THE LEADING BUSINESS MAGAZINE FOR CONTRACTORS

NOVEMBER 2023 | CONSTRUCTIONBUSINESSOWNER.COM

CONSTRUCTION® BUSINESS OWNER

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Navigating construction opportunities in U.S. health care projects

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How to maximize equipment accountability



8 OUTSTANDING WOMEN IN CONSTRUCTION

Kassy Slaughter
Head of Construction Education
Procore

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FROM THE EDITOR

MEGAN BEAM



CBO Editor
Megan Beam

Autumn is in full swing, and I am thrilled to introduce you to the special November issue of Construction Business Owner (CBO). This edition holds a unique and inspiring spotlight on some of the most remarkable women in the field, as we unveil our eight Outstanding Women in Construction (OWIC) finalists.

The construction industry has long been recognized for its resilience, adaptability and continuous evolution. Over the years, women have been steadily breaking through barriers and making substantial contributions to this dynamic and traditionally male-centric sector. The OWIC initiative was created in 2019 to acknowledge their exceptional achievements, leadership and dedication. And since then, we've seen the percentage of women in the industry slowly increase, validating that the impact of remarkable women in construction has only begun to be recognized.

Within these pages, you will find the stories of women who have not only excelled in their careers but are still dedicated to paving the way for future generations. Our editorial team has had the privilege of speaking with each of the OWIC finalists, and we are excited to share their personal journeys, professional accomplishments and invaluable advice they have to offer. Their diverse backgrounds and unique perspectives showcase the rich tapestry of talent that exists within construction, illustrating the incredible range of opportunities available to all who are passionate about building the world around us.

In addition to our OWIC finalists, this issue also features an insightful perspective on public mental health construction projects, developments in construction and supplier legislation, and a continuation of marketing audits essential for every industry professional.

We hope that the stories and insights you find in this special November issue of CBO will inspire and motivate you, regardless of your role within the CBO community. We look forward to continuing to champion the achievements of women in construction and to support the industry's growth and evolution.

As always, thanks for reading,



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SPECIAL SECTION

RECOGNIZING TODAY'S LEADING CONSTRUCTION PROFESSIONALS



Photo courtesy of Cory Cullington, Procore Technologies





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Hino Motors Manufacturing U.S.A. Announces New President & COO


Davey Jung

Hino Motors Manufacturing U.S.A. (HMM) Inc. announced the appointment of Davey Jung to the position of president and CEO, and chairman of the board for HMM. Jung joined HMM in 2007 and led the effort to strengthen and grow HMM while serving across a spectrum of critical leadership roles including purchasing, sales, corporate strategy, research and development (R&D), human resources (HR), legal, IT, and supplier preparation and development. Most recently, Jung served as chief operating officer (COO) and executive vice president for Toyota Business for HMM. As president and CEO, Jung will focus on advancing manufacturing and supply chain efficiency while driving the company forward with continued success and innovation. Simultaneously appointed to COO is Masaki Hanayama. Hanayama has excelled in sales, marketing and alliance management at HMM's Japanese headquarters. Most recently, within HMM, Hanayama served as executive vice president and oversaw the truck business, production management and R&D. Hino Motors Manufacturing U.S.A. Inc. is the commercial truck division of Toyota Motors Corp., producing Class 6-7 conventional trucks for the U.S. market. Visit hmmusa.com.

ACPA Announces Pipe School 2024

The American Concrete Pipe Association (ACPA) announced its Pipe School 2024 held Jan. 29 to Feb. 1 in Frisco, Texas, just outside of Dallas. Pipe School brings together ACPA members, department of transportation (DOT)/transportation agencies, consulting engineers, contractors, subject matter experts and various industry personnel to discuss, learn and engage with one another while advancing the industry. Pipe School 2024 will offer attendees more than 70 courses over four days on topics such as resilience, sustainability, installation, inspection, repair, design, production, quality and engineering. Additionally, there will be panel discussions, presentations on pressing transportation issues, and DOT leaders sharing case studies from across the country. In conjunction with the Pipe School, the ACPA will host the 2024 Pipe Show, a three-day trade show that connects producers with vendors and partners. The show is open to all Pipe School attendees and takes place concurrently with Pipe School 2024 from Jan. 29 to Jan. 31. Visit pipeschool.org.

Purdue University to Launch Trimble Technology Lab

Purdue University and Trimble are establishing the Trimble Technology Lab at Purdue, focused on teaching and research for construction management technology. The lab is hosted by the School of Construction Management Technology within the Purdue Polytechnic Institute and will bring Trimble's construction technologies into a dedicated learning environment for Purdue students to learn and innovate. The lab is expected to open in early 2024 and will be part of the institute's evolving footprint at Dudley Hall and Lambertus Hall. The connected buildings, which opened in early 2023, house a mix of Polytechnic and College of Engineering labs, with the goal of fostering an atmosphere of collaboration among students from different majors and departments. Trimble's lab joins other corporate-sponsored labs that provide Purdue students and researchers access to technologies in their industries. The lab will include a broad range of Trimble's geospatial and construction solutions and advanced software solutions. Visit purdue.edu and trimble.com.

Prairie Represents Thompson Solutions Group in Transition to an Employee Stock Ownership Plan

Prairie Capital Advisors Inc., a middle-market investment bank, acted as financial advisor to Thompson Solutions Group in the transition of the company into an employee stock ownership plan (ESOP). Thompson Solutions Group, founded in 1933, is a Midwest electrical contractor and technology integrator that uses advanced technology and innovative solutions to help businesses operate more efficiently, securely and safely. Headquartered in Iowa, Thompson also operates in South Dakota and Nebraska. Prairie worked closely with the management team and sellers, providing ESOP advisory expertise and managing the preparatory, due diligence and negotiation phases of the ESOP transaction, as well as structuring the financing for the transaction. Terms of the transaction were not disclosed. Visit thompsonknows.com and prairiecap.com.

Clinton Francois Promoted to Mi-T-M Corporation Equipment Division Manager


Clinton Francois

Mi-T-M Corporation announced the promotion of Clinton Francois to equipment division manager. Francois joined Mi-T-M in 2016 as a customer service representative and quickly worked his way to his most recent role, assistant rental/equipment division manager. In his new role, Francois will continue building on his relationships and industry knowledge to lead the growth of the equipment division, working with Mi-T-M manufacturer representatives on buying programs, promotions and trade shows. Founded in 1979, Mi-T-M Corporation is an employee-owned manufacturer of industrial equipment located in Peosta, Iowa. Visit mitm.com.

Mitsubishi Logisnext Americas & Jungheinrich Joint Venture Now in Operation

German intralogistics company Jungheinrich and Mitsubishi Logisnext Americas (Logisnext), a North American provider and manufacturer of material handling and innovative automation and fleet solutions, announced the successful launch of Rocrich AGV Solutions

(Rocrich). Marking a significant milestone following the initial joint venture plans announced in June, this collaborative effort strengthens and expands on Jungheinrich's and Logisnext's existing partnership with over 570 Logisnext dealer locations across North America. Rocrich offers mobile automation solutions for warehouses and production facilities with local and regional coverage. Through Rocrich, customers and industry partners now have access to a suite of mobile automation and robotics solutions — spanning all major customer use cases from standard to special purpose AGVs and automated forklifts. In line with Logisnext's and Jungheinrich's commitment to drive next-generation logistics solutions, Rocrich will ramp up operations. Rocrich anticipates adding significant increases in employees across sales, commissioning, installation and aftersales to further enhance the workforce and meet the growing demands of operation. Rocrich will be located at Mitsubishi Logisnext Americas' headquarters in Houston, Texas, with a team of professionals based in Marengo, Illinois, to ensure efficient and effective operations. Visit rocrich.com and logisnextamericas.com.

Kodiak Building Partners Announces Promotion of Jenny Vasquez



Jenny Vasquez

Kodiak Building Partners, a business in the lumber and building materials distribution industry, announced that Jenny Vasquez has been promoted to vice president (VP) of HR. As VP of HR and a member of the company's executive leadership team, Vasquez will oversee a comprehensive array of HR functions, including evaluating the people-related business strategy through a top talent lens. She will concentrate on talent acquisition, engagement strategies, performance management, learning and development, employee relations and organizational effectiveness. Her strategic vision will further amplify Kodiak's commitment to building an agile and adaptable workforce that meets the demands of a rapidly evolving business landscape. Vasquez joined Kodiak in 2017 as HR director and Kodiak's first hire in the HR department. During her career at Kodiak in this position, she has led the mergers and acquisitions HR due diligence and integrations for all acquisitions since 2017 and has been a key player in building Kodiak's HR department and establishing best practices. She is also credited for implementing a new payroll system and application tracking system for Kodiak's headquarters and operating companies across the nation. Vasquez was promoted to senior director of human resources at Kodiak in November 2022. Visit kodiakbp.com.

Brown & Caldwell Announce New Strategy Executive



Ravi Chadha

Brown and Caldwell announced Ravi Chadha has joined the firm as senior VP and chief strategy officer (CSO) as incumbent Jay Patil retires after more than three decades in the environmental consulting sector. With over 25 years of experience leading corporate business strategies, organizational transformations and product/service team management for several Fortune 500 companies, Chadha brings a wealth of knowledge in driving company performance. In executive roles, he has directed change management and business process initiatives to achieve growth objectives for multibillion-dollar revenue organizations in various industries, including strategic consulting, automotive and heavy machinery manufacturing. As CSO, Chadha will develop, implement and oversee Brown and Caldwell's strategic direction. He will work closely with company leadership to ensure the employee-owned firm is well-positioned to sustain its measured growth and build on its reputation in the water and environmental market. Brown and Caldwell is a full-service environmental engineering and construction services firm with 52 offices and over 1,900 professionals across North America and the Pacific. Visit brownandcaldwell.com.

ABC Announces 2023-2024 Tech Alliance Members

Associated Builders and Contractors (ABC) has announced the members of its 2023-2024 Tech Alliance — a consortium of firms that create construction technology and innovative solutions for ABC contractor members, which primarily perform work in the commercial and industrial sectors. Comprised of 15 companies, the Tech Alliance leverages technology resources to help ABC members develop people, win work and deliver work safely, ethically and profitably for the betterment of the communities in which they work. The 2023-2024 Tech Alliance members are Arcoro, Autodesk Inc., BuildOps, ConstructConnect, Egnyte, Field Control Analytics, Kojo, KPA, Procore, Sage, Smartapp, SmartBuild, SubHQ, Tenna and Trimble. The Tech Alliance introduces small and midsized contractors and subcontractors to construction technology solutions for bidding, billing, building information modeling, compliance, connected equipment, customer relationship management, supply chain management, field collaboration, job costing, jobsite monitoring, preconstruction, project management, safety analytics, security, service software, subcontractor management and time tracking, among others. Tech Alliance companies also collaborate on resources for ABC members, including beta testing, free technology programs and educational webinars, and provide ABC's 68 chapters with access to technology products used in the field by ABC contractor members. Visit abc.org/techalliance.

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How to Stop Profit Margin Fade

Addressing the biggest challenges facing business owners



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 Associate Editor Carmen Capoccia at ccapoccia@cahabamedia.com.

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The No. 1 challenge many contractors face is profit shrinkage or profit margin fade. This recurring problem occurs when the final construction project job cost finishes higher than the bid estimate or budget. The result is a lower profit margin than expected, or profit margin fade or shrinkage. Estimators generally price projects using bids from their regular subcontractor and suppliers, plus their standard company production crew rates for labor and equipment. Then completed jobs often cost more than their estimated bid budgets. As a construction company business coach, I see numerous contractor income statements every year.

My initial contractor clients also experience profit margin fade on a regular basis. For example, they tell me they bid using a 15% markup for overhead and 10% for net profit. But when I review their profit-and-loss income statement (P&L), it's not unusual to find they're actually making 5% to 10% less than the total bid markup they used to bid projects with. They generally don't know why or where they lost some profit margin. Shrinkage can occur for many reasons.

