/CMVSS and other regulations are applicable to vehicles with 10,000-pound or less GVWRs, but do not apply to vehicles with 10,001-pound or higher GVWRs.

These include dynamic crash testing, and the base vehicle in a GVWR-lowering scenario may not be capable of meeting additional requirements of the lower GVWR. Further, a lower GVWR could put the truck in a new emissions category for which the base vehicle is not equipped or capable of achieving.

APPROACHING GVWR/GAWR CHANGES

Since these ratings are not just arbitrary values on a label, as they might seem, changing them for end-user applications is

not as simple as putting a different number on a sticker. And there are no guarantees a given chassis can have different ratings, or accommodate the values requested. GVWR and GAWR changes must be evaluated on a case-by-case basis to first determine if it's possible for the specific chassis. Then, if so, you need to identify component and/or programming changes needed for the chassis to match that of the same model, had it been ordered from the factory with identical ratings.

For an indication of what's possible, review an OEM's product offerings to see if a specific new chassis being considered for rating(s) changes is released by the OEM in the new rating configuration requested. Data compared should include, to the extent possible, model, model year, powertrain, wheelbase, etc., as these can all be factors in the established ratings.

If not, this indicates even the chassis OEM is not producing a model variation in those ratings. So, creating unique ratings not assigned by the chassis OEM would likely end up placing more (rather than less) responsibility on the multi-stage manufacturer for the consequences, and is not advisable. While dealers or customers may not share the manufacturer's compliance burdens, OEM warranty implications can help bring the prospect of GVWR and GAWR changes to a more relatable context.

GET AN OEM CHASSIS ENGINEERING REVIEW

Again, these considerations lead back to the initial step in the process of consulting the chassis OEM to determine possibilities for changing ratings of a specific, new chassis that has already been manufactured. To aid in this process, truck dealers can initiate OEM engineering reviews by Vehicle Identification Number (VIN) to determine if a new chassis can have different ratings, and what (if any) changes are required to effectively reconstruct the chassis to match the factory configuration, had it been ordered originally with the desired ratings.

The OEM engineering review outcome — which would typically consist of a brief report letter specifying the chassis by VIN — will determine if new ratings (higher or lower) are possible as well as any necessary chassis changes and additional guidance to overcome prohibitive statements in the IVD.

The OEM report, if sufficient for the multi-stage manufacturer, can help provide the basis for establishing ratings for the new vehicle being certified. The dealer will likely need to handle any component and/or programming changes needed for the new chassis ratings in order to preserve the OEM chassis warranty for the customer.

Another critical step is to perform a thorough weight analysis to ensure any new ratings will not be exceeded. Final- and altered-stage manufacturers can help customers by making sure new ratings being considered are still appropriate for their application, even if the OEM provides information to support changing original GVWR and/or GAWRs.

> Another misconception is that lowering GVWR is an easy process because the chassis is already capable of more weight, so this is a better rating scenario. While this may seem accurate from a chassis capability perspective, such changes require OEM consulting guidance.

WHAT ABOUT RERATING USED VEHICLES?

Keep in mind, certification and ratings assignment apply only to new motor vehicles. Once a vehicle has been completed in the final stage and licensed and titled by an owner in a given U.S. state or sold and delivered to a purchaser at the first retail level in a Canadian province or territory, the certification obligation ends, along with assignment of ratings.

In a 2002 interpretation, National Highway Traffic Safety Administration (NHTSA) provided the following response to the concept of re-rating used vehicles.

"NHTSA has long taken the position that the only parties who can assign or modify a vehicle's GVWR are the original manufacturer, a final stage manufacturer or an alterer. The term "final-stage manufacturer" is defined in the agency's regulations at 49 CFR 568.3 as "a person who performs such manufacturing operations on an incomplete vehicle that it becomes a completed vehicle." Even though it attached the refrigerated body to the cab and chassis of your delivery truck, Uhl Truck Sales cannot be regarded as the vehicle's final stage manufacturer. That is because the cab and chassis were used at the time these manufacturing operations were performed."

IF THE USED VEHICLE GETS A NEW BODY, DOES IT NEED TO BE RECERTIFIED?

In the same interpretation, NHTSA defines entities that perform modifications on used vehicles as modifiers and states the following regarding their attempts to change ratings.

"Consistent with this description, a person who makes modifications to a used vehicle (i.e., a vehicle that has already been purchased for purposes other than resale) does not qualify as an "alterer," as that term is used in NHTSA's regulations. NHTSA



has stated in past interpretation letters that when a used vehicle is modified in such a manner that the originally assigned GVWR is inappropriate for the vehicle as modified, the modifier can affix an informational label to the vehicle, identifying its appropriate loaded weight. See, e.g., letter to James Barber dated April 2, 1997. The agency has noted, however, that it would not recognize the loaded weight specified by the modifier as the vehicle's GVWR. That's because the modifier would not be able to assign the vehicle a new GVWR since he would not qualify as an original or final stage manufacturer or as a vehicle alterer. Consistent with these interpretations, NHTSA would not regard the value specified by Uhl Truck Sales on the label it affixed to your vehicle as the vehicle's GVWR. The agency would instead recognize the 29,000-pound GVWR assigned by the vehicle's original manufacturer. Because the originally assigned GVWR remains with the vehicle throughout its service life, no means are available for 'recertifying' the vehicle with a lower GVWR."

CAN END USERS PUT THEIR OWN CERTIFICATION LABELS ON USED VEHICLES?

No — certification labels are the only legitimately-recognized vehicle label to include GVWR and GAWRs. These labels, along with the ratings, can only be assigned by the final- or altered-stage manufacturer. As noted previously, the certification process ultimately represents a new vehicle complies with all applicable motor vehicle safety standards. It's not advisable for anyone, especially end users, to represent that a used vehicle is capable of meeting newer standards which may have changed or become applicable since it was certified. Therefore, there is no method established for recertifying a used vehicle and assigning different ratings. As such, motor carrier enforcement can refute labels installed on used vehicles to avoid driver or other operational requirements based on these ratings.

THE BOTTOM LINE

Chassis OEMs are the only ones who

1. Know what limits their original ratings
2. Are able to assist multi-stage manufacturers of new vehicles in considering whether one of their products can meet all applicable regulatory requirements at different ratings from what they originally assigned during chassis manufacture, as well as chassis warranty implications.

In all applications, a thorough weight analysis is necessary to ensure ratings will not be exceeded for a customer's application, whether new ratings are considered. There is no mechanism for changing ratings on used vehicles no longer under the certification process where ratings are assigned — so those final ratings are effectively cast for the vehicle's life, and motor carrier enforcement can ignore ratings on labels applied to used vehicles. CBO

Bob Raybuck is the director of technical services for the NTEA – The Association for the Work Truck Industry. Raybuck is an expert on the technical issues and challenges facing manufacturers and distributors. Raybuck holds a bachelor's degree in mechanical engineering from Michigan Technological University and a master's degree in business administration from Eastern Michigan University.

Steve Spata is the technical assistance director for the NTEA – The Association for the Work Truck Industry. Spata 's expertise on technical issues facing the work truck industry is the culmination of an automotive engineering career that spans nearly three decades. He also oversees and serves as liaison to four NTEA affiliate divisions. Spata holds a bachelor's in mechanical engineering from Lawrence Technological University. Visit ntea.com.

Corporate Capabilities

Wise construction business owners know it's best to remain adaptable in this ever-changing industry, and it's important to do so with reliable, proven partners. In the following pages, you'll find some of the best in the business to help you do just that.

The companies featured in the pages of this special section supply the top tools, services and resources that can help your company gain an advantage over the competition. Whether you want to streamline company processes, supplement or add to your fleet, venture into another market sector, or adopt a new technology, the companies in this section offer a mix of options to meet your needs.

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2021

Acumatica Construction Edition

It's time to ditch your legacy construction system & embrace the cloud

Legacy construction and accounting software solutions just aren't cutting it these days. Older systems developed decades ago aren't as adaptable, mobile or flexible as their more efficient, cloud-based counterparts. You've probably also noticed that legacy systems struggle to mesh with the other software you rely on to manage your business. You need a modern solution that was born in the cloud — one that provides seamless integration of your office and field processes or specialty applications.

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Acumatica Construction Edition is made specially for general contractors, subcontractors, home builders and land developers to give them a way to gather and analyze their project information from a single, centralized platform.

Acumatica Construction Edition is a complete, native and cloud-based construction and accounting software solution. It's the only solution that offers true SaaS multitenant technology and a private cloud option for firms that require flexible and unique delivery options. It's also built on the world's best cloud and mobile technology with an all-inclusive user licensing model.

Acumatica Construction Edition gives you everything you need to run your construction business. Here's how:



- *Seamless user experience* — With Acumatica Construction Edition, you get complete, cloud-based construction and accounting software that includes accounting with job costing, project management, payroll, inventory, service management, customer relationship management and more.
- *Increased collaboration* — Built on the world's best cloud and mobile technology with an all-inclusive user licensing model, this easy-to-use construction accounting software will help increase collaboration, streamline time-intensive processes and increase project visibility and profitability.
- *Better visibility* — Every team member has access to a single source of business truth with real-time and synchronized data. They can utilize intuitive dashboards on a phone or tablet, accessing revenue, costs and commitments while also managing contracts and change orders in one, complete software system. Everyone from management and field operations to the office is connected and has visibility into their business and customers.
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Learn more about how Acumatica Construction Edition can serve as your complete construction ERP solution at acumatica.com/cloud-erp-software/construction-accounting-software/. You can also request a demonstration at acumatica.com/request-a-demo/?r=40819.

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Acumatica
Construction Edition

Bridgit

Workforce intelligence helping construction maximize profits & reduce risk by taking a people-first approach

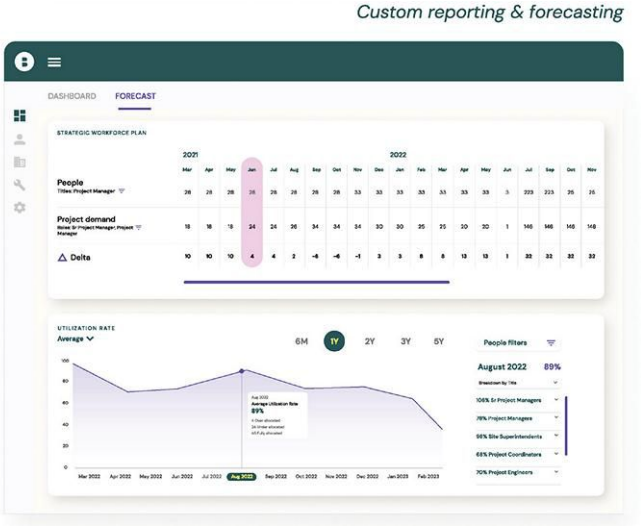
Bridgit is workforce intelligence for the construction industry. Bridgit's mission is simple — to help the construction industry maximize profits by taking a people-first approach. Workforce Intelligence from Bridgit transforms workforce data into actionable insights that inform an organization's strategic and tactical business decisions. Bridgit works with construction industry leaders such as Skanska, Balfour Beatty and Ryan Companies, among others. Bridgit is a privately owned company, having raised over $15.7 million USD in equity financing, with capital from investors such as Autodesk, Business Development Bank of Canada (BDC) Capital's Women in Technology Venture Fund, Education Development Center (EDC), Investment Accelerator Fund (IAF), Salesforce Ventures, Sands Capital Ventures and StandUp Ventures.

A STRATEGIC, PEOPLE-FIRST APPROACH

Bridgit has built the first, and leading, workforce intelligence platform built exclusively for the construction industry — Bridgit Bench.

By combining deeper insight into workforce availability with holistic views of their entire project pipeline, Bridgit helps contractors of all sizes by bringing their people to the forefront of their strategic decisions — where they belong. Here's how Bridgit is reshaping the project journey:

- *Workforce intelligence* — Contractors are using people and project delivery data inform future bids and team composition.
- *Selective bidding* — Contractors are able to forecast project demand, collaborate on pursuits, and pursue the right projects for their team more aggressively.
- *Project delivery* — Contractors are able to easily ramp resources up and down and adapt their workforce strategy to maintain utilization.



The best part about this strategic approach is that it's cyclical. Every project and pursuit help to inform future bids and project delivery.

PEOPLE ARE THE FOUNDATION OF EVERY TEAM'S SUCCESS

As mentioned, collaborating on workforce strategy is nearly impossible when contractors aren't using the right tool for the job. Bridgit recognizes that nearly every department's success is dependent on people and having access to the right information. Bridgit aims to help foster more meaningful discussions and enable cross-functional collaboration. While the majority of its customers transitioned from a single-user approach to workforce planning, here's a glimpse at the teams now using workforce intelligence to inform their work:

- Operations teams are using workforce data and analytics to build stronger project teams based on experience and skills and allocate resources more effectively with utilization oversight.
- Executive teams now have a holistic view of their workforce strategy and project pipeline. They can identify any gaps in the pipeline. Tracking project pursuits provides a better understanding of where they win, lose, and which projects are most profitable.
- Preconstruction teams are planning roles and allocations for future projects. This benefits the estimating team by better understanding the available team members and their experience. This helps to put forward more enticing bids and avoid late crew build up.
- Human resources teams are looking at project demand and comparing it against their workforce capacity. By identifying pinch points where demand exceeds supply HR teams can create informed recruitment strategies and reduce last minute hiring.