20 Causes of Profit Margin Fade

1. *Inaccurate crew production rates* — Prepare your construction estimates using unit prices for labor and equipment production based on actual cost history of the quantity of items installed per hour. Together the estimator and field superintendent or foreman should agree on the total hours required to do all the work before the bid is finished and turned in.
2. *Update cost history* — The final step after projects are completed is to review the final job cost to determine if the estimate and budget were accurate. The estimator must verify the labor and equipment production bid rates used were accurate versus the final job costs. Look for reasons the final job costs were different than the budget, and determine adjustments required to bid future projects accurately.
3. *Gut feel production rates* — The estimator often guesses how many hours the crew will take to complete a task. This is not a great method to develop accurate estimates.
4. *Rule-of-thumb bid rates* — The estimator uses what I call the "mystery method" of bidding. This occurs when he uses a standard lineal foot price to bid work. For example, to form, pour, finish and install a 5-inch-thick concrete slab, they estimate $7.50 per square for total labor, equipment and material versus calculating the exact production labor, equipment and material required.
5. *Inaccurate crew and equipment rates* — Verify your current labor rates with the correct burden and fringes including taxes, social security, workers' compensation, health insurance, vacation, small tools, safety and training. In addition, your equipment and vehicle rates must include return on investment, depreciation, insurance, maintenance, etc. Equipment is never free as it is an asset, and you should make a return on your investment, plus pay for all the costs of ownership.
6. *No crew goals or tracking* — After your company is awarded a contract, the

project team must meet to plan the job, determine the number of production hours required versus the budget, and what the crew needs to do to hit the goals. Get the estimator together with the project manager, superintendent and foreman to review the estimated budget and reformulate it to match reality and what the team can commit to accomplish.

7. *Inaccurate general conditions* — The estimator uses a percentage adder to cover required general conditions including project management, supervision, vehicles, temporary facilities and utilities, cleanup, mobilization and liability insurance in the estimate. Because of the many variable details in the duration of a project, percentages for general conditions rarely prove effective.
8. *Proposed schedule wrong* — The estimator underestimates the schedule or time required to perform the work and then the overall project takes longer to build than estimated. Or, field crews go slower than the time estimated to complete the work, causing the overall job costs to increase above the hours budgeted in the bid. When schedules extend beyond the budget, the crew costs increase as well as equipment, rentals and general conditions.
9. *Late material delivery and price increases* — The estimator didn't make sure all suppliers could deliver the specified materials to the project when required, and the prices were firm though project completion. Late delivery and price increases can cost large sums of money.
10. *Slow procurement* — The project manager didn't award, procure, write, and get all subcontracts and major purchase orders awarded and executed in a timely manner. Without procurement complete within 30 days of job start, often prices increase, subcontractors win other work and are unable to handle this project, and contractors then can be required to award work to a higher priced subcontractor or supplier.
11. *Contract terms overlooked* — The estimator was too busy to read the specifications and missed several important clauses including payment terms, retention, what's allowed to be charged in change orders (project management, supervision, crew foreman, etc.), allowable change order markup, change order crew rates, delay clauses, liquidated damages, etc. Many clauses can cause loss of profits if not clarified prior to signing contracts.
12. *Missed items left out of self-perform work* — The estimator misses several items or project components required to complete the scope of work contracted for such as traffic control, surveying, engineered backfill, asphalt replacement or testing.
13. *Incomplete scope of work* — The contractor awards contracts to subcontractors and suppliers based on their bid price, scope, inclusions and exclusions without verifying they have everything included and required to complete their scope of work and the project.
14. *Late submittals and shop drawing approvals* — When project managers don't prioritize getting approvals in a timely manner from their subcontractors, suppliers and customers, projects can get significantly delayed.
15. *Inefficient workflow* — Field crews are unable to be efficient, which can be caused by factors beyond your control, including poor supervision, little or no pre-project planning, unanticipated weather, project start and stop delays, several unanticipated additional move-ins, out-of-sequence work, lack of proper scheduling, bad weather, slow approvals or other things that often occur in the field.
16. *Overtime* — Crew works too many overtime hours. The crew foreman was not provided the budgeted overtime hours allowed in the bid. In addition, foremen get pressured into letting the crews work overtime to increase their hours and pay without regard to job budgets.
17. *Jobs not finished* — When crews leave their job before they are 100% complete in their current work phase, they'll eventually have to come back to finish. Excuses cost contractors thousands of dollars every year. Get things done now before moving on to another project.
18. *Incomplete punch-lists* — When crews leave jobs without drafting their own punch-list and completing and correcting their poor incomplete work, it will cost extra money to come back and finish it later.
19. *Undocumented change orders* — When change orders are not signed or approved in writing prior to contractors performing extra work, there's a 50% chance they'll get paid in full for the cost of the additional work. Enforce the change order rule, and you'll eliminate profit margin fade.
20. *Project manager doesn't manage job properly* — Project managers are 100% responsible to complete their projects on-budget without profit margin fade. Much of all profit margin fade can be attributed to the project manager's performance of their role, responsibilities and accountabilities.

To reduce profit margin fade takes a commitment to plan, hold meetings, calculate your job costs every week, keep your field supervisors informed and dedicate the time required to keep your projects jobs on budget. ▲

ConstructionGPT

Artificial intelligence as a force multiplier



GREGG M. SCHOPPMAN is a partner at FMI Corporation, management consultants and investment bankers for the construction industry. Schoppman specializes in the areas of productivity and project management. He also leads FMI's project management consulting practice. Prior to joining FMI, Schoppman served as a senior project manager for a general contracting firm in central Florida. He has completed complex construction projects in the medical, pharmaceutical, office, heavy civil, industrial, manufacturing and multifamily markets. He holds a bachelor's degree and master's degree in civil engineering, as well as a Master of Business Administration. Schoppman has expertise in numerous contract delivery methods, as well as knowledge of many geographical markets. Contact Schoppman by email at gregg.schoppman@fmicorp.com. Visit fmicorp.com.

There was a recent account of a mother using ChatGPT to solve a baffling medical condition that had befallen her son. She had consulted numerous physicians and received a litany of possible ailments. Finally, in a last-ditch attempt, the mother entered all of her son's symptoms, medications, reports, etc. into ChatGPT, and the tool returned the correct diagnosis. Before all the readers decide to become armchair physicians, this was probably a unique confluence of leveraging technology and hitting the Powerball lottery. We have all gone online to investigate a bum knee or random back pain, only to leave thinking we have the Ebola virus. This is also not an indictment on the medical community since the boy's condition was apparently extremely rare and, more importantly, the individual doctors did not necessarily have the benefit of each of the other specialists as well as the entirety of the medical community. However, the real lesson for everyone to latch onto is the potential power of artificial intelligence (AI).

There are certainly plenty of arguments for and against AI in all aspects of society. This is not a commentary on ethics or how machines may become sentient at some point like a frightening science fiction trope. However, there is an interesting parallel for all businesses to consider — social media.

Over the last two decades, the world has seen rise of social media such as Myspace, Facebook, Instagram, LinkedIn and X (formerly known as Twitter). As with every new advancement, there were the early adopters who flocked to these tools and published their life chronicles with incredible fervor. Conversely, there are still businesses — since this is the lens we are using to define adoption — that fail to update their website with regularity and bristle at the thought of using social media. While this technology tool set has continued to evolve, the majority are finding a sweet spot on leverage. For many, there was the classic question of "How do we monetize social media for our firm?" Put another way: "Will we get a project or client because we are posting on LinkedIn or Facebook?" This has evolved to a more holistic approach to brand management, employee outreach, future employee connections and possibly business development/sales.

Fast-forward to the age of AI. There isn't a day that goes by without an article, white paper, interview or advertisement extolling the virtues of AI. There is no shortage of early adopters who see this as a force multiplier, while others defiantly proclaim that Skynet will never run their businesses (thank you, James Cameron). The right answer is considering this an evolution, not a revolution.

For all the great medical stories like the one previously mentioned, there



are plenty of AI mistakes and gaffes. Just as the machine is learning, humans are realizing that human intuition and emotion are not easily replicated by a microchip. For instance, the medical diagnosis that ChatGPT returned still needed to be evaluated by a real physician with real medicine. Put another way, artificial intelligence returned a potential solution for the boy, but doctors had to apply their knowledge to enact the solution. Even with the most evolved estimating software, a smart estimator should be analyzing and strategizing appropriately. The operative word is leverage. AI has the ability to examine an infinite number of solutions quicker and provide a potential answer. Consider the following applications:

- *Change order root causes* — When working with specific designers, are there specific change order root causes that are more frequently attributed to errors, omissions, etc.? Are there items that seem to be routinely missed in specifications when working with specific teams?
- *Work orders/client management* — Are there reports that are "client facing" that seem to lack a certain level of professionalism? Put another way, are field leaders challenged to generate a meaningful and powerful service ticket that "sings"?
- *Proposal management* — Are proposals not resonating with specific clients? Would a fresh approach to developing a real project value proposition be a game changer?
- *Cost analysis* — Is there margin erosion across projects or business units, but a lack of clarity on where the loss is occurring? Put another way, other than the one-off "we left the entire switchgear package out of our bid," what is the source of the million paper cuts that plague a firm's ability to make money?
- *Culture* — Does the firm routinely survey its employees but fail to make sense of the data output with any level of accuracy? For instance, is one of the weaknesses "bad communication" but no real explanation of what this really means to the business?
- *Job/role clarity* — Does the organization have a real handle on what people should be doing in their roles based on the strategic direction of the business? For instance, does the organization have the standard project manager job description, but often hears things like: "But I do so much more, because we are different at Brand X Construction … "?

It is important to note that ChatGPT does not have all the answers to every question like a magic eight ball or mystical mirror. ChatGPT just happens to be the inexpensive alternative to a very crowded marketplace of construction-specific tools. Estimating software, drone technology and design tools are quickly adapting applications that provide the next evolution in artificial intelligence. The answer for businesses does not mean a wholesale subordination of the management of the firm to a mainframe, but careful exploration in how these tools can provide leverage, support the professionals in the firm with critical analysis and ultimately drive better decision-making. While we shouldn't expect AI to sit in on tedious owner meetings, firms can leverage the tool to do the tedious work to allow our professionals to be greater contributors to project delivery. ▲

Constructing Clarity: The True Cost of Your Equipment & Its Business Value

Grasping your expenses & their impact on cash flows, budgets & bids



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Equipment, machinery and vehicles are essential tools to nearly all contractors and continue to be a significant expense on most of their income statements. Like labor and materials, the costs of purchasing and maintaining construction equipment have also been affected by ongoing supply chain issues and inflation. In fact, in the new 2023 Marcum National Construction Survey, 37% of construction companies say they may delay purchasing equipment because of interest rates. If the sticker shock and long lead times related to new equipment purchases are not bad enough, used equipment prices are also at an all-time high, and availability is spotty at best.

In addition to the purchase price of a piece of equipment, a variety of other cost components need to be considered to determine the true cost of that piece of equipment and the effect it will have on the company. Knowing how to calculate the total cost of each piece of equipment is essential when projecting the cash flows of the company and budgeting for future years of operation. By better understanding all the costs associated with equipment ownership and operation, contractors can improve budgeting, job costing and projections and apply more appropriate estimates when bidding on new contract opportunities.

In general, two main categories of costs need to be considered: ownership and operating costs. Ownership costs represent the costs associated with the initial purchase and continuous ownership of the equipment. Operating costs represent the costs of using the equipment throughout its estimated life.

Most ownership costs are straightforward, but at times there are some costs that do not appear on the bill of sale that may be overlooked. Some common ownership costs are as follows:

- Purchase price
- State and local sales taxes
- Delivery fees
- Financing costs
- Other improvements to operationalize the equipment include GPS systems, attachments, company paint and logos, etc.

These are the costs involved with taking possession of the equipment. Other costs of equipment ownership that are often overlooked in the initial purchase price include:

- Insurance costs
- Annual property taxes
- Extended warranty cost

Operating costs must also be considered when determining what a piece of equipment truly costs. These include but are not limited to:

- Operator costs (wages, benefits, matching contributions, union benefits, employer payroll taxes, etc., per hour)
- Fuel costs (cost per gallon and how many gallons are used per hour of operation)
- Routine maintenance costs — internal and external (daily, weekly, monthly and

annual maintenance items should be considered)
- Lubrication costs
- Major repair allowances
- Transportation and storage costs
- The cost of other consumables utilized during the year (oil, fluids, wear parts, etc.)

The items listed above represent a high-level overview of some common ownership and operating costs that should be considered when working to better understand what a piece of equipment costs. However, these costs will vary drastically based on the equipment type and proposed use. Also, inflation must always be a consideration. At a minimum, a company should assume and allow for increases in the cost of labor, fuel and parts over the useful life of the equipment.

With the ownership and operating costs of a piece of equipment identified, a contractor can now estimate what that piece of equipment truly costs to use once they answer a few additional questions. Those questions are:

1. What is the estimated useful life of the equipment with the company?
2. How many hours will the equipment be used each year?
3. Once the equipment has reached the end of its useful life with the company, how much will it be worth?

With the information gathered, a contractor can now calculate what each hour a piece of equipment is running costs, and this "rate" can be used to assist with bidding, job costing and projections. A best practice to consider when thinking about equipment usage reporting is to treat each piece of equipment like an employee from a costing and budgeting standpoint. Employees are budgeted onto contracts at a standard hourly rate, and equipment should be treated similarly to capture all costs.



This process represents the first steps to consider in determining the true cost of a piece of equipment. By going through this process, a contractor should be able to make better decisions related to currently owned equipment and when considering the purchase of additional equipment and budgeting for their use. Based on a company's size, type of construction performed, geographical location and other factors, further information to be taken into consideration may include:

- *Location and use* — A piece of equipment utilized full-time in the Arizona sun and heat will age and depreciate at a different rate than a piece of equipment that will be used part-time in middle Tennessee. This is a critical consideration for contractors operating in multiple states or regions with varying seasons, weather, and operation windows.
- *Ability to lease unused equipment* — If there is a risk of equipment going unused, is there an opportunity to lease this equipment to third parties? When managed properly, this option may help reduce the overall cost to the owner whenever the company utilizes it. However, it can also lead to higher inspection, repair and maintenance costs before the company can put it back into use for themselves.
- *Cost of renting versus owning* — A company may determine that renting a piece of equipment is more cost-effective than owning it. It is very common in the case of some specialty equipment that companies determine that owning the equipment may not make sense due to low estimated utilization.

It is readily apparent that there is much more to the cost of a piece of construction equipment than what is paid to purchase it from a dealer or at an equipment auction. By performing an analysis of the costs to own and operate a piece of equipment, a contractor will better understand the total cost of the equipment over its lifetime. Contractors with this knowledge can use it to calculate an appropriate hourly rate for allocating these costs to their construction contracts. This will help the company better manage its cash flows, estimate future budgets and forecasts, and produce more competitive bids for future contracts. ▲

Rebuilding Mental Health: a Blueprint for Ambitious Public Projects

Construction opportunities abound for health care facilities throughout the U.S.

BY MARY SCOTT NABERS

Billions of dollars are available throughout the country for new health care facilities, many of which will be designed to provide mental health services. The needs related to behavioral health are great in America, and the number of individuals waiting for services and support is escalating at alarming rates. Because of that, the upcoming launches of these types of construction projects will be significant.

Many of the new facilities will also be designed to support law enforcement needs. Too many individuals with behavioral issues that should be addressed through health care land in jails instead. Current jails and detention facilities are not equipped to provide support or health care services. The result has been tragic, and the hope throughout the country is that new facilities will be able to provide care and rehabilitation for thousands of individuals in dire need of attention. Examples of upcoming projects follow, and similar opportunities can be found in almost every state.

City officials in Kansas City, Missouri, have announced plans for a $300 million project to construct a new psychiatric hospital that will provide services for the western half of the state. It will relieve stress on the 20-year-old Center for Behavioral Health facility that currently provides services. The need for additional behavioral health services has been so lacking that many inmates have had to remain in jail rather than get support. No timeline has been announced for the contracting process.

A new jail and health facility will be constructed in Oklahoma County, Oklahoma. The project has a projected cost of $260 million. The selection of a location is ongoing, with numerous sites under consideration. County commissioners are expected to finalize a location decision this fall. The new facility, which is currently in the design phase, will have space for medical and mental health care services, in-person visitations, diversion programs, classrooms for education and job training programs, and on-site courtrooms. Contracting opportunities are slated for 2024.

Two new mental health facility projects will be launched in Sacramento County, California. The cumulative cost projection has been pegged at somewhere between $22.8 million and $23.5 million. A new crisis stabilization and psychiatric health facility for youth is planned, and a county-owned facility in the Rosemont area will be renovated to be used as an overnight psychiatric health facility. The county will also build an adult rehabilitation facility on vacant, county-owned land. This new facility will increase the capacity by an additional 64 beds. It will be designed to provide support and services for adults exiting acute mental health care facilities.

An $81 million project will deliver new mental health offices for the Santa Rita jail in the city of Dublin, California. The objective will be to increase the available support related to mental health care for inmates. Currently, the project is in the design phase. It will include clinical treatment rooms, classrooms and space for mental illness services. Behavioral health care staff will have offices on the second floor, and a small section of the new facility will be structured for community-based organizational staff. Contracting will begin as soon as the design phase is completed.

A new regional behavioral health care center will be built in Texas at a location between the cities of Odessa and Midland. The projected cost is $40 million. When completed, the new facility will deliver 100 new beds for individuals to receive treatment. Currently, the project is in the design stage with completion expected by late 2025. The Texas Facilities Commission, a state agency, is responsible for oversight. The new facility will be located near The University of Texas Permian Basin's campus.

A large $228 million project to construct a mental health intake facility will soon be launched in Macomb County, Michigan. Funding was approved in June of this year. The new facility will be attached as an extension of the jail, and the project will also include some renovations and upgrades. The new building will be designed to provide mental health assessments and services for inmates. It will also provide an additional capacity for 210 beds and deliver space for services. Construction will begin as soon as the design phase is completed, but the effort is expected to take several years to complete.

Another new inpatient mental health facility in Texas received $40 million in funding from the 88th Texas Legislative

Stepping Up to Do Right in Portland

A minority-owned Oregon contractor grows by helping the underserved

Raimore Construction of Portland, Oregon, is blazing a trail for minority-owned businesses.

Begun in 1999, the black-owned general contractor is a federal- and Oregon-certified minority-owned business (MBE), and 80% of its employees, including leaders and supervisors, are minorities. Raimore makes giving back to the community a priority.

"Construction is an industry where minorities can make a living wage, move up and start their own businesses," says Jeff Moreland, Raimore principal. "We want to see others succeed and are doing what we can to help them."

Oregon recently awarded Raimore its largest-ever Disadvantaged Business Enterprise (DBE) contract — a $70-plus million project for TriMet, Portland's public transit authority.

In addition to adding new streetlights, crosswalks, bike lanes and concrete island barriers, Raimore would construct or rebrand 81 bus shelters along a 15-mile section of Portland's Division Street. Parts of the street had long been dangerous for pedestrians and bike riders.

To get the contract, Raimore faced challenges:

- Although the contractor had a solid 20-year working relationship with TriMet, the scale of this project significantly exceeded others it had completed for the transit authority.
- The project would be a big step for Raimore. To date, the contractor's largest bonded project was only $8 million. It needed to add company value and experience.
- Raimore and its bonding agency, Propel Insurance, wanted to work with Old Republic Surety, because the surety "knew our business and how we work," says Moreland. But the project would require a larger bond than Old Republic Surety had ever written.

Teaming up with Old Republic Surety

Old Republic Surety believed in Raimore, and Darrel Lamb, regional vice president for the surety, saw a path to help make the project happen:

- Old Republic provided benchmarks to enable Raimore to increase its net worth, so it could take on a larger project financially.
- Raimore hired Bill Bruce, a highly regarded project manager for light-rail projects, to help address its need for greater experience.
- Old Republic determined that the 81 shelters were similar in scope and design to those Raimore had already completed under many smaller contracts, mitigating risk.

What has been the outcome?

- Portland has improved the safety and accessibility of its busiest transportation corridor.
- Raimore received TriMet's Legacy Award for the firm's historic contracting work on the Division Transit Project.
- Raimore is a stronger business that no longer needs DBE assistance — thanks to its own hard work, the persistence of its bonding agency and the help of Old Republic Surety. The TriMet project was profitable for the contractor, and the profits stayed in the firm.
- Raimore was able to help the Portland community while providing even more jobs for its minority populations.
- Old Republic Surety has strengthened a valued relationship and, ultimately, underwrote $82.2 million in bonding for the TriMet project.

Don Shanklin of Propel Insurance applauds Old Republic Surety for agreeing to "step up and take a chance on Raimore." And for Old Republic Surety, nothing is more satisfying than when a contract benefits everyone involved.

Go ahead. Scan the QR code to read the full story on the ORSC blog.



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Session. The funding comes from a $2.2 billion bill that was passed to address mental health needs statewide. The new 60-bed facility, which will be located in Victoria County, will be designed to provide 30 beds for civil use and 30 more for forensic use to support law enforcement.

Other upcoming projects will be similar in nature, and information can be obtained at the state and local levels of government. Every state has a Health and Human Services agency with an office of information. Local projects will likely be overseen by either the city or county. Those local governmental entities also have a public information office, and requests for information about upcoming health care projects such as these are public information that should be available upon request.

Having served as a statewide office holder in Texas for a decade and worked with other government officials for the past 25 years, I can share some valuable insights on best practices:

- Move as quickly as possible when deciding to pursue any public sector project. Find a way to schedule a meeting with the appropriate stakeholder, whether that individual is at the C-level or serves as the person overseeing the project.
- Ask for a short introductory meeting and explain that you plan to compete for the upcoming project.
- Have your message well-prepared and keep it short. You will need to spend 5 minutes providing background related to your firm and 10 minutes about the company's experience delivering similar projects. It will help if you have a project or two to highlight as a good reference.
- Depending on who your conversation is with, keep in mind what they will want to hear, but understand that every stakeholder will be interested in past projects the company brought in on-time and on-budget without major problems.
- Do not leave (or send) a packet of promotional material, but a one-pager that summarizes your message is always appreciated. Make sure your website and contact information are on the page. Public officials do not appreciate large media packets and rarely even look at them — they simply don't have time and expect experienced contractors to know that.
- Follow up with a good thank-you note and anything else you want to send in a last attempt to make sure you are remembered favorably.
- Attend the pre-bid conference and request a sign-in sheet so you'll know who the competition will be. Listen carefully for answers to questions posed, and find out if Q&A will continue after this initial meeting.
- Introduce yourself to all stakeholders. The objective is for public officials to see you and remember your firm.
- Begin to vet some local subcontractors immediately because that will be a definite plus for your pursuit. Get these companies under contract, and ensure that some are small and minority firms. They have local networks, and you will want them to say great things about your firm, so treat them well.
- Remember that public entities in Texas have HUB requirements. That acronym stands for "historically underutilized businesses," but other states often use the term "small and minority businesses" for that procurement requirement. Follow the HUB guidelines carefully for the proposal you submit — or risk being disqualified.
- If you have legitimate questions, contact only the person designated on the solicitation document.
- Never miss a proposal deadline and don't take too many exceptions to the contract. If negotiations falter over too many exceptions, public officials often decide to go in another direction. ▲

Mary Scott Nabers is CEO of Strategic Partnerships Inc. and the author of Inside the Infrastructure Revolution — A Roadmap for Rebuilding America. Visit spartnerships.com.



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10 Steps for Performing a Marketing Audit

The contractors' guide to marketing success (Part 2 of 3)

BY CHRISTINE ANDOLA

A marketing audit is a comprehensive assessment of your company's marketing activities, strategies and performance. It provides valuable insights into the effectiveness of current marketing initiatives and helps identify areas for improvement. Conducting a marketing audit is essential for construction companies seeking to optimize their marketing efforts, adapt to market changes and stay ahead of competitors.

The following list details key steps involved in conducting a marketing audit.

1. Define the Objectives

Start by establishing clear objectives for the marketing audit. Determine what specific aspects of the marketing function you want to evaluate. This could include brand positioning, target audience analysis, marketing channels, messaging, competitive analysis or overall marketing performance.

Note: A comprehensive audit will yield the most valuable insights but can also be the most time consuming. You may want to establish an audit schedule and undertake a partial audit each quarter so that over the course of the year, your entire marketing program has been evaluated in time to plan the following year's strategy.

2. Gather Information

Collect all relevant marketing data and materials. This may include marketing plans, strategies, budgets, promotional materials, website analytics, customer data, sales reports and market research findings. Review internal documents, such as marketing policies, procedures and guidelines, to gain a comprehensive understanding of your company's marketing activities.