Bridgit
800-783-2127
info@gobridgit.com
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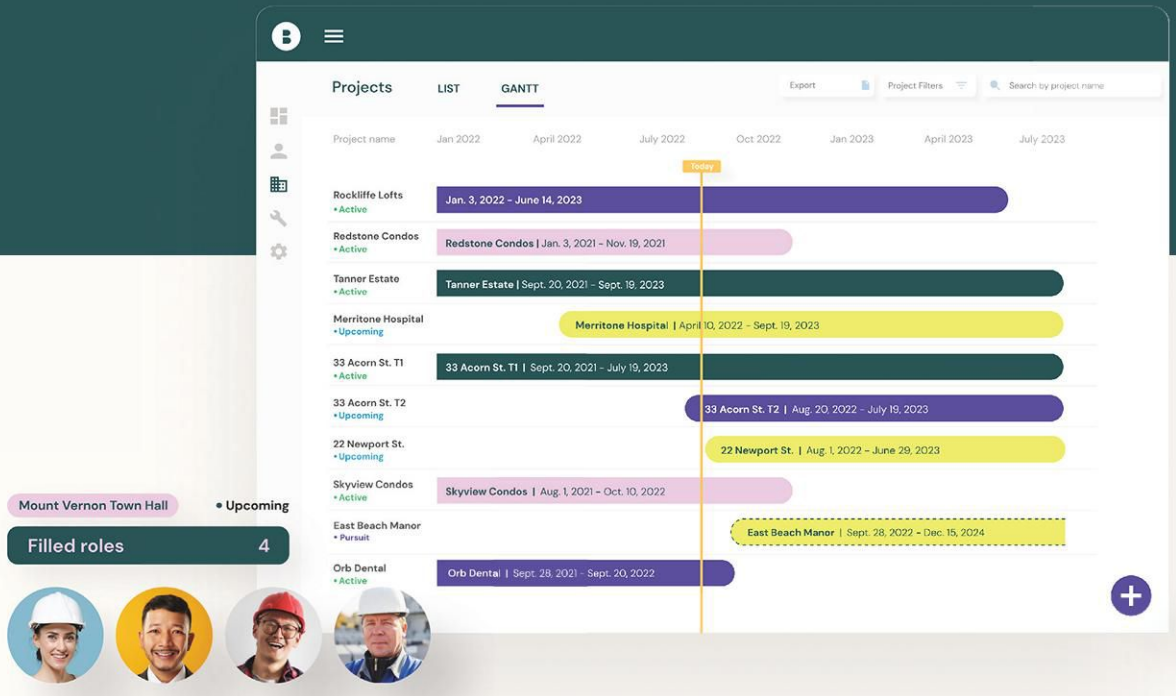
Bridgit

Workforce intelligence for the construction industry.

Bridgit is workforce intelligence for the construction industry and helps contractors maximize profits by taking a people-first approach. Workforce Intelligence from Bridgit transforms workforce data into actionable insights that inform an organization's strategic and tactical business decisions.



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Case Construction Equipment

Committed to giving back by dedicating time, resources & equipment to building communities

Case Construction Equipment is a global full-line manufacturer of construction equipment that combines generations of manufacturing expertise with practical innovation. Case is dedicated to improving productivity, simplifying operation and maintenance while achieving lower total cost of ownership for fleets around the world.

More than a manufacturer, Case is committed to giving back by dedicating time, resources and equipment to building communities. This includes supporting disaster response, infrastructure investment, and nonprofit organizations that provide housing and resources for those in need.

Two of the core efforts that Case continues to focus on are rebuilding communities after disaster through Team Rubicon and helping local communities' complete infrastructure projects they would otherwise not be able to do through the Dire States grant.

DISASTER RESPONSE

Team Rubicon serves communities by mobilizing veterans to continue their service by leveraging their skills and experience to help people prepare, respond and recover in the wake of events from wildfires and tornadoes to hurricanes and COVID-19. Since 2015, Case has partnered with Team Rubicon on the training and support of heavy equipment operators who volunteer in disaster areas where debris removal, property demolition and earthmoving work are required. Together, Team Rubicon and Case equipment have been deployed to numerous disaster response and community service projects across North America.

INFRASTRUCTURE INVESTMENT

Launched in 2016, the annual Case Dire States Grant provides one local community/project with $25,000 in free Case equipment use/rental to offset the costs of building or repairing a critical piece of infrastructure. This includes the ability to self-perform the work with qualified staff, or to work with a contractor who can use the grant to offset equipment costs related to the project.

In 2021, Clay County, West Virginia, was awarded the grant to repair grounds and facilities that were initially damaged in heavy flooding in June 2016. More than 500 homes were destroyed in that event, and local resources that provided food and services to residents have been closed due to ongoing water and sewer issues.

Local officials will use the equipment to perform critical grading activities to better direct water during heavy rainfall events and restore a variety of parks and grounds.



NONPROFIT ORGANIZATIONS

Case employees frequently volunteer with Habitat for Humanity organizations across the United States through the company's Impact Day program.

Most recently, Case Construction Equipment employees volunteered as part of Racine Habitat for Humanity's first ever "Women Build" project — a homebuilding project in Racine, Wisconsin, drawing particular attention to housing inequality and the challenges faced by women who are first-time homebuyers. Each home is priced at fair market value, and loans are interest free with mortgage payments targeted to be below 30% of the homeowner's monthly income.

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Coast Products

Putting worker safety first for more than 100 years

From humble roots making innovative knives for cannery workers and selling them out of the trunk of a Model T, to its current position as a world leader in portable lighting and next-generation safety gear, Coast has pursued a single mission: To make workers' jobs easier, safer and more enjoyable.

Coast has been family owned and operated for three generations and continues to design all of its products in Portland, Oregon.

Over the last 2 decades, the company patented dozens of innovations that make its flashlights, headlamps and emergency area lights true category leaders.

Some of the world's toughest workers — from offshore teams on oil rigs to officers on night patrol — rely on Coast lighting products to do their jobs more safely and easily. Coast is now transforming the safety gear category by integrating world-class lighting technologies into wearable workplace safety gear.

ENGINEERING THE SAFETY GEAR OF THE FUTURE

Coast innovations for workplace safety include a broad line of products that go well beyond Occupational Safety and Health Administration (OSHA) and American National Standards Institute (ANSI) requirements.

Coast lighted safety glasses feature patented optical technology built right into the frame, for hands-free performance and protection.

Its lighted vests and hardhats enhance worksite protection, making workers more visible in loud and chaotic environments.

And Coast high-visibility safety gloves feature phosphorescent glow technology that passively charges under any light source and illuminates when the worker transitions to low light.

Coast is now transforming the safety gear category by integrating world-class lighting technologies into wearable workplace safety gear.

Looking ahead, the company sees many new opportunities to leverage the power of light for better, safer work.

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FOR FURTHER INFORMATION, CONTACT:

Brad Drew, National Sales Director: **retailsales@coastportland.com**

Scott Field, Industrial and Public Safety Sales Director: **industrialsales@coastportland.com**

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BE SEEN BE SAFER

Construction Group Staffing

Providing solutions that streamline operations & reduce employee liabilities & risk

Construction Group Staffing (CSG) is a full-service employer of record organization supporting several hundred commercial and residential construction and trade services firms. CSG provides employment and liability reduction solutions for those firms and manages several thousand employees throughout the United States.

CGS focuses exclusively on providing the services, savings, reduction of risk and peace of mind that you have been looking for. CSG provides its clients with the two following service offerings.

1. STAFFING-RELATED SERVICES

- Supplemental staffing as needed
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- Temp-to-permanent hiring solutions
- Solutions covering clients vetting periods
- Industry leading 8-hour quality of service guarantee
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- Highest-quality resources

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- Workers' compensation insurance, claims and fraud prevention
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  - State unemployment tax (SUTA) and federal unemployment tax (FUTA)
  - Medicare and Social Security
  - Garnishments or other court-ordered withholdings required
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    - Payroll options: Weekly, bi-weekly or semi-monthly (up to $1,000,000.00)
  - Retirement savings plan options
  - OSHA10 and OSHA30 safety training, certifications and jobsite assessments
  - All unemployment claims and fraud prevention
  - Immediate healthcare benefits (medical, vision, dental, supplemental life, Accidental death and dismemberment (AD&D))
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  - Flexible payment terms (Net 7, Net 30, Net 45, up to Net 60)



GCS provides support to the following industries:

- Construction (all categories)
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- Warehousing, kitting and logistics
- Light industrial and manufacturing
- Clerical and administrative
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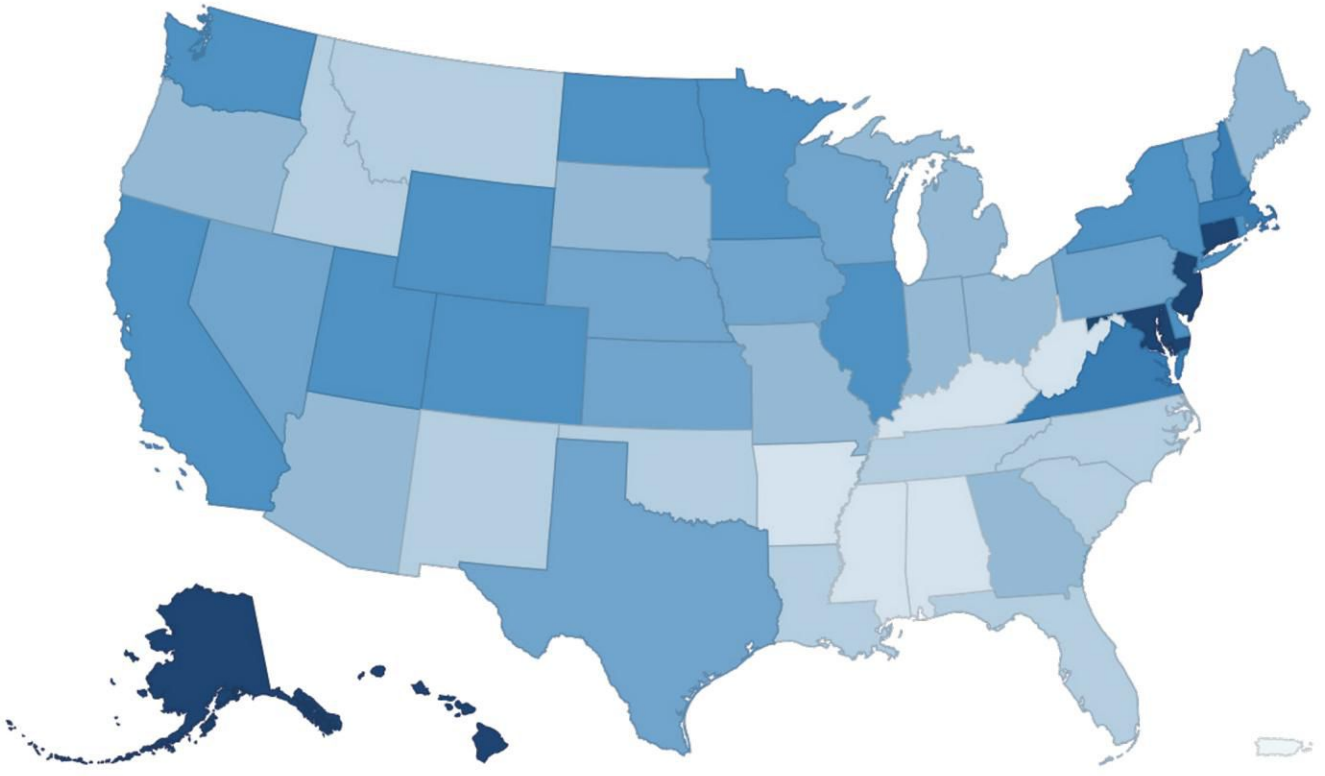

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» Risk Assumption, Reduction, and Management

Our risk assumption, reduction and resource management solutions provide our clients with highly competitive insurance rates, full assumption of all employee related costs, employee liabilities, and eliminate the need for our clients to purchase their own Workers Compensation insurance policies related to their labor force

For over 25 years, the team at CGS has been providing staffing, risk assumption and employee liability elimination services for our clients throughout the United States. Our mission is to drive overall cost savings, improve efficiencies and focus on jobsite safety for our clients the construction industry. Whether you're a self-performing General Contractor, a Subcontractor, or a Specialty Contractor, CGS has the experience to help your company streamline labor resource allocation, improve the quality of resources, and improve safety via OSHA10, OSHA30 training, certification, and provide confidential OSHA assessments to help improve our clients and employee's wellbeing.

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Diablo Tools

The ultimate sanding solution manufacturer

Diablo, an industry leader in solution-oriented choices for professionals, introduces an extensive new line of sanding products, offering the ultimate sanding solution, that will enhance productivity, reduce time and save money: Diablo's SandNet sanding discs and sheets, and Reusable Hand Sanding Blocks. Diablo reinvents sanding with a superior solution that outperforms paper. The enhanced line of SandNet reusable sanding discs and sheets delivers up to 10-times longer sanding life span compared to standard coated sandpaper, leading to less product waste and money spent on more materials — that is better for the wallet and the planet.



Industry professionals dread sanding for many reasons including the amount of time it takes, materials ripping, clogging and constant replacement of discs, sheets and blocks. Clogging and pitch-build up are the main issues faced by industry professionals. When paper sanding products are loaded with buildup, the grit no longer makes contact and the grains no longer "cut" into the material. The low quality and lack of life span costs professionals time and money.

The SandNet clog reducing net design dramatically outperforms and extends sanding life up to 10 times longer than paper products. A lattice-like design allows sanding fibers to effortlessly pass through the net, and if it begins to load or clog, one can simply clean the grit by shaking, vacuuming or rinsing for continued use. The ability to clean the sanding grit and reuse multiple times proves SandNet is the most technologically advanced, superior solution that offers the longest life, highest quality, most cost-effective range of sanding products on the market.

Also launching is Diablo's new Reusable Hand Sanding Blocks that address market issues such as inferior abrasive grain and inferior foam that causes product failure or premature structure breakdown. The Hand Sanding Blocks last even longer with the ability to be fitted with SandNet sheets, the most advanced reusable sanding technology. Traditional foam sanding blocks clog/tear and must be thrown away once unusable. The Reusable Hand Sanding Blocks combined with SandNet sheets completely invigorate the industry by maximizing performance, reducing time and, most importantly, saving money.