Note: You may be inclined to skimp on this step, especially if your marketing team is small — say, just you. The more you can document about your marketing procedures, the easier it will be to make data-driven decisions about your strategy.

3. Evaluate Marketing Goals

Assess the existing marketing goals and objectives. Are they SMART (specific, measurable, achievable, relevant and time-bound)? Analyze whether the goals align with the overall business objectives and identify any gaps or areas of improvement.

Note: Marketing goals and business goals are not the same, although they should align. Be specific in establishing your goals. General statements about growing the business are not goals. Goals include specific revenue milestones, lead counts and project counts.

4. Analyze Target Audience

Understand your target audience by analyzing demographic data, psychographics, consumer behavior and market trends. Determine if the current marketing efforts effectively address the needs, preferences and pain points of your target audience. Identify any changes or shifts in the target market that might require adjustments to the marketing strategy.

Note: The more you know about your audience, the more effective your marketing campaigns will be. Take the data you have, and try to develop a character sketch as if your ideal customer were just one person. Give him or her a name and describe what his or her life is like.

5. Review Branding & Positioning

Evaluate your construction company's brand identity, brand messaging and brand positioning in the market. Assess if your brand accurately reflects your company's values, unique selling proposition and desired image. Examine how the brand is perceived by customers and compare it to competitors' branding strategies.

Note: It is important that your marketing efforts align with the personality of your brand. Think back to the sneaker wars of the 1990s. Are you a Nike or a Reebok? Are you the Michael

The more you know about your audience, the more effective your marketing campaigns will be. Take the data you have, and try to develop a character sketch as if your ideal customer were just one person.

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CONSTRUCTION BUSINESS OWNER webinar

Nov. 9, 2023 | 12pm CST

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6. Assess Marketing Channels

Analyze the effectiveness of various marketing channels your business employs, such as traditional advertising, digital marketing, social media, email marketing, content marketing and public relations. Determine which channels generate the highest return on investment and if there are any untapped opportunities or underperforming channels.

Note: The answer here might surprise you. Digital marketing is very popular, but traditional advertising still works well in many areas. Don't be biased in your assessment. Go where the data takes you.

7. Review Marketing Collateral

Evaluate the consistency and quality of marketing collateral, including brochures, websites, advertisements, sponsorships and other promotional materials. Assess if the messaging and visual elements align with your brand identity and effectively communicate your value proposition.

Note: One of the most important parts of the collateral review is consistency. Are your logo, company name and service descriptions being presented the same way across all pieces?

8. Analyze Competitors

Conduct a competitive analysis to understand how competitors position themselves in the market, what marketing strategies they employ and how successful they are. Identify competitive advantages and areas where your business can differentiate itself.

Note: It's easy to see strengths in others. Their weaknesses will show you where to look for your own strengths.

9. Evaluate Marketing Metrics

Review key marketing metrics and analytics to gauge the performance of marketing initiatives. This may include metrics like customer acquisition cost, customer lifetime value, conversion rates, website traffic, social media engagement and email open rates. Identify areas where metrics are falling short, and formulate strategies for improvement.

Note: Simply put, figure out what works best and do more of that.

10. SWOT Analysis

Perform a SWOT (strengths, weaknesses, opportunities and threats) analysis to identify internal and external factors that impact your business's marketing efforts. Identify strengths to leverage, weaknesses to address, opportunities to explore and threats to mitigate.

Note: Objectivity is key to this analysis. You may want to ask for assistance from another department of an outside agency.

A marketing audit provides valuable insights into the effectiveness of your company's marketing efforts. By conducting a thorough assessment of marketing goals, target audience, branding, channels and competition, you can identify areas for improvement and develop strategies to enhance marketing performance. A well-executed marketing audit serves as a framework for building marketing success, improving customer engagement and achieving overall business growth. ▲

With more than 30 years of marketing experience across a wide range of industries, Christine Andola excels at creating content that resonates and developing marketing strategy that drives leads in the B2B and B2C sectors. You can direct all your marketing questions to her at candola@frameworkbranding.com.



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Recognizing today's leading construction professionals.

This industry is full of fantastic females leading the way to progress. Some, you may have already met, and some, you may not have had the opportunity to meet — but it's important to know about them.

Back for its fifth year, Construction Business Owner's Outstanding Women in Construction celebrates industry-leading females and their skills, achievements and contributions to the construction industry. This year's contest drew nearly 100 nominations from across the United States and many sectors of construction, including representatives of leading associations and organizations.

In the following pages, you will meet eight women who are helping to building the industry today and shape the next generation of construction professionals.

These finalists were selected for their everyday dedication to excellence, growth and leadership, and their involvement in the industry and their respective companies and communities.

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OUTSTANDING
2023
WOMEN IN CONSTRUCTION



SUSAN BOUTHILLETTE

PROJECT MANAGER, WASHINGTON
ANDERSON CONSTRUCTION

Susan Bouthillette is a trailblazing professional in the construction industry, with a passion for innovation and empowering the next generation of women in this field. Nominated for the Outstanding Women in Construction (OWIC) contest by a group of her co-workers, Bouthillette's journey is a testament to her dedication, expertise and commitment to fostering diversity within the construction sector.

Bouthillette began her career in architecture, holding both a degree and license as an architect. She practiced in that field for nearly a decade, showcasing her strong management skills and client-centric approach to design. Her passion for managing building projects as they come to life and ensure both client satisfaction and efficient processes led her to transition into the construction industry, which proved to be a natural fit. In her construction career, Bouthillette has dedicated herself to continuous learning and professional development. She has undergone extensive training, including certifications, and has actively collaborated with organizations like the Design Build Institute of America (DBIA). Bouthillette's commitment to DBIA is especially noteworthy, as she is not only pursuing DBIA practitioner certification but has also presented at their national conference.

One of the most pressing issues in the industry, Bouthillette believes, is the industry's risk of inefficiency and outdated processes. "I think that a lot of [us] are leaning much more into autonomy and opportunities in tech," she said. "But I think that the industry on the whole has a lot of inefficient processes that make things costly."

She also sees a positive transformation within the industry, particularly in embracing integrated design-build approaches, with architects collaborating more closely with contractors, resulting in more efficient and cost-effective projects. "I think it is certainly more prevalent over here on the West Coast," she observed. "But it is happening across the industry. Certain market sectors, notably health care and higher education, are embracing it."

"I THINK HAVING DIFFERENT IDEAS IN THE ROOM BASED ON BACKGROUND CHANGES EVERYTHING. I'VE SEEN THAT HAPPEN, AND IT IS SO POWERFUL. I HOPE THAT WE CONTINUE TO DO THAT."

Additionally, Bouthillette points out the hope for even wider diversity within the construction industry: "I think having different ideas in the room based on background changes everything. I've seen that happen, and it is so powerful. I hope that we continue to do that."

As a woman in a traditionally male-centric industry, Bouthillette confronts microaggressions head-on, ensuring she is recognized for her role and extensive expertise. Beyond her own experiences, Bouthillette actively supports the growth of women in construction by mentoring and providing guidance to younger female professionals within her company. "I am the only female project manager in our Seattle location," she regaled, describing the demographics and as such, the opportunities to mentor other women learning similar positions. "I try to not just mentor but give them space to talk. It is really cool to be able to foster that [professional] growth and talk to them about things that I was wondering about when I was in their role."

Outside of her expansive and evolving career, Bouthillette is an avid outdoors enthusiast. Her love for the outdoors aligns with her passion for the construction industry, where she gets to spend time outside on actual jobsites and in the field. She enjoys biking, hiking, and spending quality time with her two-year-old son and her husband.

Bouthillette is exceptionally passionate about advocating for oneself in scenarios of marginalization, noting the importance of the care and stewardship women must have for themselves. "In terms of advice that I would give people, it is 'be powerful,'" she said. "Speak with conviction. Don't marginalize yourself further by saying, 'Well, I'm not sure, I don't know,' when you do know." The confidence Bouthillette undoubtedly inspires and instills in the generations of women and younger associates who have the privilege to work alongside her will certainly ripple out for the better.



KERRI BRADY

VICE PRESIDENT OF EDUCATIONAL PRACTICE
HUCKABEE

NO. 1 MUST-HAVE:
"RADICAL LOVE"

Kerri Brady, AIA, vice president of educational practice at architecture firm Huckabee, describes her one "must-have" as radical love. And judging by the path her career has taken, it's not hard to find where she's incorporated it.

Brady has been at Huckabee for 10 years and has an educational background in architecture. Nominator Dillon Brady, president at Prime Contractors Inc., considers her a "leader in educational architecture in the state of Texas" and mentioned that Brady even co-chaired a statewide committee to review and make recommendations for updates to the Texas Education Agency (TEA) state facility standards for educational facilities, which were updated in 2021. "Her leadership in trauma-informed design continues to create inclusive environments for children with full consideration of their personal and emotional struggles," Dillon said, "changing the way the industry constructs facilities for long-term use and adaptability."

She considers her biggest career accomplishment thus far a relatively recent one: leading the project planning and community efforts for the new elementary school in Uvalde, Texas. In May 2022, Robb Elementary School in Uvalde was the site of a mass shooting where 19 students and two teachers were killed. Robb has since been closed and is under direction to be torn down and rebuilt in a new location. Huckabee has been heading up the design and planning of the new school. "Uvalde is an incredible community that I've had the opportunity to serve as they move forward in their grief and healing," Brady said.

In terms of working in the industry, Brady believes that the biggest challenge facing construction currently is change. "Whether it's changes in expectations, supply chain … it's impacting not only the logistics of construction but conversations that communities are having around funding construction projects," Brady said.

However, these rapid and broad changes to the industry could also be a major boon. "I think it's a prime opportunity for all of us to step up and get really creative," Brady said. "It's an opportunity for us to create sustainable changes — big market disruptions that could easily come from within the industry that would make it a little bit more resilient."

In an industry that is still largely made up of men, Brady described her career in construction as an "evolution" as she has gradually learned to "show up how she wanted to show up." Brady mentioned beginning her career and going to work in dresses and heels, but quickly switching gears when she noticed scrutinizing looks and judgment from jobsites. However, she has returned to dressing in the way she wants to and encourages newer women to the industry to do the same, regardless of the reception they receive.

"[I've] candidly also embraced the opportunity to model showing up how I want to for other people so that they could have that implicit permission to show up how they want to show up and create a culture for the women within our organization — to find their way and not through the looks and expressions and side comments I got early in my career."

Even outside of her company, Brady has made it a mission of hers to make the industry more welcoming for young women. Brady said she and some other colleagues in Houston have been considering forming a sort of "girls' club" to help foster connection with the other women in the industry and create more spaces for them. Brady mentioned that these women aren't purposefully being excluded, but that typical networking methods in construction like dove hunts and fishing trips are very difficult to make coed. So, one undertaking of this group would be creating networking spaces that are open to everyone in the industry. "Really just creating a space where women can show up and network and build good relationships."

Her biggest piece of advice for emerging professionals in the industry is to simply find those places and people who will cheer them on and champion them. She remembers a discussion she had with a younger female colleague who wondered when the best time for her and her partner would be to have children on the timeline of the projects the firm was working on. Brady responded: "If that's what you want to do, then that's what you should do and leave the rest to us. We'll figure it out."

"I wanted to make sure other women within our organization got that message so that at whatever point they chose to take forks in the road, they didn't have to choose between us as an organization and that other thing they wanted to pursue," Brady said. "I wanted to make sure that anytime I was asked about how to make it work, it was really more about how the company could support the individual, and not how the individual could make it work for the company."

For someone who seems to have stumbled into construction by a fluke, Debra Harris, a retired supervisor at C&D Hughes Inc., has still managed to impact the lives of every person she worked with.

Harris got her first construction job while she was working in a deli as a young woman, and a foreman came in looking for traffic regulators after all of his had quit. Since she had the next day off, Harris grabbed a friend to go with her and took the job. She worked that traffic regulator job, her job at the deli and another at a party store until the end of the season. "It was time to be laid off," Harris joked.

But she enjoyed the work so much, the next spring she called back and asked for another job. The rest was history.

Harris worked as a traffic regulator for about three years, then became a laborer and received training at the Laborers Training and Apprenticeship Institute. Then, when she got the chance to drive dump trucks, she jumped at the opportunity and got her commercial driver's license.

Now, having been a supervisor for 15 years, she considers being promoted to supervisor of the joint crew as her biggest accomplishment. Especially since Harris is the only female supervisor in the company's history. "Being the only woman in the field with all those guys, I think that's a big achievement. And to be able to last for all those years out there," Harris said. "I've worked on dirt crews, I've worked on the concrete patch crew and I've worked on the joint crew. The joint crew — that's where I wanted to be, and that's where I ended up for a lot of years."

Although Harris was the only woman in a crew of men, she says she never felt any disrespect, though she sometimes felt like "mom" to the 20 or 30 guys she was working with. "My aspect of the job was to keep the crew running smoothly while the other supervisor on the job kept the job going smoothly," she said. "Mr. and Mrs. Hughes always put me in a position to show my strength and not my weakness."

Harris considers safety to be the biggest challenge to the industry right now, though she does report that she has seen some improvements over the course of her career. "We're getting away from having to work at night, especially on the freeways," Harris said. "They're looking out for the construction worker a little bit more and less for the inconvenience, because no matter what, the motorist is going to feel inconvenienced."

Amid labor shortages, Harris has been working to encourage the young people in her community to investigate construction as a possible career avenue. "There is a very high dropout rate and a very low graduation rate from our high schools. And I've tried to let the people know that there's jobs out there like this, and you can get paid while you train and you have a great future," Harris said. "Just because you don't go to college does not mean that you cannot get a high-paying job."

She especially thinks more women should seek out construction because of the good benefits, pay and lack of a requirement for college. "It's not all shoveling and digging holes," Harris said. "There's plenty of other things that a woman can do out there that are not so taxing on them." Though, even the taxing activities shouldn't be a problem: Harris remembers after she had just started working at C&D Hughes when she brought her 28-year-old granddaughter out to a jobsite: "She was a very, very hard worker; she could out-shovel all the guys!"

NO. 1 MUST-HAVE:

"A PHONE CALL OR TEXT FROM MY KIDS SO I KNOW THEY ARE OK."

In her free time, Harris likes being with her grandchildren who range in age over 30 years and keep her plenty busy.

Though retired and only working part-time now, the impact she has had on the company is hard to overlook.

"She successfully co-ran our most profitable division for many years. Deb is well known and loved by our field employees, as well as our office staff," said nominator Cheryl Hughes, president and owner of C&D Hughes. "She has been an integral part of the success of C&D Hughes Inc."



"THERE IS A VERY HIGH DROPOUT RATE AND A VERY LOW GRADUATION RATE FROM OUR HIGH SCHOOLS. AND I'VE TRIED TO LET THE PEOPLE KNOW THAT THERE'S JOBS OUT THERE LIKE THIS, AND YOU CAN GET PAID WHILE YOU TRAIN AND YOU HAVE A GREAT FUTURE."

DEBRA HARRIS

SUPERVISOR | **C&D HUGHES INC.**



KIMBERLY LUITJOHAN

FOUNDER & PRESIDENT | **POETTKER INDUSTRIAL SERVICES**

Construction is practically in Kimberly Luitjohan's — founder and president of Poettker Industrial Services — genes.

Luitjohan's father Charles (Chuck) Poettker founded the Poettker Construction Co. in 1980, a few years before she was born. Once she was old enough, she was always around helping as a child. "In our summertime, we would have to clean the shop or do an inventory of tools, and we were literally always here, but it wasn't like work. It was fun. This was all that we knew."

Over the years, Luitjohan assisted in plenty of areas, including reconciliation, reception and other odds and ends around the office. But around the age of 17, Luitjohan began visiting different departments to learn more specifics. "Obviously I knew business was in my blood and that's where I wanted to go, but just where I fit and just learning all the different departments that make up the company."

Once she got involved in the estimates and bid processes, though, and learned all the different aspects of the finance side, Luitjohan found where she "belonged." Unfortunately, right when Luitjohan had found her place, Poettker Co. hit hard times, and Luitjohan's father laid off the entire accounting department. So, at 20 years old, Luitjohan stepped into a real construction accounting role to support the company. "It was either sink or swim, and we decided that we wanted to do everything we could to have the family business survive," she said. "I learned so much, and I would never trade those years for anything. So, it was a blessing that I never knew would've blessed me so much."

By the age of 26, Luitjohan had been promoted to vice president of finance for the company and even "managed significant growth for the firm over the next 10 years," according to her nominator Lauren Freberg.

After her father passed away in 2021, Luitjohan founded Poettker Industrial Services, a separate entity, to offer expanded services in the utility, infrastructure, industrial and commercial markets. Luitjohan says she saw it as an opportunity to extend her father's legacy and passion for construction, and it has provided her with a new appreciation for the work he and the rest of her family did in rebuilding Poettker Construction Co.

"Being a part of that growth and rebuilding was an amazing experience that shaped my career and my appreciation of others. I am blessed with wonderful and passionate team members at Poettker Industrial, and being a part of that growth, supporting their aspirations and goals, is rewarding and exciting and gives me a sense of how grateful I am for everything my father provided to me."

As for the industry as a whole, Luitjohan believes the workforce challenges are the biggest issue facing construction right now. So, Luitjohan and Poettker Industrial have recently partnered with Junior Achievement to work with St. Louis-area schools to show kids what a job in construction is like and to encourage them to consider it as a career path for themselves.

"Just making it seem like: 'This is a really good job; this is a good paying job. It's very rewarding work that we're doing,' and just explaining that and getting that message out there to the younger generation."

As for that younger generation and emerging professionals in the industry, if Luitjohan could offer one piece of advice? Ask questions. "I think people get hesitant to ask questions because they don't want to look inferior to the people out in the field," Luitjohan said. "But if you ask the questions that are of interest, it shows that you want to be out there, and you have a passion to be out there."

When she's not working, Luitjohan spends time with her two children, including one who has already caught the construction bug. "My son, he is everything construction. He and I rode the skid steer together, and I was teaching him how to do different things a couple of weekends ago — and he loves it. It's definitely in his blood."

Now, in the position her father once was, she gets to watch the cycle start over. "My nephew just started full-time in the business and I remember him being born. And so, watching him, it's like I get what my dad felt."

NO. 1 MUST-HAVE:

HER PHONE. "MY MEMORY MIGHT NOT BE THE BEST, BUT I CAN GUARANTEE YOU I HAVE A PICTURE OF WHAT'S HAPPENING."



VIRGINIA MURPHY

CEO
WASTE WATER INDUSTRIAL SOLUTIONS

NO. 1 MUST-HAVE:
A GOOD HANDBAG.

For Virginia Murphy, CEO of Waste Water Industrial Solutions, her relationships with her community are the top priority.

Growing up watching her mother own and operate a service station in the 1970s, Murphy learned that helping the community was just how business was done. "I'm raised in that environment where I see her supporting the people in our community by saying, 'Hey, you need a job? Come on over.'"

Murphy has continued her mother's legacy by being a staunch advocate for her employees.

Murphy's nominator, Angela Gardner, the director of business development and marketing for Hill Electric, said this is one of the first things that stuck out to her about Murphy. "I first noticed Virginia on LinkedIn. I saw how she always highlighted the people in her company. This is incredibly rare in construction," Gardner said. "She makes sure she celebrates the wins with her team, and she makes sure they understand how to grow from opportunities and challenges."

Murphy's heart wasn't always in construction, however. With an undergraduate degree in accounting and a master's in education, Murphy was between accounting jobs when she was approached by a friend who needed help at their metal fabrication company. She, of course, jumped at the chance to help a friend and try something new.

Time passed and she eventually ended up at Industrial Metal & Mechanical as the vice president of operations, where she improved processes to streamline production. Once she noticed how much of an overlap there was between metal fabrication and wastewater, she began pulling her team into more and more wastewater projects. "I tell people all the time, 'Where miscellaneous metals end is where wastewater treatment begins.' So, it's nothing but a bunch of trusses, a bunch of beams, a bunch of all different types of parts. You put them together and you just make them move," Murphy said.

Eventually, Murphy left that role and was contacted by a woman from the Peachtree City Water Authority who wanted her to fix the water authority's clarifiers. "And that's how my business started. She had trusted me."

"I'M ACCUSTOMED TO NOT BEING INVITED TO THE PARTY, BUT I GO ANYWAY. I SHOW UP UNINVITED, AND I MAKE PEOPLE TELL ME WHY THEY WON'T USE ME."

Now, as the CEO of Waste Water Industrial Solutions, Murphy and her team design, fabricate and install aboveground wastewater equipment, as well as conduct structural steel fabrication and installation and blasting and painting. "It's usually a shock to everybody when they see me. I'm five-foot-four. I'm not a big lady," Murphy said. "I'm a lady and I'm a woman of color. So, when I walk into a room, there's typically not any women there. And there's definitely not any women of color."

Murphy discussed how being a member of two of the most underrepresented groups in construction has impacted her career and interactions. "It's very difficult to walk into a room and the first question they ask you is not your name but, 'Are you certified?'" Murphy said. "I'm accustomed to not being invited to the party, but I go anyway. I show up uninvited, and I make people tell me why they won't use me."

She also explained the extra pressure that falls on her, and others in her shoes, to prove herself as a representative for both her gender and race. "If I do a bad job: 'See how these women don't work well?' If a man does a job and they don't do it well, they don't become the spokesman for all men," Murphy said. "It is a tough burden to carry. I don't mind if it's going to help open some doors for us. I'm fine with that, but I wish that weren't the case."

However, Murphy is doing her best to lift others in marginalized groups as best she can. "I make it my business to seek women out in a room." Murphy has an email list where she shares upcoming events, meetings or other resources for women, and is certified by the Women's Business Enterprise National Council (WBENC). Murphy also mentors a few women and advises that others in the industry find similar resources. "You need some support. So, I would say find your assistance circle."

This philosophy extends to her own team, who Murphy treats more like family. "When they get a new girlfriend, I know about it. When the baby's on the way, I know about it. When they have a problem, I'm the one they call; most of them call me 'Mom.' I respect them to the utmost — I am in this business for them. I wake up and get up and do what I do every day for them, not for me."

Like her mother before her, Murphy has made her community a central tenet to her business practices. "I need to make sure all my guys get paid, that all my guys have everything they need. What would I look like as a CEO of a company, and one of my people was homeless or couldn't pay their light bills? What kind of person would that make me? The unfortunate thing is, anytime there's so much money involved, people tend forget about their fellow man. And I absolutely refuse to do that."

Estefania Roa, president and owner of L.B. Hall Enterprises Inc., and founder of Hola Happy Foundation, has spent her career building a ladder for those behind her and living by her one "must-have": making an impact.

Roa's background is different from many in the industry. She became a mom at 15 and never had the opportunity to get a degree. But she drove herself to take classes on everything from financials and insurance to administration, human resources and payroll, plus anything else she'd need to know to run a business. She is also a certified business and personal coach.

"[Becoming a mom] actually gave me strength and a reason because I had somebody that depended 100% on me moving forward," Roa said.

Roa believes in the power of people sharing their own testimonials and accomplishments and leading by example. "I think that's helpful in encouraging these girls to overcome the fear of a stereotype that has been created in previous generations," Roa said, "by breaking barriers as women and not just speaking about what we're capable of but showing what we're capable of."

Her foundation, Hola Happy, was founded with these goals in mind. "The foundation focuses on personal growth, coaching and mentorship, and it also encourages young generations to just find different pathways to improve themselves, and self-love, which I think is a very strong topic in this stage of life for younger generations."

In Hola Happy's five-year lifespan, it has granted educational scholarships to more than 10 single mothers and teenagers, opening doors to resources in Mexico, Peru and Colombia, according to Roa's nominator Marie Lazzara, public relations manager for JJR Marketing. The foundation has also formed partnerships with mentors who provide coaching on different topics, and distributes books to girls in low-income neighborhoods in Mexico who do not or cannot attend school.

Roa has incorporated similar strategies in her work at L.B. Hall, including collaborating with local organizations to work toward diversity and inclusion, sponsoring scholarships and mentorships for underrepresented groups, and supporting training programs.

Of course, as the industry progresses, change can sometimes mean obstacles. Roa recognizes the new efforts to build sustainably as a challenge — making everything more expensive and requiring more research. Project delays and cost overruns have also been significant challenges she has noticed. And, like many following the COVID-19 pandemic, Roa has also been navigating the change to remote work. Though it has made planning, communication and execution easier, according to Roa, it has also worsened the labor shortage and made training that much more difficult.