"Diablo does it again by disrupting the industry with the reinvention of sanding. SandNet takes the most dreaded task of any project, for woodworkers, carpenters, drywallers, painters and other industry workers alike, and developed multiple innovative sanding solutions that meaningfully improve and enhance production for all sanding jobs," said Russell Kohl, president and CEO of Diablo/Freud Tools. "These superior reusable products increase productivity through fewer labor hours and dollars spent completing the job, and fewer discs/sheets/sponges changes results in increased dollar savings. SandNet creates less product waste, which, in turn, is better for the environment."

Diablo's Ultimate Sanding Solutions are available now, wherever Diablo products are sold.

Diablo Tools
800-334-4107
marketing@diablotools.com
diablotools.com

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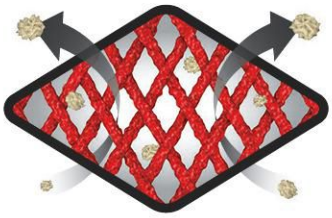
DIABLO®

SandNET™
The ULTIMATE SANDING SOLUTION



UP TO 10x LONGER LIFE
VS. STANDARD SANDPAPER



ANTI-CLOGGING DESIGN RESISTS PITCH BUILD-UP

Diablo's full-range of premium SandNET™ discs and sheets features the most advanced sanding technology

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- Premium Ceramic Blend for Fast Material Removal
- Reusable Technology for Repeated Use

Diablo's SandNET™ range is the *Ultimate Sanding Solution* with multiple sizes and configurations to meet all sanding needs

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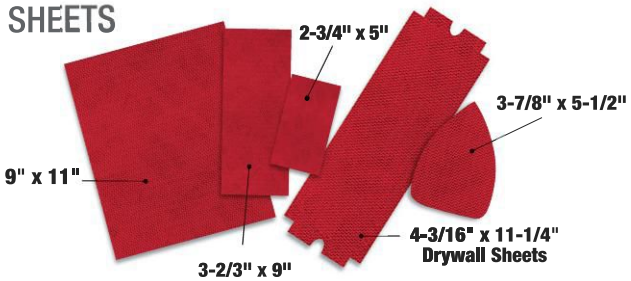

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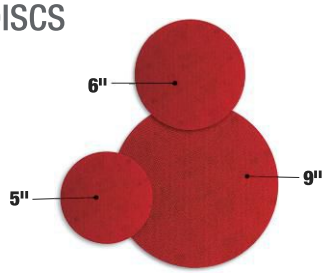
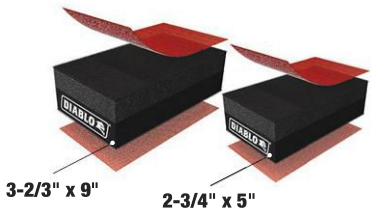


REUSABLE SANDING BLOCK



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TERRAIN

NEVER PLAYS FAIR

So, we're changing the game—permanently. Engineered with the world's first smart-adapting chassis with self-leveling technology, the revolutionary 670SJ automatically adapts to terrain up to a slope of 10 Degrees in any direction, ensuring superior performance and the ability to drive at its full 67-ft platform height. Cribbing? Grading? Cut the costly prep work and get more done.

GET ON OUR LEVEL

THE NEW 670SJ

SELF-LEVELING BOOM

SEE THE 670SJ IN ACTION.
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EXPERIENCE IT FOR YOURSELF AT **SELFLEVELINGBOOM.COM**

JLG®

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Doosan Bobcat North America

Cutting-edge machines & solutions to help you work more quickly, efficiently & with more power than ever

Innovation is at the core of Bobcat and continues to be a driving force in the organization. Bobcat invented the compact industry more than 60 years ago, and continues to advance the industry with new technologies. Its mission is to empower people to accomplish more with its products and services. Bobcat is doing this in new and innovative ways through a variety of technologies.

Today's customers are looking for better ways to improve efficiency and productivity. As the industry leader, the Bobcat Innovation team is constantly innovating to enhance products with advanced technology, engineering, design and quality.



CORE INNOVATION CAPABILITIES & PRODUCTS

Features on Demand

The Bobcat Features on Demand performance packages are unlike anything else in the industry. With this capability, Bobcat customers can add features to an existing Bobcat machine later — only when they need them. It also allows customers to demo these capabilities before they purchase. This technology is helping customers improve their productivity, increase their machine adaptability and meet the needs of the tasks they need to perform.

Electrification

By pushing the boundaries of what's possible, Bobcat is challenging the preconceived notions about electric compact equipment. In 2020, Bobcat introduced the T76e all-electric compact track loader. A major innovation in the T76e is controllability of horsepower and performance through electronic mechanics instead of the traditional hydraulic and diesel system. The loader will be foundational for innovations that will change compact equipment in a number of ways, from improved productivity and enhanced precision to more intelligent machines that bring new capabilities to the jobsite.

Alongside the all-electric compact track loader, Bobcat has also developed other electrified equipment, including the S70e electric/hydraulic loader and the E10e and E17e electric/hydraulic excavators. Equipped with a durable lithium-ion battery, operators can get a longer runtime between daily charge cycles, supplying steady power before recharge is needed. These new machines will perform the same as diesel models with fewer maintenance needs.

Bobcat MaxControl

Bobcat MaxControl provides users with a collection of new technologies, from operating machines from outside the cab, setting up geofences around objects to avoid during operation and plotting points as a path to follow during semi-autonomous operations.

MaxControl Remote Operation allows customers to use their phones to control their machine remotely through an iOS application. This technology is like an extra set of hands, allowing a multiperson job to be handled by one worker and eliminating unnecessary trips out of the cab.

Doosan Bobcat North America
701-241-8700
info@doosan.com
bobcat.com

BOBCAT.COM



STRENGTH IS ON YOUR SIDE.

Bobcat

One Tough Animal.

When it comes to lift-over-side performance, the NEW R2-Series E88 compact excavator gives you a major leap forward. You'll not only feel more capable when tackling big loads over the side of the tracks, you'll be more capable, too.



Bobcat is a Doosan company. Doosan is a global leader in construction equipment, power and water solutions, engines, and engineering, proudly serving customers and communities for more than a century.

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Doosan Infracore North America, LLC

Equipment designed to dominate, powered by innovation

Doosan Infracore North America, LLC, is a regional entity of Doosan Infracore. Doosan is a strong, stable and global company with a long legacy in infrastructure support. Doosan began manufacturing equipment in 1937 and today is the fifth-largest construction equipment manufacturer in the world.

The full range of Doosan heavy construction equipment includes large excavators, wheel excavators, material handlers, log loaders, mini excavators, wheel loaders and articulated dump trucks. In 2021, Doosan expanded its machine offerings with its newly designed -7 Series wheel loader lineup. The next-generation Doosan wheel loaders include the following models: DL280-7, DL320-7, DL380-7, DL420-7, DL480-7, DL550-7 and DL580-7.

Doosan is a strong, stable & global company with a long legacy in infrastructure support. Doosan began manufacturing equipment in 1937 & today is the fifth-largest construction equipment manufacturer in the world.

CARRY MORE IN COMFORT

Doosan wheel loaders are dependable and versatile machines. An operator can lift, carry and dump materials with just one Doosan wheel loader.

Long days are easier with such cab comforts as an adjustable steering column with ample legroom, easy-to-operate controls and plentiful floor space. A fuel consumption gauge informs operators how much fuel the wheel loader is using in real time. The keypad on the dashboard makes it easier for operators to review, adjust settings and clean and maintain it.

INNOVATIVE & DURABLE DESIGN

Doosan excavators provide exceptional performance, operator-focused comfort, fuel efficiency, unmatched reliability and durability. They are ideal for a variety of digging, lifting and loading applications. Most Doosan crawler excavators have a long carriage design that optimizes performance for heavy digging and lifting. Doosan also offers two reduced tail swing crawler excavators for work in tighter areas.



SALES, SERVICE & PARTS SUPPORT

Approximately 160 dealerships sell Doosan construction equipment in the United States and Canada. Doosan supports its dealers from its North American headquarters in Suwanee, Georgia, and offers parts support through distribution centers in the Atlanta, Georgia, and Seattle, Washington, areas.

Doosan Infracore North America, LLC
678-714-6000
doosansalesandmarketing@doosan.com
na.doosanequipment.com



CONQUERING CHALLENGES.

POWERED BY INNOVATION.

Big or small, Doosan® equipment is engineered to tackle your most challenging work. When working with the experts at your local Doosan dealer, there's no job you can't conquer.

See our full lineup of equipment or find your nearest dealer at DISCOVERDOOSAN.COM/CBO

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DOOSAN®

Powered by **Innovation**

Check 111 on index.

Foundation Software

Continuing to revolutionize construction software

Founded in 1985, Foundation Software has long been a dominant force in construction accounting software. Providing job cost accounting, project management and mobile applications, along with payroll services, Foundation Software helps contractors run the business side of construction.

Since its founding, Foundation Software has released a variety of products and services designed specifically for the construction industry, including:

- FOUNDATION — America's No. 1 construction accounting software — provides construction professionals the tools they need to run a successful business, including job costing, payroll, equipment and inventory tracking and more.
- Payroll4Construction is the payroll service built just for contractors. It helps simplify complex calculations and solves tough construction payroll issues like prevailing wages and union compliance.
- ProjectHQ is a fully web-based project management system built specifically with contractors in mind.

And now, with the recent acquisition of McCormick Systems, a leader in estimating and digital takeoff for the electrical, plumbing and mechanical fields, contractors using the Foundation family of products have more control over their projects than ever before.

FOUNDATION & MCCORMICK SYSTEMS — CONSTRUCTION SOFTWARE BUILT FOR CONTRACTORS

Through the newly enhanced integration between FOUNDATION and McCormick, employees now have one, centralized location to house all pertinent job details. With it, McCormick users can update material lists, item descriptions, unit costs and more by syncing data directly to FOUNDATION.

Using McCormick with FOUNDATION, employees can obtain up-to-date budget and job cost information across all projects. Plus, with everything syncing to one convenient location, contractors can both reduce the risk of human error and increase the accuracy of their data by eliminating the need to enter data multiple times.



EXPERIENCE THE FREEDOM & SECURITY TO WORK RELATIVELY ANYWHERE

Beyond their enhanced integration, the remote accessibility offered by the hosted versions of both FOUNDATION and McCormick allows employees more freedom to securely log in to the same database from anywhere — even if they're not in the same location as their colleagues.

This means that everything stays up to date within the database throughout the day, even if payroll and accounting are working in separate locations than estimators and project managers. Hosted versions also make sharing data easier — and when data is easier to share, tasks and jobs can be completed quicker and more efficiently.

Hosted versions of FOUNDATION and McCormick also provide companies with an added level of security for their data. With vendors making sure Hosted servers and software are kept updated and any potential vulnerabilities are patched, preventing cyberattacks or data breaches becomes easier, especially for contractors without a strict cybersecurity policy in place.

Foundation Software offers dependability to construction companies with the ability to securely access data and work from relatively any location. Foundation Software continues to revolutionize the construction software industry and provide companies the tools they need to operate successfully.

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



Check 113 on index.

FOUNDATION software

foundationsoft.com/cbo | (866) 562-0195

Hino Trucks

Heavy- & medium-duty trucks with a commitment to improvement

Hino Trucks, a Toyota Group Company, manufactures, sells and services a lineup of Class 4 through 8 commercial trucks in the United States. Hino Trucks is the premier heavy- and medium-duty nameplate in the United States, with a product lineup that offers fully connected vehicles with low total cost of ownership, superior fuel economy, unmatched reliability and maneuverability, and the most comprehensive bundle of standard features in the market. Headquartered in Novi, Michigan, Hino has a network of over 230 dealers nationwide committed to achieving excellence in the ultimate ownership experience.

THE HINO TRUCKS CHARTER

To its customers: Hino meets its customer's expectations by providing useful products and services

To its business partners: Hino builds relationships of trust by engaging in open communication, with mutual prosperity as its goal.

To the international and local communities: Hino strives to provide products that are safe and environmentally friendly, pursuing a responsible balance with the environment in all of its corporate activities. Hino strives to contribute to local communities in all the regions where it does business. Hino is devoted to good corporate citizenship, complying with laws and regulations and maintaining high ethical standards.

To its employees: Hino respects each individual employee and strive to create a workplace that fosters personal growth.

To its shareholders: Hino works hard to anticipate changes in the business environment in order to improve Hino's corporate value.

HINO & TOYOTA

In 2001, Toyota Motor Corporation acquired a majority ownership of Hino Motors, Ltd., committing to a vision of global leadership in the heavy- and medium-duty truck market, achieved with regional manufacturing of superior performing trucks.

The Toyota Group's commitment to continuous improvement and team development is why Hino Trucks is the fastest growing medium-duty truck company in America. That commitment also explains why Toyota material handling trucks are the bestselling vehicles in their class and why the Toyota Tundra has earned such a reputation for toughness and durability.

The Toyota heritage of design excellence and superior engineering is reflected in every product in the Toyota Group lineup, including Hino Trucks. All of this, along with a customer-first attitude and socially responsible approach, makes Toyota Group a dependable partner for your business.

Hino represents the Toyota Group in the global market for medium-duty trucks, heavy-duty trucks and buses. Hino uses the Toyota production system to achieve continuing gains in productivity and in quality throughout our operations. The company has adapted that system to its model line to offer customers the best-possible products at competitive prices.

While process is important, people are the key to the Hino/Toyota quality story. Its focus on training, along with the work ethic of our manufacturing team, are responsible for its worldwide reputation for product excellence.

Got a tough job? The Toyota Group has a vehicle that can handle it.



Hino Trucks
248-699-9300
marketing@hino.com
hino.com

HINO TRUCKS
A Toyota Group Company

THE TRUCK IS JUST THE BEGINNING.

POWERON.



When you start up your new Hino truck, our journey with you is just beginning. That's because every 2021MY Hino comes standard with a 5-Year Warranty, 24/7 HinoWatch, and Hino Insight Connected Vehicle Solution. Why? Because taking care of you and your truck is what we call the **ULTIMATE OWNERSHIP EXPERIENCE.**

5 YEAR WARRANTY | HINOCARE | 24/7 ASSISTANCE HINOWATCH | INSIGHT

Allison Transmission 5 YEAR WARRANTY

ONLY HINO PROVIDES A 5-YEAR, UNLIMITED MILE ALLISON TRANSMISSION WARRANTY...STANDARD.