One big hope that Roa has for the future of the industry is the improvement of cash flow, allowing subcontractors to reinvest money into other projects. "We're right now waiting on a 60- to 90-day period for each project, and that's the best-case scenario."

As for her accomplishments, Roa has recently worked on many high-profile projects like museums, casinos, hotels and even some work on Wrigley Field, the home of the Chicago Cubs, and she gained many important clients. However, she considers her biggest accomplishment to be her team. "They're here all the time with me. They're the ones who see my moments of frustration and suffering. And they're the ones who have been here to celebrate my achievements, whether they're small or big. That's the treasure for me … finding good people who care about me," she said. "I could not imagine if they were not here."

Even though Roa has had her share of challenges because of her age, gender, language barrier and education level, she says she doesn't like to fixate on them — and she recommends others do the same. "There are different scenarios and situations I decide to put aside because I don't like to victimize myself. I like to focus on what I can do to change that," Roa said. "We must fight and try to see what is possible."



ESTEFANIA ROA

PRESIDENT & OWNER
L.B. HALL ENTERPRISES INC.
FOUNDER OF HOLA HAPPY FOUNDATION

NO. 1 MUST-HAVE: MAKING AN IMPACT.

As for how she would advise newcomers or emerging professionals in the industry, Roa simply recommends pushing through. "It's not easy, but don't give up. Just keep learning, keep showing up.

"It has taken me a great deal of focus and effort to achieve everything that I have. It has been a long journey, one that is still ongoing, and it's in a face of growth and continuous growth that I had to bet everything on myself because at times there wasn't anybody who would do that, who would believe that I was going to be able to make it," Roa said. "So, I had to do it for myself."



JACKIE ROWLAND

CEO/PRESIDENT
RUSSELL ROWLAND INC.

NO. 1 MUST-HAVE:

"GRIT. THERE'S A LOT OF VALUE TO A FORMAL EDUCATION DEPENDING ON WHICH CAREER YOU'RE GOING INTO, BUT THERE'S EVEN MORE VALUE ON THE GRIT OF JUST BEING ABLE TO BUCKLE DOWN AND WORK HARD."

Determination. Drive. Grit. Jackie Rowland, ME, PE, has shaped her career through these traits. She got her first job at age 11, where she worked as a farmhand, and continued working through high school and college. "There's a lot of value in a formal education, depending on which career you're going into, but there's even more value on the grit of being able to buckle down and work hard," she said.

Rowland graduated from the University of Florida with bachelor's and master's degrees in civil engineering. After graduation, she began her career at a large engineering firm that primarily did residential construction. She worked at the company for eight years. By the time she left, she was managing a team of 25 engineers and designers to put together construction documents.

With experience working for big national builders under belt, Rowland joined another company as structural division lead, doing mainly commercial work. During that period, her husband, Parker, got his MBA and yearned to start a company. She and Parker worked on a business plan for a year, and she reached out to a former colleague, structural engineer Adam Russell. In 2018, Rowland and Russell decided to start their own structural engineering firm — Russell Rowland Inc. Russell Rowland offers services to residential and commercial clients in the Southeast. The company is now five years old, has a team of 12 employees, and is licensed in 10 states.

"What's important to me is being able to support my clients and my employees," Rowland explained. "Knowing that I now have 12 families that depend on our company, gives us that motivation to keep growing, keep making it better."

Russell Rowland's growth and success were recently recognized by the JAX Chamber, one of the largest chambers of commerce in the country. Rowland was named Small Business Leader of the Year. "That was a very high honor to not only get nominated for that, but I went up against 11 nominees. And then I won the overall based on the company that we have built," she said.

Rowland's involvement in the Jacksonville business scene didn't stop there. She spent much of this year visiting councils for speaking engagements, and she was given an honorary seat on the board of directors.

"It's really helped propel our small business into the Jacksonville business industry as a whole, with people who are running much larger companies. So that's been a very, very, very good thing for our business."

According to her husband, "Jackie serves the construction industry by serving on multiple boards for the Northeast Florida Builders Association, volunteers to teach STEM projects to kids, builds handicap ramps and helped to restore a house for the Homeless Coalition. Jackie was recently named the 2023 Florida Home Builder's Association (FHBA) Young Building Professional of the Year and 2022 Volunteer of the Year for Builders Care. Her company has been listed on the Jacksonville Business Journal for the Top 50 fastest growing companies for two years in a row."

Though construction is still a male-dominated field, she advises women not to shy away. "Embrace it. Own your own career path," she said.

"How can you get into the position you want? My very first interview out of college, I was interviewing with the president of the company, and he asked where I saw myself going. I said, 'I want to be sitting in your chair.' And I said that as a fresh college graduate. Everything I did on a daily basis was to get toward those goals, and now I own my own firm."

In the coming years, Rowland hopes to see the number of women in the industry increase. "In the past, I was the chair of our local Professional Women in Building Council. I heard recently that about 10% of the construction industry is women. I hope to show women that there's a place for them in this industry: It's not just a good old boys' club — you can be part of the club as well."

Though there have been times she felt marginalized in her career, Rowland adapted a strategy: "In our market, especially, people remember me as the girl engineer, so I use that to my advantage. And that's what I always tell people: 'Yes, it makes you different, but use it to your advantage.'"

In one instance, she was on the phone with a colleague she didn't know well. He asked, "Oh, are you that blonde engineer they bring around?" But Rowland didn't miss a beat. "Yeah, that's me," she responded. "But you knew who I was." She encourages women coming to the industry to take this lesson to heart.

"For every person who makes a comment like that, you'll have 10 more with the opposite, who are cheering you on and in your corner. Just embrace it. You're not the norm, but that's a good thing."



KASSY SLAUGHTER

HEAD OF CONSTRUCTION EDUCATION
PROCORE

NO. 1 MUST-HAVE:
HUMOR.

"I guess my story is that I watched too much "Law & Order" growing up, and so I was pretty hellbent on being a prosecutor," said Kassy Slaughter, head of construction education at Procore.

So, Slaughter went to community college for criminal justice and worked in a few law firms until she realized how inauthentic everyone seemed. "There was a big facade in that industry, at least in the region that I was working in."

She went to the temp agency, and they put Slaughter at the front desk of a construction company. In no time, she had "fallen in love. I just thought [the people] were so authentic, so gritty, and sometimes that's for better, sometimes it's for worse, but what it is regardless is real," Slaughter said. "And that really resonated with me. And then as time wore on, I was getting more and more opportunities."

Slaughter then officially changed her major from criminal justice to construction management and began working her way up at the company. First into a project engineer-type role which then, eventually became her running her own projects while still attending school at night.

Slaughter finished her associate degree in construction management and then went on to get a business management degree and green building certifications.

After working on some luxury projects at her firm, a computerized maintenance management system company she had previously worked with called her and brought her on board to an international consultancy group. "So, after nine years of going from temporary receptionist to project manager at this one company, I made the leap into a big pond."

The new role was tough. "I was living in a project-specific world without the ability to impact the big picture because it's so demanding. It takes everything to manage projects like this."

This led her to Procore in a role that promised fewer long days. She figured she'd recharge, finish her degree and get back into the industry. "And then I got to Procore, and I realized that I could make more change in the industry by participating from the sidelines than I could from within the machine itself."

Since nine out of 10 employees at Procore have no construction background, Slaughter and her team are responsible for educating them about how construction works. This ultimately turned into a larger initiative, including a construction "boot camp" that every new Procore employee receives as well as jobsite visits, ongoing education about financials, various processes and construction, and education for members of the Associated General Contractors and Associated Builders and Contractors.

However, her way up wasn't always easy; Slaughter recalls when she learned she was making 50% less than her male colleagues in a previous role: "Even in tech, my experience was valuable but only at a discounted rate." And although Slaughter recognizes the industry's perspective toward women and other minority groups shifting since she entered the workforce, there is still a long way to go if companies want to hire good people and ensure they stick around amid labor shortages. "It's going to take those brave few companies to really pioneer it, study it, share it out, champion it for others to follow the leader on this."

"In the same way that construction went through sort of a safety culture revolution, I think that construction will also go through a revolution around company and industry culture and the way that we treat others, in the way that we speak about the future of the industry instead of just relying upon the past and, 'Well, this is what we've always done.' I think that temperament is changing, and I truly hope it does because it has to."

"I THINK THAT CONSTRUCTION WILL ALSO GO THROUGH A REVOLUTION AROUND COMPANY AND INDUSTRY CULTURE AND THE WAY THAT WE TREAT OTHERS, IN THE WAY THAT WE SPEAK ABOUT THE FUTURE OF THE INDUSTRY ..."

For younger women in construction, Slaughter recommends finding a group of women in the industry who can provide guidance and keep them from becoming complacent with their current conditions, especially if they're not the best.

"Always paying that forward and encouraging women to drive toward more earning power, more responsibility, and not letting them fall into that trap of thinking, 'This is the way it is, and this is still pretty good,'" Slaughter said.

"I think just modeling the way — telling people what you're doing, telling people why you love construction, why you love the team, why you love the process, why you're proud to say 'I built that' and saying it with conviction. 'I helped build that. That was me, a woman. I did that, and I was in heels in the office most of the time, but it wouldn't have happened without me.'"



Ransomware Is Crippling the Construction Industry

Why it keeps happening — & how to ensure resilience

BY MARY KORUS

The construction industry finds itself in the crosshairs of ransomware attacks. What makes construction so alluring to cybercriminals? It's not just the industry's digital transformation — it's the mechanics of project delivery. Tight project timelines, lean construction methodologies, contract obligations, and the "just-in-time" delivery of critical materials mean that any disruption has a cascading effect on both schedules and costs. The proprietary nature of project data — from bid documents to building information modeling (BIM) to subcontractor agreements — provides a gold mine for cybercriminals, which can lead to competitive undercutting, intellectual property theft or damaging brand disruptions.

Current Security & Recovery Strategies Fall Short

While many construction enterprises have fortified their digital environments, focusing solely on traditional security measures can leave them vulnerable. The commonly recommended cybersecurity measures include:

- *Implement strong security* — This encompasses not just endpoint security but also network monitoring, intrusion detection systems, data loss prevention (DLP), and advanced threat intelligence to predict potential ransomware sources and firewall fortifications.
- *Employee training* — Continually educating employees about the risks associated with phishing emails; the importance of maintaining strong, unique passwords; and recognizing suspicious activities can drastically reduce the chance of an inadvertent breach.
- *Network segmentation* — By segmenting critical data and operational systems, enterprises can ensure that in the event of a breach, its spread and impact are limited.
- *Update and patch* — Regularly updating software and systems ensures that known vulnerabilities are patched, reducing potential points of entry for ransomware.
- *Regular backups* — Though backups remain crucial, it's equally vital to ensure these are stored in a secure, off-site location isolated from the main network. Ensure to test as a part of a disaster recovery strategy.

Ransomware Continues to Take Down Business: Event Breakdown

Imagine a construction company with 14 dispersed sites and 300 employees using computer-aided design (CAD) and industrial systems. They believed they were protected. Investments

had been made in backup and snapshot tools. But a malicious link in an email went undetected for two months. During this infiltration period, the threat actors identified key systems vital to operations. When they struck, 3 terabytes (TB) of data were encrypted. It was projected to take 12 days to restore this from backups, a period far longer than expected due to the absence of recovery simulations. Downtime was not an option, so the company opted to pay the ransom.

What Went Wrong?

- *Human error* — A malicious link remained undetected for two months, giving threat actors ample time to map the environment.
- *Underestimated recovery time* — Because the organization had never undergone a recovery simulation, the long recovery duration blindsided them.
- *Critical systems targeted* — The attackers understood the vital nature of specific systems and data, hitting where it hurt most.

Decryption: A Novel Method of Recovery

Theoretically, decryption is the ideal path to recovery. It's fast, simple and direct. Ransomware, at its core, is an encryption problem. Attackers lock away valuable files, demanding a ransom for their release. Though paying the ransom seems to be a tempting solution (and one that almost 75% of victims take), it should ideally be the last resort. Lawful decryption, conducted on the victim organization's terms, offers a promising alternative. Some organizations have been fortunate enough to recover through decryption with the help of law enforcement and nonprofit entities. This approach, though not foolproof, is gaining traction.

Theoretically, decryption is the ideal path to recovery. It's fast, simple and direct. Ransomware, at its core, is an encryption problem. Attackers lock away valuable files, demanding a ransom for their release. Though paying the ransom seems to be a tempting solution (and one that almost 75% of victims take), it should ideally be the last resort.

Recently, innovation companies have shifted their perspective,

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viewing ransomware less as a security issue and more as an encryption problem. These companies have begun equipping organizations with the ability to intercept file encryption keys during an attack. Possessing these keys simplifies decryption, eliminating the need to pay a ransom and recover quickly.

This approach of key interception for decryption was recently evaluated by MISI at Dreamport Labs, initially founded by U.S. Cyber Command to evaluate new technologies to protect federal departments and critical infrastructure. Their research tested this method against 17 live ransomware samples. The findings were highly encouraging:

- The approach successfully passed all 17 tests outlined in the test plan with zero reported test failures.
- The technique demonstrated a 100% key capture rate from the tested ransomware, which included prominent ransomware.
- Decryption was effectively performed using captured keys, validating the product's full capability and value life cycle.
- The system was found to be simple, secure and user-friendly. The Azure cloud backend was trivial to implement; the endpoint agent did not introduce any observed system instabilities, and the system did not open network ports or introduce vulnerabilities.

MISI commented on these results, expressing their excitement and belief in the method's promise. They emphasized that decryption is arguably one of the fastest and lowest data-loss means to recover from a ransomware attack. Given the test results and the ease of use of the decryption solution, they see it as a potential safety net for organizations to consider seriously.

Traditional methods alone are not enough. As cyberthreats continue to evolve and become more sophisticated, it's high time organizations branched out from the traditional. Urging the exploration of innovative solutions like decryption can ensure resilience against ever-mounting cyber threats. In the dynamic world of cybersecurity, adaptation and evolution are the keys to survival. ▲

Mary Korus, with over a decade in cybersecurity, serves as the marketing director at Nubeva. Drawing from her vast experience with innovation startups to leading cybersecurity solution providers like Optiv, she leads the go-to-market execution of Nubeva's Ransomware Reversal technology, a proven solution to decrypt modern ransomware. Visit nubeva.com.



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Building a Foundation of Accountability

Exploring contractual risk transfer in construction

BY RYAN RISPOLI

Every commercial or residential building, no matter how unassuming its appearance, is the culmination of collective endeavors by designers and proficient tradespeople. Carpenters, masons, electricians, plumbers, drywallers, roofers and numerous other skilled individuals work in collaboration to ensure that the building functions as a contemporary, sturdy and secure structure. Concealed within its walls, doors, ceilings and floors lies an intricate network of pipes, wires, ducts and tanks that form the backbone of its modern functionality. These are all things to keep in mind when thinking about contractual risk transfer and how to build a foundation of accountability.

At every stage of the construction journey, a multitude of challenges may emerge. Whether they stem from errors committed by contractors or subcontractors, or from unfortunate jobsite accidents causing bodily harm or property damage, the inevitability of an insurance claim looms large, often accompanied by subsequent legal actions. Lawsuits frequently encompass multiple contractors associated with the site in various capacities.

In fact, according to a recent report, the value of disputes in North America rose 42% from 2021 to 2022. This was on top of inflation, which continues to create economic uncertainty. Compounded further are the impacts of social inflation and an increase in nuclear verdicts, which usually exceed $10 million. To ensure accountability and minimize the need for court involvement, contractual risk transfer becomes a primary objective.

Good contractors understand the importance of hiring reliable subcontractors, as those contractors' reputation and business prospects depend on it. However, even the most reputable contractors recognize the necessity of working alongside a competent attorney and an experienced insurance agent or broker to properly allocate and assign risk.

In simpler terms, it can be said that good contractors also rely on well-crafted contracts to protect their interests and manage potential risks effectively.

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Essential Contractual Components for Transferring Risk

When it comes to construction projects, an insurance professional well-versed in the field ensures that clients, be they construction project owners or main contractors, are adequately safeguarded. This involves implementing crucial contractual components such as:

- *Insurance and indemnification agreements* — These contracts shield the insured party from risks arising from other entities like architects and subcontractors. Each agreement should incorporate:
  1. An "additional insured" provision applying to both ongoing and completed operations that adds the main contractor to the subcontractor's general liability and umbrella policies for any claim caused in whole or in part by the named insured.
  2. A waiver of subrogation, preventing the subcontractor's insurer from seeking reimbursement by making a claim against the owner or primary contractor.
- *Subcontractor agreements* — These contracts outline the specific terms and conditions governing subcontractor responsibilities, project deadlines, payment arrangements, work area specifications, safety and jobsite cleanup protocols, working hours and more.
- *Certificates of insurance* (COI) — These documents serve as



confirmation that all the required coverages outlined in the insurance and indemnification agreements are in place.

A knowledgeable agent or broker will recommend the use of a proactive certificate management system to ensure subcontractors' policies remain up to date. Additionally, clients are reminded of the significance of ensuring that certificates align with the contract's stipulated terms. By diligently incorporating these contractual elements, contractors can establish a comprehensive risk transfer framework, protecting their clients' interests while mitigating potential liabilities.

A Closer Look

Although we have provided a brief overview of contractual risk transfer, there is much more to delve into regarding this subject. As a valuable resource, the International Risk Management Institute Inc. (IRMI) offers a comprehensive white paper titled "Effective Contractual Risk Transfer in Construction," available for free upon registration for their weekly newsletter, IRMI Construction Risk Manager. This informative white paper covers various essential topics, including:

- *Outdated insurance requirements* — "Insurance requirements are often given little to no thought by contract drafters, who may copy and paste requirements from prior contracts without consideration of current market conditions and policy language," IRMI notes. "This practice creates unnecessary friction in the contracting process."
- *Statutory limitations on risk transfer* — "Most states limit the amount of risk that can be transferred in certain types of construction contracts. Running afoul of the applicable anti-indemnity statute can nullify the indemnification provision unless appropriate 'savings' language is included."
- *Certificates of insurance* — "Certificates of insurance are an important tool for documenting coverages required in the contract. A proactive certificate management system will assist contractors in ensuring contract requirements are met."

An important point regarding those statutory limitations: To ensure the fullest possible protection and compliance with statutory limitations, make sure the indemnity clause includes the phrase "to the fullest extent permitted by law."

Aligning With the Proper Professionals: A Crucial Step Toward Success

In the same way that collaborating with skilled designers and subcontractors is paramount to creating a secure and operational structure, partnering with a knowledgeable insurance agent or broker and seeking guidance from a construction risk-transfer law expert are pivotal measures to position oneself as a beneficiary of the industry's growth, rather than falling victim to its pitfalls. ▲

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Making Moves: Revitalizing Your Fleet

Understand these considerations before upgrading from compact to larger crawler excavators

BY JACOB SHERMAN

Compact excavators are nimble and versatile, navigating tight spaces and digging with precision. They are the unsung heroes of confined spaces. But as projects evolve, so do jobsite demands.

Enter larger crawler excavators, otherwise known as the heavyweights of construction. These 14- to 100-metric-ton machines have the power, size and capabilities to create new possibilities for you and your jobsite.

Upgrading your equipment fleet could be a smart investment. And now may be the perfect time to move up a size class, especially if you want to bid more accurately and increase your jobsite productivity. If you plan to move up to a larger excavator, review these considerations first.

Evaluate the Jobsite

Each project has its unique requirements. Factors such as budget, project scope, site conditions and available resources should all be considered in making the best equipment choice. Since the upfront cost of buying or renting a larger excavator is typically higher than that of a compact machine, make sure the machine can meet your daily production goals and has the capabilities to perform daily tasks with room for growth. This can help reduce the strain on project budgets, especially for smaller companies or projects with limited financial resources. If your current excavator is not meeting your needs or daily production goals, then it may be time to move up to a larger size.

Before you select a larger excavator, make sure it can access your jobsite and has the capability to maneuver and do the work once it's there. Look at the dimensions, including width, height, length and weight. The excavator size should be determined by the application, environment, tasks you anticipate, transportation and storage requirements.

Understand Machine Advantages

Moving up to larger crawler excavators can offer several benefits, depending on your project requirements and your tasks. A few advantages include:

- *Increased digging power* — Larger crawler excavators have higher horsepower than mini excavators, allowing them to handle heavier workloads and dig through tougher materials more efficiently. This can lead to increased productivity and reduced project timelines.
- *Greater reach and depth* — These machines have longer booms and arms, enabling them to reach deeper into excavations and access areas that might be out of reach for compact machines. This is particularly useful for tasks such as digging deep trenches or excavating foundations for tall structures.

- *Enhanced lifting capacity* — The larger an excavator, the more lift capacity you can expect, which provides additional efficiency. However, it is imperative you refer to the lift charts found in the operation manual to make sure that what you're lifting falls within the capabilities of the machine. This is especially important for tasks that require moving and placing large rocks, concrete blocks, steel beams or other heavy materials.
- *Improved stability* — Larger excavators typically have wider tracks and a more robust undercarriage, which improves their stability on uneven terrain. This stability is essential for maintaining operator safety and preventing accidents, especially when working in challenging ground or soil.
- *Larger bucket capacity* — A crawler excavator uses a higher-capacity bucket, allowing it to move more material in a single scoop. This speeds up tasks like digging trenches, loading trucks and excavating large volumes of material.
- *Impressive attachment versatility* — Crawler excavators can be equipped with a wide range of attachments to expand their versatility. These can include buckets, thumbs, grapples, rippers, augers and tiltrotator accessories. Attachments enable your operators to perform a variety of tasks without the need for multiple specialized machines. Consider adding a quick coupler if you need to change attachments regularly.

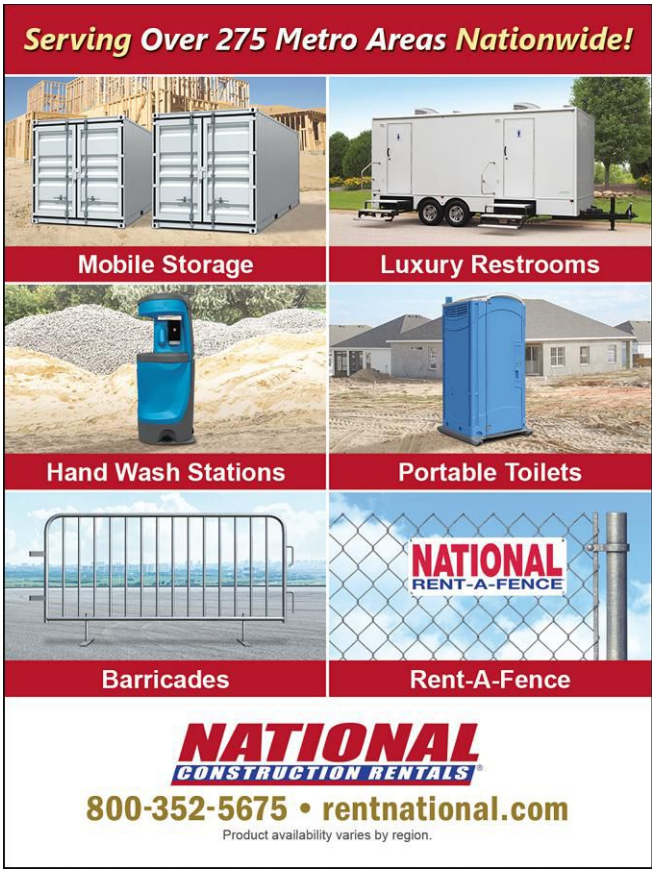
Follow Your Customized Maintenance Schedules

Unplanned maintenance work for crawler excavators can place stress and expense on your company that directly affects your profit. Follow hourly, daily and monthly excavator maintenance schedules based on your manufacturer's recommended guidelines outlined in the operation manual. Complete a daily walk-around, checking for obvious machine damage or wear. Inspecting fluids, oils and filters, as well as track wear, is crucial in residential and commercial construction applications.

Some manufacturers offer ground-level access to all filters and convenient access to regular inspection points. Access panels open from the top, bottom and sides of the excavator. Centralized grease banks on the arm and base of the boom can make daily maintenance easier.