Circle 116 on card.

WWW.HINO.COM

Kubota Tractor Corporation

Do more on your jobsite with Kubota construction equipment

Kubota compact construction equipment is purpose built and designed to help operators do more on their jobsite. The extensive line of Kubota excavators, skid steers, track loaders and wheel loaders can tackle a variety of conditions and challenges, no matter the job and help users stay safe, comfortable and efficient while operating. Kubota equipment is a favorite among seasoned contractors, construction outfits, rental yard owners and weekend warriors alike for its reliability, performance and comfortable operating experience. If you're not familiar with Kubota or haven't had the chance to use its products, here are three ways Kubota equipment can help you do more on your jobsite.

1. KUBOTA CONSTRUCTION EQUIPMENT IS BUILT FOR EASE OF USE AND OPERATOR COMFORT

Kubota puts ease of use at the top of its priority list when designing products. Simple dashboards, ergonomic controls, and comfortable operating stations make stepping into the cab of any one of Kubota's machines a comfortable and enjoyable experience. These features make operating Kubota equipment easier, decreases operator fatigue and increases jobsite efficiency. The intuitive controls also make Kubota equipment more accessible for a wide range of end users. Easier to use equipment means less time explaining how to operate a machine and more time doing the work, with less distractions.

2. KUBOTA COMPACT CONSTRUCTION EQUIPMENT CAN GET MORE DONE ON A VARIETY OF JOBSITES

Whether you're building pools in a new housing development or clearing brush on your property, you can rest assured there's a Kubota model right for you. Take the Kubota compact excavator lineup for example.

It currently features 12 different product offerings ranging from 1 to 8 tons with five reduced tail swing offerings and seven conventional tail swing offerings. Kubota also offers both compact skid steers and track loaders to ensure end users have a machine that can tackle any terrain from hard paved surfaces for skid steers or dirt and turf for track loaders.



3. KUBOTA OFFERS A NUMBER OF ATTACHMENTS TO TURN ONE PIECE OF EQUIPMENT INTO MANY

On top of the wide variety of equipment options, Kubota also offers a number of performance-matched Land Pride attachments. Kubota now offers over 15 different attachment categories, with over 40 attachments in total, for its skid steer and track loader lineups alone.

Kubota compact track loaders and skid steers are the swiss army knives of jobsites thanks to their abundance of quality performance-matched attachments, but other machines like excavators and wheel loaders also benefit from the versatility of their own unique group of attachments. When thinking about how to get more done with less equipment, always be sure to consider attachments.

One final benefit of investing in Kubota equipment is the peace of mind that comes with knowing you're connected to a network of dealers who can help you do more every step of the way, from rental to purchase to maintenance and upgrades.

Kubota Tractor Corporation
888-458-2682
kubotausa.com

Power and durability. The foundation we build upon.



Construction Lineup — Durable Kubota engines — Upgraded tech & features

Kubota

Circle 121 on card.

Get the groundwork right with the Kubota construction lineup. Reliable, comfortable track loaders. Productivity-boosting skid steers. Powerful wheel loaders. Heavy-duty utility vehicles. And #1 selling compact excavators.* All built around dependable Kubota engines. It's equipment built the right way. So you can build your reputation.

Together we do more.®

KubotaUSA.com

EquipmentWatch Highest Retained Value Award** 2021

*According to 2020 data from Off-Highway Research including all Kubota Group brand sales. **Based on the 2021 Equipment Watch Awards for Highest Retained Value and 5-year residual value – Large Skid Steer Loaders. © Kubota Tractor Corporation, 2021. This material is for descriptive purposes only. Kubota disclaims all representations and warranties, express or implied, or any liability from the use of this material. For complete warranty, safety and product information, consult your local Kubota dealer. For the complete disclaimer, go to KubotaUSA.com/disclaimers and see the posted disclaimer.

Progressive Commercial Auto Insurance

Customized protection for all of your business vehicles

As the No. 1 commercial auto insurer in the nation[1], Progressive offers a wide range of commercial insurance options to suit your business needs. From minimum coverage to comprehensive protection, its flexible options make it easy to get customized vehicle insurance. Plus, you can shop a variety of other business insurance products.



Progressive's knowledgeable staff aims to take care of your needs so you can get back to what matters most — your business

Over 700,000 small business owners across the nation trust Progressive to protect their work vehicles. Here's a few of the many reasons you can rely on Progressive for all of your commercial auto needs:

1. *Industry experience* — Progressive has a history of insuring contractors and tradesmen. Experience in your trade allows its licensed agents to ask the right questions and helps you get the right types and amounts of coverage for your business vehicles.
2. *In-house commercial claims adjusters* — Your work vehicles are an integral part of your construction business. Progressive's dedicated team of adjusters has experience in handling commercial claims to help you get back to work fast. Everything's managed in-house, which means you work with Progressive directly, instead of an outside company.
3. *Adaptable to changes in your business* — Your insurance needs will likely change over time. Progressive offers a wide range of coverage limits and options so your policy can be easily updated when you buy a new truck or hire a new employee. It can help you find other business insurance protection, including general liability, professional liability and workers' compensation.
4. *Customizable coverages* — No two construction businesses are the same, so you wouldn't expect their insurance to be the same either. Progressive can customize a commercial auto policy to fit your needs whether you are a seasonal business, tow a trailer or have equipment attached to your vehicle. Best of all, you can make changes to your policy any time.
5. *Ways to save* — Progressive offers several discount and savings options[2] to help you get the quality insurance you need at a more affordable price. Enroll your commercial vehicles in the Snapshot ProView program to save instantly on your premium[3] and have access to vehicle management tools at no extra charge.
6. *Available when you need it* — Progressive is available 24/7 by phone or online, making it easy for you to make policy changes, request insurance certificates or file a claim at a time that's convenient for you. Progressive's knowledgeable staff aims to take care of your needs so you can get back to what matters most — your business.

[1] *No. 1 commercial auto insurer from SNL Financial's 2021 national written premium data.*

[2] *Discounts and coverages may vary and are not available in all states or situations.*

[3] *Enrollment and savings added following online quote. Snapshot ProView is not offered in Alaska, Hawaii, Montana, New Hampshire, Minnesota, Illinois, Wisconsin, Indiana, Missouri, South Carolina, Arizona and New York.*

Progressive Commercial Auto Insurance
888-806-9598
progressivecommercial.com



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United Rentals, Inc.

Everything you need, plus equipment

United Rentals was founded in 1997 and quickly became the world's largest equipment rental provider. Today, the company continues to build on its industry leadership with a best-in-class range of resources and the largest customer service network of its kind in North America. United Rentals deploys $15.06 billion of fleet (original equipment cost) through approximately 1,332 branches, a centralized reservation service and automated online ordering. Its branches are fully integrated through technology, allowing them to collaborate on solving customer needs.

CUSTOMERS

United Rentals' customer base is a diverse mix of construction and industrial companies, utilities, municipalities, government agencies and others. Most of its customers align with two categories: approximately 49% are nonresidential construction, and 46% are nonconstruction, such as industrial. About 5% are homeowners, municipalities and other types. To serve this base, United Rentals employ customer service professionals who have firsthand knowledge of equipment capabilities and site challenges. Their expertise, together with the company's commitment to safety, are compelling competitive advantages.

BUSINESS OPERATIONS

United Rentals serves its customers as a single-source solution, provided through two business segments: general rentals and specialty rentals. General rentals offer construction, industrial and homeowner equipment for rent and related services. Specialty rentals include the rental of equipment and tools for underground construction, temporary power, power distribution, highway safety, climate control, fluid solutions, disaster recovery, tool management, mobile storage and related services. To serve specific sectors of its customer base, United Rentals has a comprehensive national accounts program, industrial specialists and government sales specialists. Additional customer services are provided by the company's centralized, toll-free call centers, emergency response teams and individuals dedicated to larger accounts, such as managed services consultants and single points of contact.



UR WORKSITE

The United Rentals safety culture takes a no compromise approach to loss prevention and safe behavior. Examples of safety initiatives include the company's Injury and Illness Prevention Program, branch safety meetings, driver safety programs and the United Academy training and certification management portal for customers and employees. Total Control is United Rentals' proprietary, web-based rental management software, designed to help large customers reduce equipment consumption, control costs and drive efficiencies.

UR Control is an online rental management platform that provides unlimited access to account details, giving customers the tools to track and control equipment costs and view all rented equipment, even across multiple accounts. With UR Control, users can request equipment pickups, submit electronic (ACH) payments, and access more than a dozen customer-specific reports that support bidding, budgeting and decision-making. Tool Management is a service for capital projects, maintenance shutdowns and turnarounds, whereby an onsite mobile tool room is established to facilitate workflow and enhance accountability. On-Site Shop Services are offered for major capital projects through a centralized, on-site maintenance and repair facility.

United Rentals, Inc.
800-877-3687
marketing@ur.com
unitedrentals.com

DO YOU KNOW CBO'S OUTSTANDING WOMEN IN CONSTRUCTION?



Check out the special section next month!

From GCs to CEOs and specialty trade workers, our November issue will showcase the hardworking female professionals who are advancing the construction industry. The special section will recognize some of construction's best, based on nominations submitted by readers across the country.

For more info on the finalists, visit constructionbusinessowner.com/owic2021.

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One Tough Animal.

YOKOHAMA Off-Highway Tires

Silver Sponsors

e-Mars, Inc.
"Compliance at your Fingertips"

INSITE SOFTWARE
Earthwork Takeoff and GPS Modeling Solutions

Bronze Sponsor

Tradesmen International

CONSTRUCTION BUSINESS OWNER

Yokohama Off-Highway Tires America, Inc.

Galaxy & Alliance tires deliver outstanding performance

For generations, construction business owners have trusted their businesses to Galaxy and Alliance tires — tires that deliver performance, long service life and outstanding return on investment.

Galaxy and Alliance tires are part of Yokohama Off-Highway Tires family, a global manufacturer of rugged off-highway tires that brings together eight production plants and three research and development facilities around the world. Yokohama Off-Highway Tires manufactures nearly 4,000 patterns and sizes under the Galaxy, Alliance, Primex and Yokohama OTR brands.



LOW COST-PER-HOUR

Like any tool, construction tires are an investment in success. A good tire is designed for top performance and manufactured to last. It's durable and easy to maintain. And it's reliable.

Most important when it comes to the bottom line is the tire's cost-per-hour. A low cost-per-hour adds up to a high return on investment (ROI). Delivering a low cost-per-hour is a major focus for the Galaxy and Alliance brands, says Brian Sheehey, Vice President-Marketing for Yokohama Off-Highway Tires America, Inc. Sheehey points to the Alliance 550 radial skid steer tire.

"We're seeing data from customer trials showing the Alliance 550 radial delivering an extra 300 hours or more — more than one-third longer life — than some of the toughest, most scrub-resistant tires on the market," he said.

"The hybrid block design of the Alliance 550, the way the steel radial belts create an even footprint, and the sophisticated tread compound add up to a tire that not only performs on multiple surfaces, but that lasts so long that it sets a whole new standard for ROI on a skid steer tire."

CONTINUED INNOVATION

Among the many benefits of being part of the Yokohama Off-Highway Tires family of brands is the ability to tap into the expertise of our world-class engineering team, which includes some of the best compound formulation chemists and top manufacturing engineers in the world, Sheehey adds.

"We will continue to lead in innovation, manufacturing and field engineering to develop tires to help construction business owners maintain profitability and productivity," he said.

Sheehey notes that a version of the Galaxy Beefy Baby III, which has long set the standard for skid steer and loader tires, has been released for mobile elevated work platforms (MEWPs). Lower-profile, reinforced sidewalls and flat tread configuration add stability, while the bar tread design provides outstanding wear resistance and traction on a wide range of surfaces.

He adds that innovative designs like the Alliance 585 multisurface backhoe/loader tire and other innovations — in bias-ply, radial and solid tires — continue to expand construction business owners' tire options.

"We are committed to the success of the people who rely on our tires every day — a commitment that our tires will not only deliver on the jobsite, but on our customers' bottom line, too," Sheehey said.

Yokohama Off-Highway Tires America, Inc.
800-343-3276
info.usa@yokohama-oht.com
yokohama-oht.com

YOKOHAMA
Off-Highway Tires

www.yokohama-oht.com | 800-343-3276 | @yokohamaohta

MORE OPTIONS.
MORE OPPORTUNITIES.

With the Yokohama OTR, Alliance, Galaxy and Primex brands under one umbrella, Yokohama Off-Highway Tires America, Inc. offers more than ever to the construction industry. More options—4,000 tires and sizes. More traction. More horsepower to the ground. More ways for you to get the most out of your construction equipment.



YOKOHAMA ALLIANCE GALAXY PRIMEX

Ask your tire dealer about Yokohama OTR, Alliance, Galaxy, and Primex construction tires, visit *yokohama-oht.com* or call (800) 343-3276.

Circle 135 on card.



Check 117 on index.

Husqvarna Construction

Manufacturer of equipment & diamond tools for the concrete construction industry



Husqvarna Construction is a world leader in the construction industry. Its extensive construction product range includes machines, diamond tools and accessories for cutting, sawing and drilling concrete, as well as polishing floors and demolition applications.

The company's focus on the equipment's application and the operator means its equipment is not only reliable and effective during operation, but also easy to transport, install, dismantle and service. This difference results in better ergonomics and higher productivity.

In addition to equipment, Husqvarna Construction's diamond tools are developed to work optimally with the machine and operator. Its tool development and machinery development teams collaborate continually to support common development projects. This gives Husqvarna Construction the ability to develop complete systems for diamond cutting and drilling that give the users maximum productivity.

When you partner with Husqvarna, you get an entire system of equipment, diamond tools and accessories to complete the job as efficiently as possible.

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

B2W Software

A unified estimating & operations platform connecting people, workflows & data

As contractors across heavy construction sectors adopt technology to win more work and complete it more profitably, B2W offers an entirely unique option: a unified platform for managing estimating and operations. The company's ONE Platform keeps people, workflows and data connected in real time and includes specialized applications to manage estimating, resource scheduling and dispatching, field tracking and equipment maintenance as well as enterprise e-forms and reporting.

A single database for operational data — such as employee, equipment and job lists — is a differentiating aspect of the platform. The operational elements of the platform use and update this data dynamically, ensuring accuracy and efficiency.

This approach eliminates redundancy and delays inherent in managing and synching disparate software applications. As a result, employees can collaborate across workflows in real time. Enterprise-wide communication, reporting and analytics also enable them to make timely, data-driven decisions.

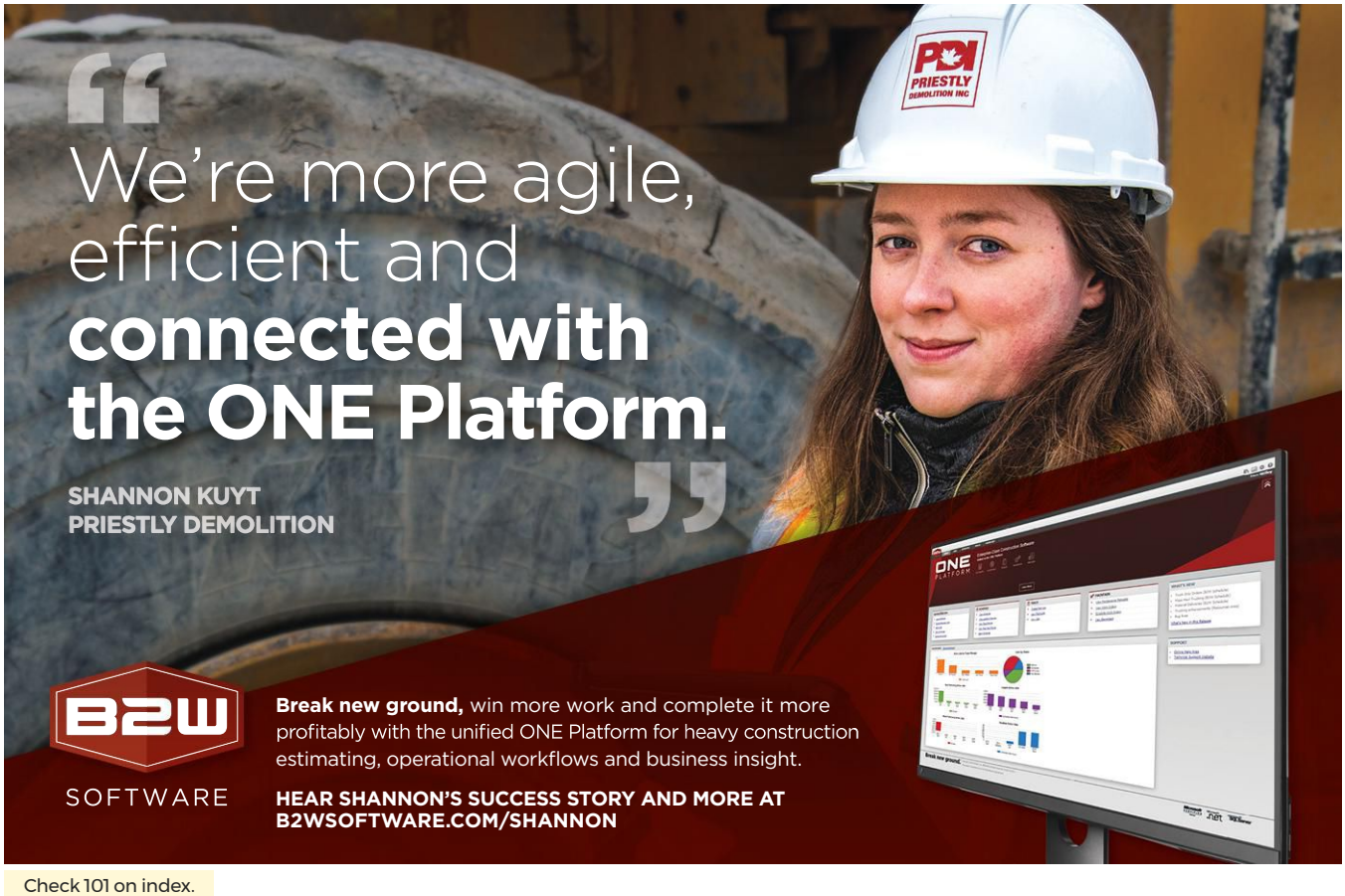
B2W platform applications can be adopted all at once or over time. The



applications are easy and intuitive to use and to deploy in construction environments.

B2W Software was founded in 1993, is privately owned and is headquartered in Portsmouth, New Hampshire. The company has customers in every state and Canadian province.

B2W Software
800-336-3808
sales@b2wsoftware.com
b2wsoftware.com



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Dominion Equipment Parts

Carrier of replacement rubber tracks for almost all makes & models of equipment



Established February 1998, family-owned and -operated Dominion Equipment Parts has been in business for more than 20 years. Dominion has become the OEM provider for Yanmar and Morooka equipment parts, developed its own brand of high-quality rubber track replacements, and is one of the nation's leading track importers, supplying rubber tracks for 38 equipment brands.

Dominion is also a distributor of undercarriage parts for top brand names including Bobcat, Caterpillar, Gehl, Kubota, Takeuchi and Mustang. It is the sole authorized North American distributor of specialized, compact dumpers and concrete trucks manufactured by Fiori. Its geographic range includes the 48 contiguous United States and Canada.

To improve delivery times, Dominion established distribution hubs in Dallas and Cincinnati, then added Jacksonville, Albany and Portland. Each was chosen for its logistical efficiency to give the region's customers same-day shipping with next-day delivery.

Going forward, Dominion is focusing on improving its inventory and distribution capabilities even further, as well as supporting the Fiori Group machines it introduced in 2016. The compact, user-friendly vehicles increase productivity, flexibility and operator safety in confined spaces such as narrow lanes, alleys and tunnels. They are ideal for working in crowded city centers or in environmentally sensitive habitats and valued landscapes with restricted access.

Dominion Equipment Parts
800-365-7260
cunger@depparts.com
depparts.com



Check 110 on index.

eMars Inc.

Users report 80% productivity improvement



One-hundred fifty-six skilled tradespeople are working on the jobsite. Seven trades are represented. Forty-two people from six trades are working overtime this holiday weekend. There are 35 possibilities for each worker to be paid ... incorrectly.

Your accountant is leaving at noon on Wednesday to go to a business function and won't return until next Monday. An incorrect payroll check can lead to a fine or another penalty.

You are leaning back in your chair — at ease — because you have Compliant Client by eMars. Every submitted payroll is audited online, in real time, against the wage determination and all 35 causes that are in support of Davis-Bacon and Related Acts.

This system is a web-based, certified, prevailing wage, accuracy system that requires no installation or maintenance of software. Immediate prompts alert the user how to solve the problems and guarantee compliance.

Designed with input from the Department of Labor (DOL), agencies and contractors, this system is user friendly. Custom plans are designed for each contractor. There are no other charges for renewal, mapping, training or startup.

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MinnPar

Easy-to-find parts help operators get back to the work at hand



Founded in 1982 and based in Minnesota, MinnPar has been a leader in the backhoe and construction equipment parts industry for over 35 years.

With more than 1 million parts sourced online, MinnPar is a source of hard-to-find parts for many well-known brands.

MinnPar offers parts for heavy-duty construction equipment, including backhoes, rough terrain forklifts, aerial work platforms, dozers, telehandlers, scissor lifts and loader landscapers.

As a trusted source for repair shops, excavation and landscaping companies, across the United States, many use MinnPar for preventive maintenance and routine replacement parts.

The online portal allows customers to add additional users, update shipping information and choose from several payment options. The MinnPar website offers machine catalogs and manuals available at your fingertips.

Features, such as the ability to search for a part by brand, part number or machine type, are available through the "Search By Application" option.

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MinnPar is constantly updating inventory to reflect the demands of its customers.

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Morooka USA

Offering the widest range of rubber track carriers on the market, many made in the USA



Based in Ashland, Virginia, Morooka USA has been manufacturing rubber track carriers designed specifically for the North American market since 2012 and is the sole authorized distributor of Morooka carriers for all of North America.

It is the only manufacturer of rubber track carriers located in the United States, enabling it to offer the full line of Morooka Carriers including traditional construction machines with dump beds or flat beds; eight rotators, carriers with an upper house that spins 360 degrees and eight "utility" carriers designed specifically for the utility industry and OEM customers.

Morooka USA Founder and President Ken Byrd said, "Contractors nationwide are really drawn to the Morooka Carrier. The fact that 90% of our products are made right here in America gives them the confidence that they will enjoy safety, reliability and service after the sale. And we like to custom build for our customers. It removes a lot of pain points for them that they don't have to deal with later. Simply put, it means anything you put on a truck, you can put on a Morooka Carrier."

Morooka USA will be at The Utility Expo September 28-30, 2021, Booth E1027.

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cunger@morookacarriers.com
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Check 125 on index.

Stellar Industries

The premier manufacturer of hydraulic truck-mounted equipment



Stellar Industries is headquartered in the heartland, where it has designed and manufactured industry-leading hydraulic truck-mounted equipment for over 30 years. Through a continually growing selection of product lines and an expanding distributor network, its products have gained an international presence and have become the No. 1 choice in many of the markets it serves.

Established in 1990, Stellar Industries was the first United States corporation to design and manufacture a domestic hydraulic hooklift hoist. Since its inception, the company has elevated its standards with numerous products for the construction industry, including market-leading mechanic service trucks and cranes, mobile drawer systems and additional lines of demountable products.

Stellar Industries is dedicated to supplying and supporting the industries that help shape the way the world runs. That's about more than just work trucks. It means elevating your productivity, earning your partnership and being ready to help you grow and change.

As an employee-owned company, Stellar Industries is dedicated to not only it products and customers, but also its employees and surrounding communities. The company contributes its successes to its employees, as their dedication is what has allowed Stellar Industries to become the industry standard for innovation, productivity and support.

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Thunder Creek Equipment

Addressing the challenges of operating off-road machinery with solutions for fueling, management & fleet maintenance



Thunder Creek's parent company, LDJ Manufacturing, was started in the mid-1990s as a small fabricating business. Since then, the Thunder Creek brand has grown as the premier bulk diesel and fleet maintenance solution for construction companies and industrial firms seeking to fuel efficiency with the company's No HAZMAT products.

Thunder Creek was the first to develop a No HAZMAT bulk diesel trailer that does not require the operator to have a HAZMAT endorsement. Additionally, many of its multi-tank diesel solutions don't even require a Commercial Driver's License (CDL), allowing construction companies to save money and time when it comes to maximizing the time of their teams in the field.

Thunder Creek's most popular construction products are its Multi-Tank Trailer, Multi-Tank Oil Trailer, which features a variety of lube and fleet maintenance options and configurations and its Multi-Tank Upfit.

Thunder Creek has an unrivaled attention to detail and a no-compromise approach to quality. When it comes to fit and finish, you can be sure anything that bears the Thunder Creek name is tough enough to withstand heavy, off-road use for many years to come.

Take Thunder Creek's diesel tanks as an example. The company is the only manufacturer to use seven-gauge steel, multiple full height baffles and double welded seams — this is the only way to build a trailer that will work as hard as you.

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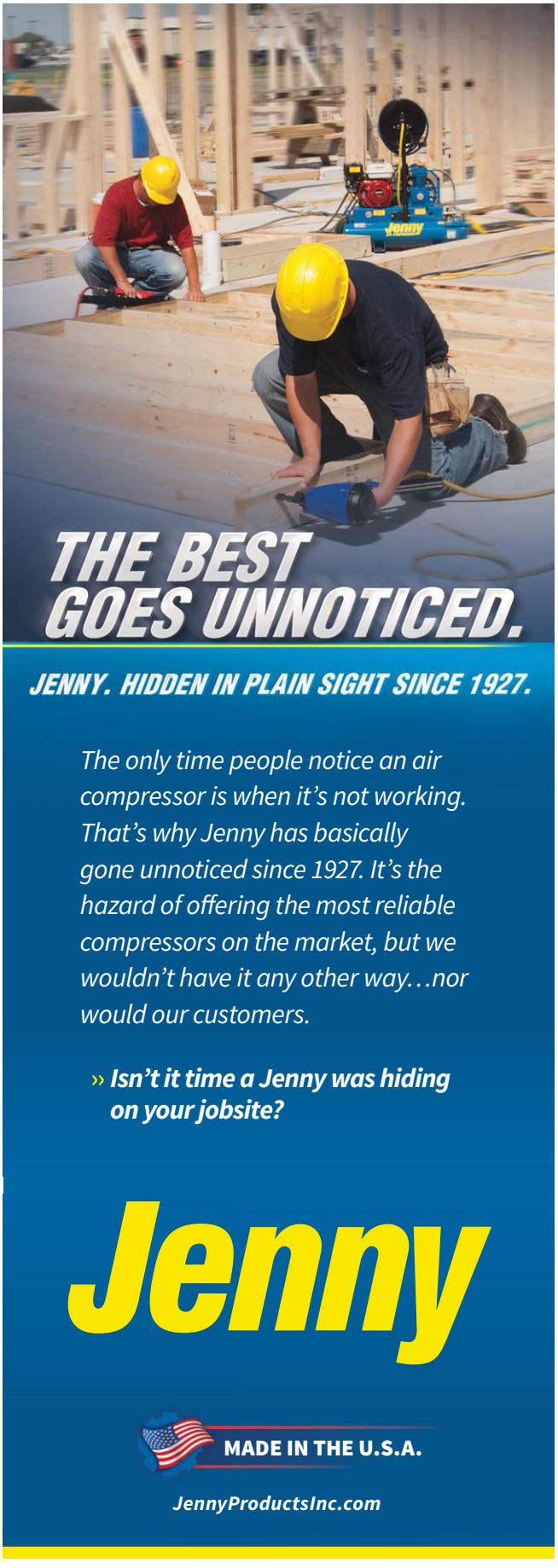

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Jenny Products Inc.

Quality air compressors, American-made for longevity



Jenny Products Inc. has produced durable, American-made air compressors since 1927. Jenny Product's compressors consistently outlast the competition because they use rugged components to construct their products with the goal of providing long-lasting equipment and reliable performance.

Jenny incorporates the newest manufacturing technologies to ensure the highest quality in every compressor. Modern machining processes have contributed to better air compressor pump longevity and performance. A pump's cylinder wall can be machined to achieve bore tolerances previously almost considered unachievable. Specially designed rod inserts on the connecting rod-crankshaft interface help prevent damage to pump components. Rugged, oversize crankshaft bearings further increase durability.

Jenny compressors include simple, but important, features to help reduce maintenance and maximize uptime. Cast-iron pumps and belt drives with large flywheels and special unloading valves provide easy start-ups and extra cooling, while directional air shrouds further reduce pump temperatures. Splash lubrication with Jenny "Ultimate Blue" compressor-pump oil provides contractor-duty protection of pistons, crankshaft, bearings, rings and cylinders.

It's important to recognize that many compressors on the market are not built to the same quality standard. Instead of heavy-duty metal, some components are made of plastic. Grease fittings may not be protected. And some belt-driven units might not fully enclose the belt.

Jenny electric air compressor units have also achieved "UL Listed" designation, signifying they have attained a safety standard not found with most compressor manufacturers.

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Mi-T-M Corporation

Mighty damn good equipment



Today, when cost efficiency and time management are at the top of everyone's minds, many companies are engineering products to better suit their customer's needs — and Mi-T-M Corporation is among them.

The Mi-T-M AGW Series (compressor/generator/welder combination) offers three machines in one, making it the complete on-site workshop for construction, structural steel and equipment repair professionals. With this tool, a job that once required the need for three machines can be done more efficiently and faster.

The series is available with a Mi-T-M 420cc OHV engine, powering both a tank and a base model that features a cast iron two-stage compressor, a generator that produces 5000 watts of power and a 150-amp arc welder. It's also available with a 688cc Honda OHV engine that powers a two-stage compressor, the same robust 5000-watt generator and a 220-amp arc welder.

Tough and dependable, this series offers the versatility of either a 20-gallon or 30-gallon tank model, designed to mount into standard service bodies, or a base-mount model. It is the ideal tool for emergency field repairs in remote locations.

Mi-T-M equipment is designed to deliver dependability, value and quality. The company prides itself on building mighty damn good equipment. It's what sets Mi-T-M apart from its competition.

Mi-T-M Corporation
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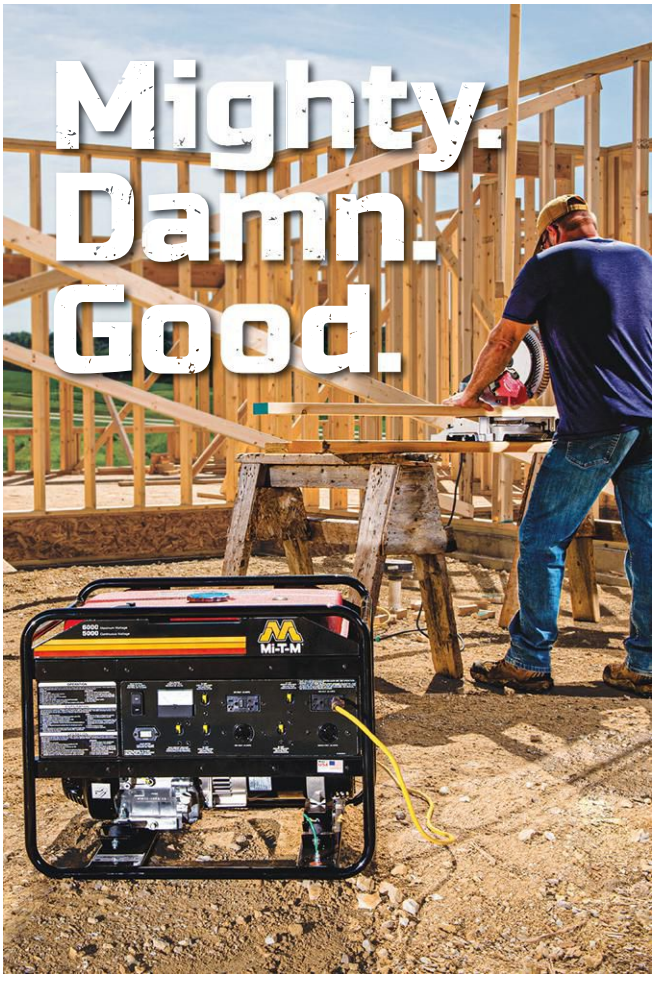

At Mi-T-M, we pride ourselves on building mighty, damn good equipment. It's what sets us apart from our competition. Our industrial line is built to withstand demanding work conditions. When you purchase equipment with the Mi-T-M name on it, you are buying dependable equipment that is designed, built, and tested by good people. Mighty. Damn. Good.

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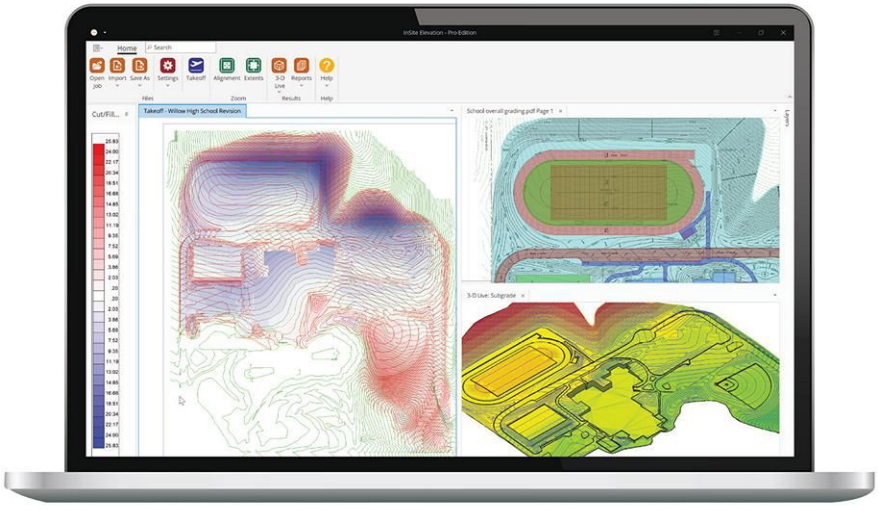

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Legacy Building Solutions

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Legacy Building Solutions provides building solutions for more than a dozen industries and various applications, including military, states/municipalities, agricultural buildings, equine riding arenas, aviation facilities and sports complexes.

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The company's specifications for custom fabric building manufacturing are clear and thorough. Every building component meets quality standards set by Legacy and the appropriate certification agencies. After all components are completed, they are inspected by Legacy's quality control team and then shipped to the building site. Legacy Installation crews arrive on-site to unload the building components and begin constructing.

What makes Legacy different is that it combines solid steel beams together with tough industrial fabric and state of the art corrosion protection in a structure unique to the industry. Proprietary materials and patented processes create a durable structure that lasts for decades. When a Legacy building comes together, it is crisp, clean and beautiful, and the fabric cladding requires no retensioning and minimal maintenance.

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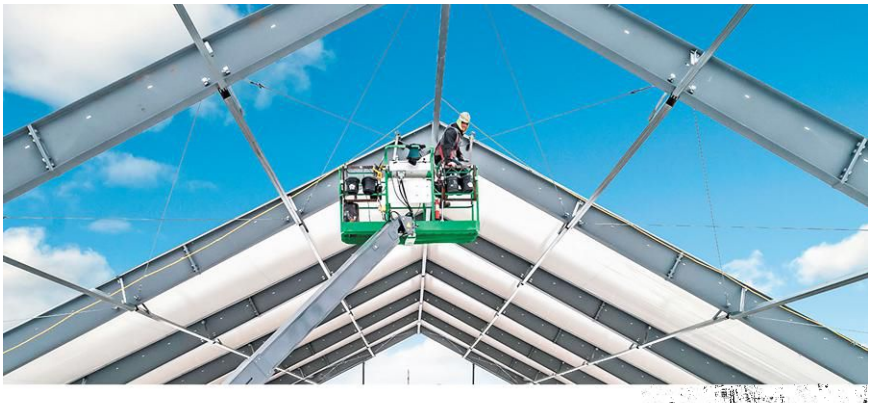

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These words best describe products from Worksaver, Inc. With a history dating back to the 1950s, today Worksaver continues on a path of growth and innovation aided by the latest in computer-designed products and components, increased manufacturing efficiencies, with fiber laser shape-cutting, robotic welding and a commitment to quality.

Worksaver products support contractors of all sizes, large and small property owners and others in getting their work done right. The company's attachments are used in land management, material handling, debris cleanup and more.

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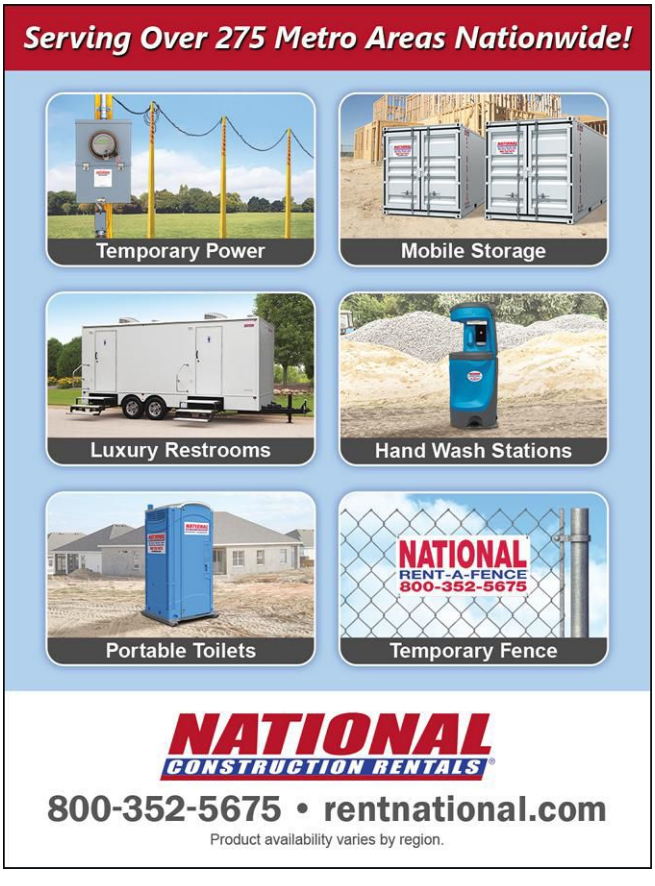

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Incorporated in 1933, the National Lubricating Grease Institute (NLGI) provides resources for the global grease community. NLGI created the High-Performance Multiuse (HPM) Grease Certification Program in conjunction with grease users, including original equipment manufacturers who contributed directly to the process. Greases certified in the program are submitted and tested by a third party to confirm compliance with the HPM performance standard which includes parameters such as wear resistance, structural stability and other critical parameters.

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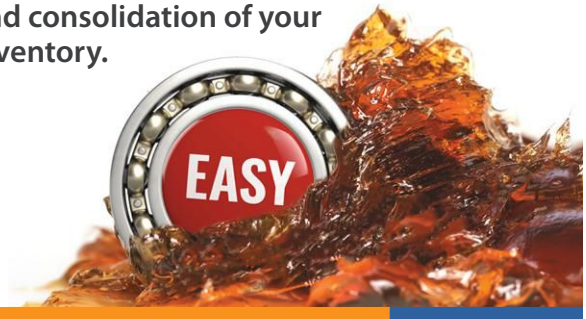

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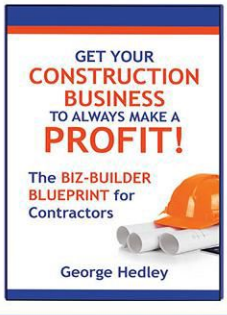

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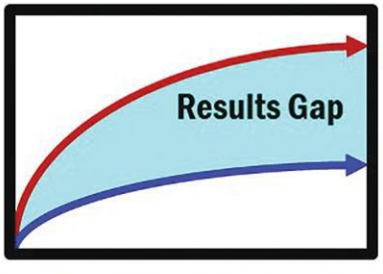

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Why Your Parts Department Is Essential

3 ways to optimize your parts & components for maximum equipment uptime

BY BRITTA KOPP

Your business depends on the reliability of your equipment to increase profit and maintain a robust project pipeline. It's no surprise, then, that when your equipment has a reputation for service and dependability, increased market share and brand reputation will follow. One of the most impactful ways to ensure both your business and its machines are running in top condition is to effectively manage your parts department. Consider the following three ways you can use a parts and components strategy to positively contribute to your bottom line and your growing business.

1. FOCUS ON UPTIME

When you are on the job, that means your machines are doing what they do best: working. One of the best ways to keep that equipment up and running is having a strong parts and components inventory. This ensures you can service your equipment quickly, from routine maintenance to the unexpected, without losing valuable time hunting down a part — which could take weeks in today's environment.

That said, effective management of a robust parts and components inventory simply can't be done well with just pen and paper. By managing your parts and components inventory needs in such an unstructured way, you are leaving a lot to chance — and leaving a lot of potential money on the table. You run the risk of overspending or underutilizing, and facing many other potential issues in between.



When your equipment has a reputation for service & dependability, increased market share & brand reputation will follow. One of the most impactful ways to ensure your business — & your machines — are running in top condition is to effectively manage your parts department.

Instead, consider investing in a smart, user-friendly digital system that shows you and your team exactly what you have on-hand, along with an easy way to search your inventory.

If you haven't already, review your current parts management system and ask yourself:

- Is my current system meeting my needs?
- What's missing from my current system that could be better?
- How comfortable is my team with my current system, and are there training opportunities I need to address?

If you determine your current system isn't working as well as it could be, use this opportunity to explore other options that would create more value and, in turn, long-term profit for your business.

2. BUILD YOUR TEAM'S EXPERIENCE

It's one thing to have all the parts and components your business needs to satisfy project demands. It's another to have a team of dedicated, experienced technicians to service equipment efficiently and effectively.

That skill-building goes beyond simple machine knowledge (not to understate the importance of that, however). Encourage your maintenance technicians to be problem-solvers in all aspects of their role. Help your newer techs understand that they will likely have to address multiple problems a day, and that they aren't just responsible for identifying the issue. Teach them that they will also have to diagnose the cause, develop a solution and implement the solution — typically within a short timeframe.

This solution-oriented mindset is key as the industry continues to innovate. Your business should be embracing tech advancements as assets, and not viewing them as liabilities.

Many solutions are designed to provide valuable insights on equipment usage, upcoming maintenance needs and operator usability data. Use all that information to your advantage to keep your technicians and parts department engaged with your equipment on a deeper level (not to mention making sure your machines operate at optimal health and uptime).

Provide opportunities to your more seasoned technicians to share their leadership and technical expertise. Empowering your whole team and playing to their strengths will set you apart from competitors, who don't provide the same care and attention you do.

3. FIND NEW WAYS TO INCREASE YOUR PARTS REVENUE

If you've been running your business for many years, chances are you have a solid idea of your variable and fixed overhead costs. But if you are just starting out, or if you are branching out into a new market, there are a lot of unknowns that you must quickly work to account for. For example, identifying ways to generate and maintain a profit against your expenses. One of the easiest and most impactful ways to do this is to turn your parts center into a revenue-generating center.

Consider new strategies for increasing parts sales such as gathering more detailed insights to better plan inventory, setting metrics for customer service and simply asking your customers about their parts needs.

In this effort, it's important to also help your team see the difference between making a recommendation and upselling to make sure your customers walk away with exactly what they need, which increases the value they get from your business.

The biggest takeaway for your parts and components strategy is to select a starting point and move forward, being careful to not bite off more than you can chew at once. For example, it will be difficult to turn your parts department into a revenue generator if you don't have a good sense of your inventory.

Think of the above three pieces of advice as building blocks for your parts business and, ultimately, the overall success of your organization. CBO

Britta Kopp is a marketing manager at Doosan Bobcat North America, where she focuses on strategies for the company's digital products, attachments, parts and components. She has expertise in digital product marketing, and a keen understanding of the construction business industry. Visit bobcat.com.



The Military's Project-Management Musts

How before & after action reviews identify project failures & successes

BY PRESTON INGALLS

Having had the opportunity to train thousands of managers and staff over my 30 years as a consultant, I have always emphasized a key approach to project management: utilizing before action reviews (BARs) and after action reviews (AARs). This article will detail the benefits of these processes and how you can start using them on your projects.

The benefits of applying BARS and AARs to your projects are enormous and include more efficiency, fewer surprises and a better end product. However, for all the merit the process can provide those who make successful use of it, it still has the potential for failure if it's not followed closely.

Some of the hurdles to expect from this process include lack of commitment to provide the time, lack of understanding of the advantages, a lack of fully understanding the process and steps, a propensity for taking shortcuts to expedite to "just get it done," being unable to assess the best mix of risk versus reward in examining critical elements, and a lack of contingency planning for the critical elements.

BEFORE ACTION REVIEW

BAR means determining your project's path to completion and anticipating potential showstoppers or bottlenecks that may cause problems. It also means having a contingency plan on reserve in the event of Murphy's law: Anything that can go wrong will go wrong.

Having a contingency plan means you thought through those elements of the project that could be problematic and have a at least a high-level plan in reserve in the event tasks or project elements fail to occur as planned. Here are the key learnings for BARS:

- Learning sequencing of tasks to understand task dependencies, concurrent versus parallel tasks
- Ability to identify critical elements
- Learn to weigh risks based on consequence versus probability — not everything has the same risk factor
- Develop an appreciation of contingency planning
- Anticipate what critical elements could go wrong and develop a Plan B
- Develop at least an outline of a Plan B
- Visually think through the project as a success and then break it down into what made it successful and apply reverse logic to ensure that success
- Learn to think about resource requirements for every single step and the lead times needed for each
- Conduct Critical Reviews for major projects to assess progress and issues



- Use the concepts of the PDCA Cycle (Plan-Do-Check-Act)
- Visual mapping that can show lateral movement or activity — hard to do with a traditional Gantt chart which is too linear

A good approach is to run through the major tasks and elements and conduct a risk assessment using a simple risk grid. A quick assessment of the level of risk established on probability (likelihood based on history or other factors) versus consequence (impact of occurrence). You can see an example of this in Figure 1.

When we speculate the likelihood of something happening, usually from history or a series of events, compared to the consequence of the problem, we can assign it a value on the grid. For example, something with low probability and low impact would be low probability (LP)/low impact (LI) (bottom left quadrant).

However, if it was impactful but not likely it would be low probability (LP)/high impact (HI). Comparing the probability of a fire versus a structural cave-in is an example where both are high impact but one, the fire, is far more likely to occur.

As the probability increases, again you are comparing the consequence or impact. HP/LI would be very likely occurrence but low impact while HP/HI would be likely to occur and significant impact if it did. For those project elements that could fall in the top right quadrant, consider developing a contingency or Plan B.

For example, if a critical path element or task is for a vendor to have a 75-foot bucket truck on a jobsite at 9 a.m. Friday morning and historically he has been late, what is your reserve plan, so people aren't idlily standing around? It was a major task or showstopper, should we have thought of reserve lift equipment?

Do we need a full 75-foot lift or could something shorter work? How quick can we access a backup? Since the vendor has experienced repeated lateness to jobs, should we use an alternate? Should we plan to remind them the night before and early that morning of their commitment and the importance of timeliness?

Remember, this is a HP/HI task, so having a backup could make sense.

AFTER ACTION REVIEW

AAR is a structured review or debriefing process for analyzing what was the mission, what happened, why it happened, and how it can be performed better the next time. This has been used in the military for generations to establish essential lessons after major activities. I recall it being standard modus operandi in our infantry unit in Vietnam in the late 60s and early 70s.

The chief element is the lessons learned or what would I do differently next time. It is important to perform the debrief while the memory is fresh or within 48 hours of completion. Our memories erode quickly, especially with the numerous distractions we face daily.

Completing a solid debrief allows us to identify the repeatables (those tasks that work that we will do again) and the chargeables (those tasks that failed, for whatever reason, that should be altered while your memory is fresh).

Taking corrective action on the chargeables, while the paint is wet, is crucial in making modifications before our memories fade and we are diverted by other tasks and projects. Here are the key learnings for AARs:

- Debrief as quickly as possible after the project — memory fades quickly
- Get those on the front line to provide feedback as much as possible to capture the issues, delays, etc.
- Debrief without judgement — no defense or excuses — just gather the facts and perceptions
- Separate causes from effects — some are symptoms, and some are the actual sources of the problem
- Use a structured approach to determine root causes versus jumping to conclusions
- Two heads are better than one because they bring different perspective and viewpoints — engage others in the post-mortem analysis
- Nothing is sacred — be prepared to address whatever issues caused delays and address them
- Use a form to capture to examine later, you need a permanent record
- Always summarize lessons learned – what did we learn and what will we do differently
- Develop an action plan while your memory and energy are fresh

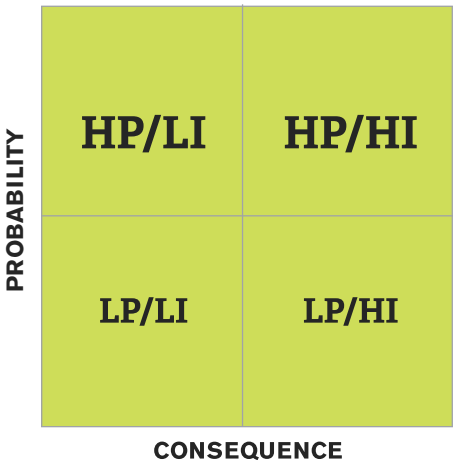


Figure 1. Risk assessment based on probability (likelihood based on history or other factors) versus consequence (impact of occurrence)

Remember, it isn't just planning that makes a great project but, rather, the ability to flex with changes both before and after. CBO

For more than 49 years, Preston Ingalls, president emeritus of TBR Strategies, has led maintenance and reliability improvement efforts across 30 countries for major corporations, including Toyota, Royal Dutch Shell, Exxon, Occidental Petroleum, Mobil Chemical, Skanska, Bayer, Lockheed Martin, Unilever, Pillsbury, Corning and Texas Instruments. He consults extensively with heavy equipment fleets, the heavy construction industry and the oil and gas industry in the areas of equipment uptime and cost reduction. He holds two undergraduate degrees in engineering and a master's degree in organizational development. Visit tbr-strategies.com.



The Case for Cleaner Construction

How to reduce jobsite emissions with propane power

BY MATT MCDONALD

According to data from the World Green Building Council, building and construction are responsible for 39% of all carbon emissions in the world.

Of the 39%, operational emissions account for 28% and the remaining 11% comes from embodied carbon emissions, or "upfront" carbon that is associated with materials and construction processes throughout the whole building lifecycle.

As the fight against climate change continues and efforts are made to reduce emissions across the industry, it's important for crews to implement green building practices and be mindful of the equipment and energy sources being used on project sites.

Fortunately, using propane is a helpful way for construction crews to reduce emissions while meeting all their energy needs on the jobsite. Whether powering jobsite basics like lighting and heating, portable generators, concrete construction equipment, material handling equipment or crew transportation, propane can reduce emissions compared with other options like electric, diesel and gasoline.

A CLEAN, LOW-EMISSIONS ENERGY SOLUTION

Access to clean, affordable energy — like propane — helps ensure equity on the path to zero emissions. Fortunately, propane is abundant, environmentally friendly and can help reduce emissions now. In fact, using propane produces 43% fewer greenhouse gas emissions than using an equivalent amount of electricity generated from the United States electrical grid.

Additionally, propane-powered small-engine jobsite applications can reduce greenhouse gas emissions by up to 17% and sulfur oxide (SOx) emissions by up to 16% compared with gasoline-fueled models, according to data from the Propane Education and Research Council (PERC). Propane equipment also emits fewer nitrogen oxide (NOx) emissions than equipment fueled by electricity, gasoline and diesel.

And when it comes to carbon monoxide (CO) emissions — a significant issue on jobsites across the country — propane can offer a clean, safe alternative to gasoline- and diesel-powered small-engine jobsite



DID YOU KNOW?

According to propane.com, America produces more than enough propane to meet demand. In fact, the U.S. is propane's leading producer. Propane is an abundant "bridge fuel," making it a clean-burning alternative to gasoline and diesel that can address energy challenges while long-term renewable technologies are developed.

applications that are often the culprit for employees getting sick. Most notably, propane-powered applications can reduce CO emissions by up to 50% compared with gasoline models, according to data from PERC. According to the Centers for Disease Control and Prevention (CDC), more than 400 workers die every year from unintentional CO poisoning and more than 4,000 others are hospitalized, and the Occupational Safety and Health Administration (OSHA) notes that one of the most common sources of CO exposure in the workplace is the internal combustion engine.

SUPPORTING HEALTHIER AIR QUALITY

Propane is deemed a clean alternative fuel by the Clean Air Act of 1990, and because of its low-emissions profile, propane equipment can safely operate indoors in properly ventilated areas. Additionally, well-maintained propane engines meet or exceed nationwide indoor air quality standards, unlike gasoline and diesel equipment, so crews won't have to juggle multiple energy sources to complete jobs that require equipment use both indoors and outdoors.

Propane's reduced operational emissions helps support healthier air quality for employees and the community too, which is especially beneficial for projects located in areas that require reduced emissions or near sensitive populations such as schools, hospitals and nursing homes.

THE RISE OF RENEWABLE PROPANE

Propane is already a clean, low-emissions energy solution for a wide variety of equipment and applications, but the good news is it's only getting cleaner. More and more propane will be made from renewable sources in the future.

According to the National Renewable Energy Laboratory (NREL), the potential demand for renewable propane in California alone could surpass 200 million gallons a year by 2030.

So, what is renewable propane? It's an emerging energy source that's a co-product of renewable diesel and sustainable aviation fuel production, which converts plant and vegetable oils, waste greases and animal fat into energy. Produced from renewable, raw materials, renewable propane is even cleaner than conventional propane — and far cleaner than other energy sources.

And becuase its chemical structure and physical properties are the same as traditional propane, renewable propane can be used for all the same applications. CBO

Matt McDonald is director of off-road business development for the Propane Education and Research Council. Contact him at matt.mcdonald@propane.com. To learn more about the benefits of propane-powered construction equipment, visit propane.com/construction-equipment.





Circle 131 on card.

The Rising Interest of Exosuits

This trend in workforce wearables provides a welcome lift to tired workers & heavy workloads

BY MATTHEW MARINO

A few years ago, I worked with a warehouse stocker named John who had injured his back and was looking to return to full duty. His job was important to him because he had a family to support, which included taking care of an adult son with special needs.

Working as a morning stocker, John was on his feet for 8 hours, pushing and pulling pallet jacks full of goods, constantly lifting, bending, and reaching, to stock his aisles before heading home to help his son. It's no surprise that John became one of millions of Americans who missed time at work because of back pain.

John agreed to try using a back-assist exoskeleton while on modified duty. I trained and supported him throughout his transition from modified to full duty. He used the exoskeleton until he no longer had any work restrictions from his doctor, and he was approved for full-duty work. He said he could feel the exoskeleton reducing strain in his back when he was bending and lifting. The assistance truly worked. Then, one day, John returned the exoskeleton. Even though he said it worked, he didn't want to use it anymore.

Why? While there was no doubt that the exoskeleton helped, John said it prevented him from doing his job and moving the way he wanted. He couldn't get close to the items he needed to reach because the exoskeleton interfered. He couldn't move in tight spaces and in between pallets because the exoskeleton stuck out too far around his body and got caught on shrink-wrap.

It helped relieve back strain, but that didn't matter because it got in the way.

RESTRICTIVE WEARABLES FACE AN UPHILL BATTLE FOR ADOPTION

John's story is a powerful lesson: if you are thinking about adopting new technology or new wearables for your construction workforce, physical assistance is not the only important factor. Whether it's an exoskeleton that provides physical support or sensors that promote a safer workday, if wearables prevent construction workers from doing their job how they want to, adoption will be an uphill battle.

That's why comfortable workforce wearables that don't restrict freedom of movement are more practical for many industries, especially construction sites. Construction workers need to be able to quickly adapt to any challenges they face to get their job done, which means they need full mobility, and zero distractions.



Lightweight, soft exosuits that are built to comfortably fit any body type and be worn all day have incredible potential to help workers who frequently bend and lift. Those are also the kind of workers that need protection. The wear and tear from the frequent forces and awkward postures their spines must endure during all that bending and lifting really adds up physically — not only over the course of a single day, but over the course of a career.



EXOSUITS & SMART SENSORS

The good news is there are many new wearables for construction companies wanting to find ways to protect their employees without sacrificing production.

Companies have started using workforce wearables, including rigid exoskeletons, or "soft-shell" exosuits, to lower the forces that increase the risk of chronic pain. Dutch-based logistics company Geodis began using passive exoskeletons for back support in 2017, and DHL published a report saying that soon delivery people "will be using exoskeletons to safely lift heavy weights."

These companies and others are using exoskeletons and exosuits that are already on the market and have been scientifically proven to reduce back strain, fatigue and risk of injury from bending and lifting. But as exhibited in John's story, it's critical that they are comfortable and don't restrict freedom of movement.

There are exosuits being implemented that are specifically designed to provide assistance without impacting mobility or comfort. When it comes to the sensor side of workforce wearables, both Walmart and Toyota are testing devices that alert workers who are engaging in risky movements. These devices collect data to give employers insights into which jobs, tasks or workers have the highest levels of injury risk, so that workplace design or equipment changes can be made to improve worker safety. They also provide feedback to workers to train them to avoid risky postures and movements. The testing found a reduction in injury risk across North America using the sensors.

But while exosuits must give user's freedom of movement to be adopted, sensors have their own user-adoption hurdles: the "creepy factor" that some workers may feel toward data collection – including privacy and workplace-surveillance concerns.

These challenges are being addressed by sensor providers and companies through privacy features, proper training and awareness among workers.

TACKLING AN EXPENSIVE WORKPLACE INJURY PROBLEM

The rise of workforce wearables is exciting because they could help fight a major problem on construction sites: work-related musculoskeletal disorders (WMSDs). The Occupational Safety and Health Administration (OSHA) said WMSDs are frequently the cause of lost or restricted work time and the annual cost from back pain domestically is $253 billion, according to the Bone and Joint Initiative.

Amazon has started to direct financial resources to combat WMSDs with its WorkingWell program and Jeff Bezos has said that the company needs to tackle workplace injuries.

They had reason to emphasize warehouse safety: Amazon recorded 5.6 injuries per 100 workers in 2019, while the (still-too-high) national average for the warehousing and storage sector was 4.8.

Workforce wearables can help protect workers who may be at-risk of suffering WMSDs, which could turn into chronic pain. But a major hurdle in the "War on WMSDs" is enthusiastic buy-in from the construction workers to properly use the wearables.

With stories like John's, adoption will be a much easier if the wearables are comfortable and maintain mobility. To enjoy the assistance of workforce wearables, workers must be willing to wear them. When workers feel comfortable using a wearable and quickly see the difference it makes by improving their quality of life, the way physical work is done can change forever. CBO

Matthew Marino, PT, MSPT, CPE, is director of ergonomics and human factors at HeroWear, a provider of exosuit technology for working men and women. He has been an active member of the ASTM F48 Committee on exoskeletons and exosuits since its inception and a founding partner of the ASTM Exo Technology Center of Excellence. Visit herowearexo.com/ehs.



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.



BRASS KNUCKLE ▶

Crusher Safety Goggles

Released: 7/12/21

Availability: U.S. & Canadian markets

What's new? These safety goggles have specialized channels along the brow line to move water and sweat away from the eyes, while the rubber gasket seals glasses snugly against the face. The gasket also serves as anti-dust protection.

Specs: Not only do the contoured channels route moisture away to help vision remain clear, but it also features proprietary N-Fog Plus anti-fog technology offering superior performance under the highest heat and humidity for a long-lasting, fog-free view.

Check 200 on index.



◀ APPLIED MACHINERY SALES

DBM 3500 Cement Mixers

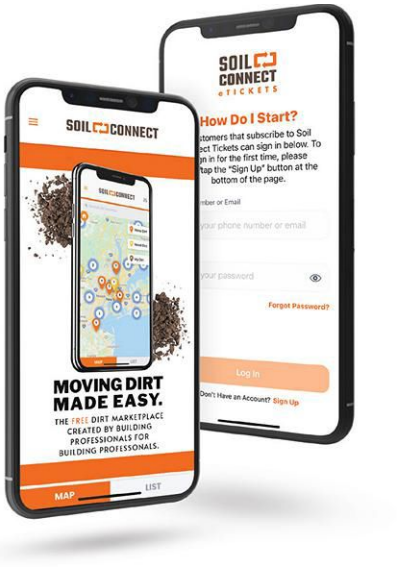
Released: 7/7/21

Availability: Global markets

What's new? The hydraulic water system is composed of a self-priming pump (66 g/min.) with a three-way diverter to the barrel, tank, or the 20-foot hose with washing lance. A gallon counter placed on the dashboard and on-the-ground controls regulate the amount of water delivered into the barrel and the lance.

Specs: This product is a self-contained mini cement mixer. It has a drum volume of 1,321 gallons delivering 4.6 yards of concrete. The self-loading bucket handles up to 25 cubic feet of aggregate at each load cycle. The pump moves 66 gallons of water per minute into the mixing drum, supplying up to 37.7-square feet of concrete to be made in less than 15 minutes.

Check 201 on index.



SOIL CONNECT ▶

Quick eTickets

Released: 8/18/21

Availability: U.S., Canadian & European markets

What's new? eTickets is a contactless, easy-to-use e-ticketing platform designed to eliminate the use of paper tickets and allow users to easily capture customer information, type of truck, destination, pictures, eSignatures, type of material, load count and more.

Specs: Provides a ticket management solution for any industry that hauls and manages loads. Eliminates the human error associated with traditional paper tickets and ultimately helps contractors get paid faster.

Check 202 on index.

GENERAL EQUIPMENT COMPANY ▶

Bor-Max Series earth augers

Released: 8/18/21

Availability: Global markets

What's new? Constructed for maximum durability, the augers incorporate a heavy, steel-walled axle to withstand bending and torque loads. The blade extends past the flighting edge to minimize flighting wear and extend service life.

Specs: The Bor-Max Series earth augers feature an aggressive design, which combines cupped flighting with increased flighting pitch to produce cleaner holes with less spill back.

Check 203 on index.



RADIANS ▶

Radians Collapsible Hi-Vis Hard Hat Shade

Released: 8/18/21

Availability: Global markets

What's new? New collapsible unisex hard hat shade fits most hard hats, including half brim and full brim. The lightweight and generous drape at the back of the neck shields workers' necks from the sweltering heat and the glare of the sun while facilitating the evaporation of perspiration.

Specs: The hi-vis color adds conspicuity during daylight hours, so it keeps workers visible during roadwork, outdoor construction and outdoor maintenance.

Check 204 on index.





◀ HILLTIP

Tailgate-Mounted SprayStriker 65 TR

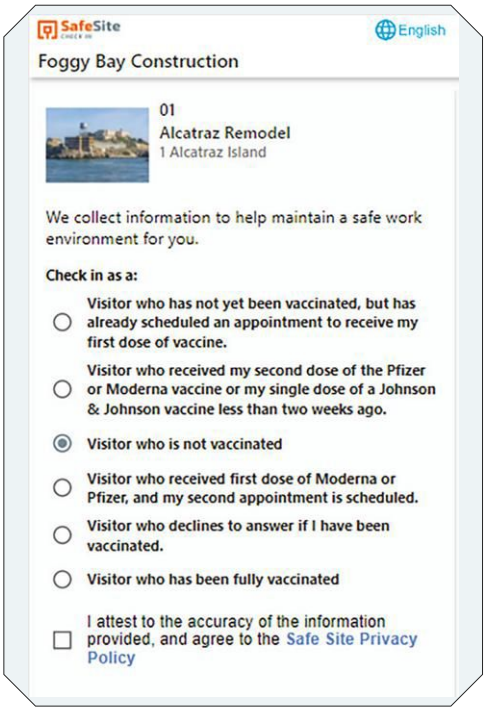
Released: 8/26/2021

Availability: Global markets

What's new? For maximum control and observation of an equipment fleet, all SprayStriker brine sprayers come standard with Hilltip's exclusive HTrack tracking software. This allows for complete remote tracking and management of all sprayers from a computer, tablet or smartphone.

Specs: The SprayStriker 65 TR sprayers are powered by high-performance, 7 GPM, 12V pumps designed for de-icing liquids. They feature high-quality polyethylene tanks and zinc-based, powder-coated mild steel bodies.

Check 205 on index.



◂ SAFE SITE CHECK IN

Safe Site Check In

Released: 8/30/21

Availability: U.S. and Canadian market

What's new? Safe Site Check In's private, QR-code digital check in app now provides general contractors with the ability to securely and privately document proof of COVID-19 vaccination among workers and subcontractors.

Specs: Upon arrival, workers use their smartphone to scan a private QR code and check in. General contractors get double proof of vaccination — they confirm vaccination by asking the question when workers and subcontractors enter a jobsite and then have them upload their Centers for Disease Control & Prevention (CDC) card as proof.

Check 206 on index.



▲ FONTAINE HEAVY HAUL

Xcalibur

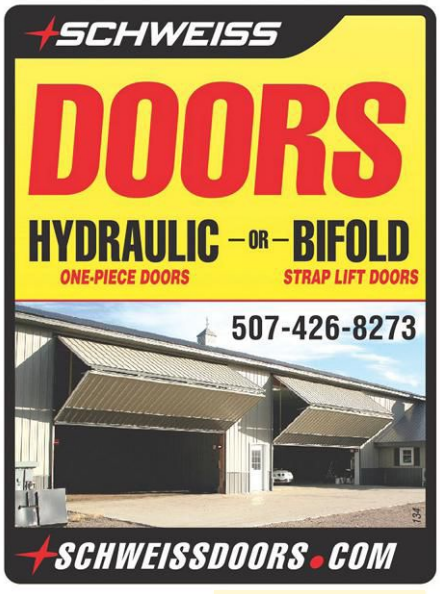
Released: 8/1/21

Availability: U.S. & Canadian markets

What's new? New 53-feet Xcalibur extendable trailers are California-legal.

Specs: The four new Xcalibur extendable models are 53 feet in the closed position and 90 feet fully opened. When the trailers are closed and the sliding axles are in their most forward position, the distance between the kingpin and the rear axle center is less than 40 feet, making these trailers legal to operate in the state of California.

Check 207 on index.



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- ❑ 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)

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- ❑ 11 General Manager, Manager, Foreman, Superintendent, Purchasing Agent, Controller, Accountant
- ❑ 12 Engineer, Architect
- ❑ 06 Consultant
- ❑ 99 Other (please specify)

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- ❑ 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

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- ❑ 07 Concrete and Paving Equipment
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Annual Value of Construction Put in Place

July 2019/2020/2021 Annual Rate Comparison

This chart compares the two previous years' total value of construction put in place to an annual forecast based on July 2021 figures. (Millions of dollars. Totals may not add up perfectly due to rounding.)

	2019*	2020*	2021
Total Private Construction	**1,031,847**	**1,013,460**	**1,231,001**
Residential	550,109	555,273	782,127
Nonresidential	815,934	809,111	786,706
Total Public Construction	**334,195**	**351,105**	**337,833**
Residential	6,279	8,854	9,165
Nonresidential	327,916	342,251	328,669
TOTAL Construction	**1,366,042**	**1,364,565**	**1,568,834**

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

$1,568,834

JULY 2021 TOTAL ANNUAL VALUE OF CONSTRUCTION PUT IN PLACE

"In prior business cycles, architecture firms generally saw their project work soften quickly & then recover slowly," said AIA Chief Economist, Kermit Baker, Hon. AIA, Ph.D. "So, the strength of this recovery is unprecedented. Firm leaders who have leaned into this economic upturn by reinvesting in their firms by hiring staff & upgrading their technology will likely have a better year than those who anticipated a slower recovery."

AIA Architectural Billings Index (ABI)

National			*Regional - Billings				*Sectors - Billings			
Month	Billings	Inquiries	Northeast	Midwest	South	West	Multifamily Residential	Commercial/ Industrial	Institutional	Mixed
Feb-21	53.3	61.2	46.9	49.3	52.4	49.5	48.3	50.5	47.8	52.5
Mar-21	55.6	66.9	50.8	56.5	55.8	52.8	52.6	57.0	54.4	54.9
Apr-21	57.9	70.8	55.0	60.6	58.3	52.4	56.9	59.1	56.70	55.0
May-21	58.5	69.2	54.2	63.4	59.0	57.4	59.5	60.6	57.1	57.9
Jun-21	58.9	71.8	53.2	62.0	57.3	59.7	57.9	61.0	57.3	56.4
Jul-21	58.0	65.0	54.1	58.3	54.6	56.0	54.7	58.4	55.4	54.4

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 3-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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