Working with an equipment dealership that can offer a customized approach to maintenance can also be extremely valuable. Some manufacturers offer fleet management tools that assist dealers with





POPULAR OPTIONS FOR CRAWLER EXCAVATORS

Want to outfit your crawler excavator with more options on the jobsite? Check out some popular ones:

- Side-view camera — Improve visibility and safety
- Dozer blade attachment — Perform light grading and leveling tasks
- Track pads for steel tracks on smaller crawler excavators — Minimize damage to surfaces
- Optional heated and cooled seats — Enhance operator comfort
- Thumb-ready arm — Handle materials with ease

calculating maintenance costs, creating unique packages that address their customers' specific needs.

Save With Built-In Fuel Efficiencies

No matter whether you're monitoring fuel costs monthly or yearly, they play a fundamental role in your operation that can directly impact your bottom line. And the larger the equipment, the greater the expense can be.

There are equipment innovations and best practices that can help improve your equipment's fuel economy and reduce fuel costs on your profit-and-loss statement. If you are considering upgrading to a larger excavator, look for such built-in fuel efficiencies as automated idling functions, power optimization systems, advanced transmission and hydraulic systems, programmable engine control units and sight gauges that monitor fuel efficiency by the minute. Some aftertreatment systems can reduce particulate matter without use of a diesel particulate filter. These can all contribute to more economical operation.

Regarding fuel usage, it's important to recognize that various applications can affect consumption rates. The fuel consumption rate for crawler excavators also depends on several factors, including engine size, equipment condition, your habits or your operators' habits, the load, environmental conditions and a machine's basic design. Monitoring a machine's fuel usage can alert you to the need for routine maintenance that will keep your machine running more efficiently.

Know Transportation Requirements

Moving a machine from site to site may not be the norm for most crawler excavators. However, if you anticipate that your crawler excavator will need to be transported frequently, make sure to select the right towing vehicle and trailer. The towing vehicle should account for the total excavator and attachment weight being transported. If you are moving oversized loads, you will likely need a larger transport device with a larger weight rating to handle the heavy load. Special approval or permits may be required for oversized loads along your planned route, and these can add to your operational costs. A transport vehicle's load rating can be found on its identification plate or in the equipment operation manual.

All states and local municipalities have regulations based on gross vehicle weight rating — the maximum operating weight or mass of a piece of equipment as specified by the manufacturer. Load ratings vary from state to state, so check federal, state and local laws and regulations regarding weight, width, length and height of a load before making preparations to transport your machine on public roads, bridges, highways and interstates.

For the largest of crawler excavators, some heavy construction equipment manufacturers offer a hydraulic removable excavator counterweight to quickly and easily reduce the overall machine weight. This option may allow you to utilize a standard-size trailer to transport an excavator and help reduce hauling costs and avoid the need for oversize or overweight permits. The counterweight, attachments and sometimes the arm and boom can be transported on a second trailer. Always follow the operation manual for proper counterweight installation and removal.

Visit Your Local Dealer

If you've decided that upgrading to a larger excavator is right for you and your business, visit your local dealership. They will understand your needs and help you decide what size machine is best for your jobsite.

In addition, dealers are a good resource for hands-on equipment demos through a rental. Dealers have the product knowledge and experience to help troubleshoot and maintain a machine. They understand and can articulate new technologies and encourage demonstrations and are dedicated to maximizing machine performance. Some manufacturers provide instructional videos about how to properly operate and maintain construction equipment. Having a responsive and trustworthy relationship with your dealer, who stands behind their manufacturers' machines, can be one of the biggest buying factors in your heavy equipment purchase.

Making the move up from compact to larger crawler excavators can be beneficial, but it takes careful consideration. By following these tips, you can best determine if upgrading your excavator is right for you and your operation. ▲

Jacob Sherman is the dealer and product marketing manager at Develon. Sherman has over 20 years experience in various aspects of the equipment industry, including sales, marketing and management. He has a bachelor's degree in aerospace administration/business and an MBA with a secondary focus in economics and finance. Visit na.develon-ce.com.



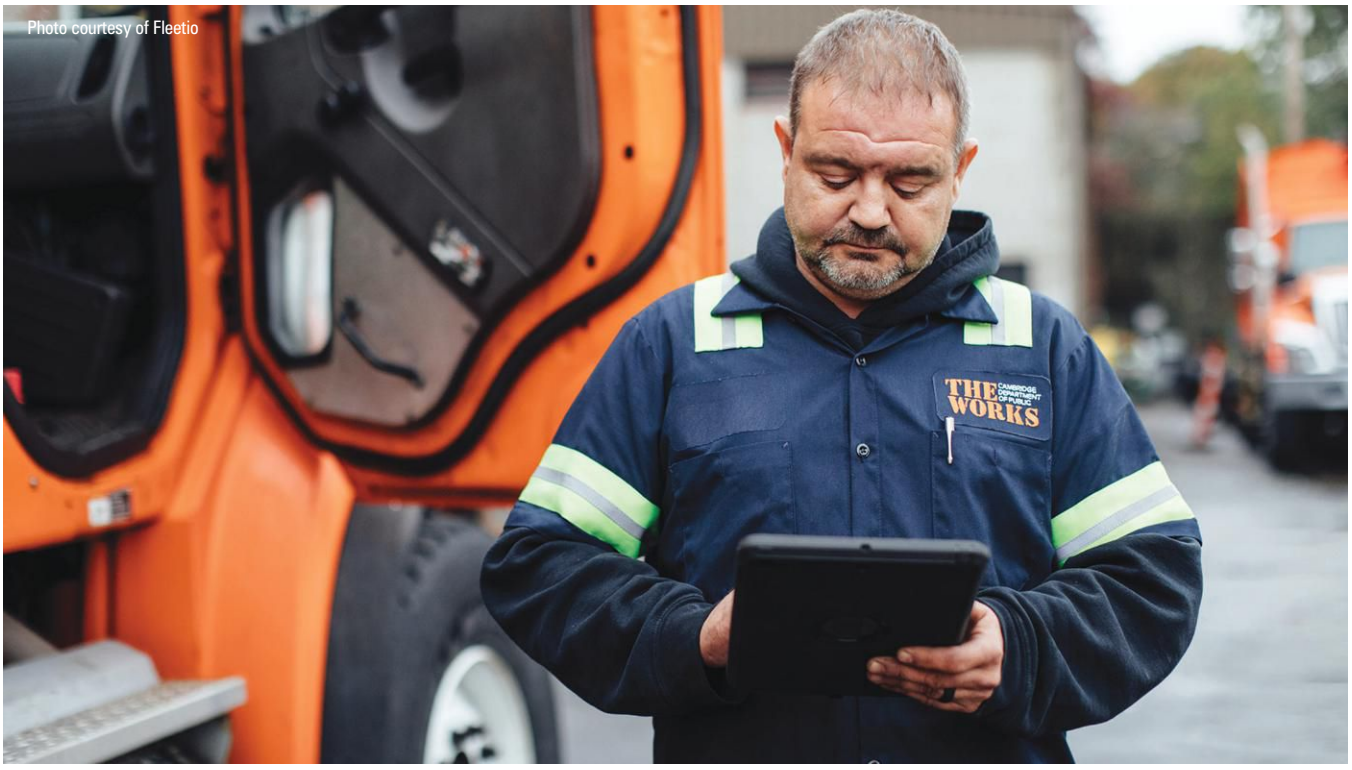


Photo courtesy of Fleetio

Maximize Equipment Accountability for Enhanced Productivity

Implementing these measures empowers equipment operators to take ownership

BY RACHAEL PLANT

Accountability is the linchpin that holds together a well-oiled operation, especially when that operation consists of many moving pieces of equipment. The inability to know who did what, when, where and why makes it difficult to follow up and address issues such as lost, displaced and/or damaged equipment or poor maintenance management. Contractors, construction fleet owners and managers can establish robust accountability systems by leveraging technology such as telematics, equipment management systems and fleet management software (FMS). These systems benefit not only the fleet but also the operators themselves.

Real-Time Equipment Tracking & Status Updates

Relying on manual equipment tracking methods such as whiteboards, paper forms, spreadsheets or verbal assignments can lead to confusion within your crew — and sometimes even other departments. When equipment goes missing or breaks down, accountability is elusive. This lack of insight can cause communication issues and costly downtime, negatively impacting productivity and profitability.

To avoid the pitfalls of manual tracking, fleets are turning to technology-driven equipment tracking systems that offer real-time asset visibility that's accessible. Implementing an equipment tracking system might sound daunting, but user-friendly software simplifies the process. Equipment tracking solutions allow you to monitor equipment location and manage assignments from anywhere, enhancing team collaboration and ensuring seamless communication regarding equipment health, location and status.

Tracking equipment in real time helps maintain accountability, and using a fleet solution with a mobile-first equipment tracking system provides fleets with constant asset visibility. Fleet managers can instantly update and view the status of each piece of equipment, ensuring smooth operations.

Leverage Barcodes & NFC Tags

While tracking equipment status, such as active, in-use or out-of-service, keeps you informed about equipment usage, you can go a step further and implement equipment check-in/out parameters using FMS. This allows employees to assign themselves a piece of equipment, not only giving more accurate data around usage per job and usage overall, but also improving accountability.

FMS uses barcodes and near-field communication (NFC) tags to help fleets streamline equipment management. Equipment details, check-ins/outs and assignments are just a barcode scan away. This minimizes cumbersome paperwork, allowing more time for productive tasks, and it also provides better insights so fleets can quickly spot and source the cause of issues.

NFC technology takes the barcode efficiency to the next level. By encoding NFC tags on equipment, you receive push notifications on your smartphone when you're within a few inches of a specific piece of equipment. With a simple tap, you can make quick edits, check equipment in or out, or assign equipment to others.

Of course, a crucial aspect of accountability is knowing the last location and usage of equipment. FMS provides a "last known location" feature to help fleets cut down on time wasted trying to track down an elusive piece of equipment. Whenever a barcode is scanned using the FMS's native mobile app, the system automatically records the equipment's location. This significantly reduces equipment loss and theft by providing a trail of who last used it and where it was last located. The result? Countless hours and dollars saved on equipment searches and repurchases.

Assign Equipment for Accountability

One advantage of FMS and other equipment tracking solutions is the user permissions feature. You may not want just anyone to be able to check equipment in or out, whether for liability reasons or because it just makes the most sense for how your operation is run. By adjusting user permissions, you can restrict individual equipment check-in/out. Instead, you'll have equipment assigned to individuals by a designated person, allowing you to collect the same data without having too many hands in the pie.

Equipment assignments ensure that everyone is on the same page and accountable for their assigned equipment. Managers can create and manage equipment assignments within the software which employees can access via the mobile app. As with the equipment check-in/out feature, assignments create a robust audit trail for all equipment.

Get Ahead of Repairs

Service costs take up a large chunk of a fleet's budget, and if you're not properly inspecting and performing preventive maintenance on heavy equipment, those costs can rack up. Equipment inspections are every bit as important as vehicle inspections when it comes to catching issues before they snowball. Whether your field crew, technicians or foremen are responsible for daily, pre- or post-trip inspections, it's critical that the responsible party be held accountable for filling out and submitting inspections so issues can be followed up on quickly. Using digital inspections in FMS promotes accountability (and reduces instances of pencil-whipping) while ensuring real-time notification of failed inspection items.

When it comes to maintaining equipment, accountability is also critical to ensure the right communications are going to the right individuals. For example, if preventive maintenance is scheduled for a piece of equipment, who needs to know: the assigned user, the foreman, the technician to whom work will be assigned, a third-party shop? Who's accountable for getting the equipment to the shop? Understanding who is directly accountable for each action improves communication and streamlines the service workflow.

Benefits for Operators

A key misconception around fleet asset tracking systems is that they're put in place to micromanage employees. Holding equipment operators accountable isn't about scrutinizing their actions, however: it's also about empowering them. Benefits to operators include:

- *Clear responsibilities* — Operators have clear knowledge of their assigned equipment, fostering a sense of ownership and responsibility.
- *Enhanced communication* — Operators can easily report equipment issues in real time, enabling quicker problem-solving.
- *Streamlined workflow* — With accountability systems in place, operators spend less time on paperwork and more time on productive tasks.
- *Morale boost* — Feeling accountable for their equipment can boost operator morale and job satisfaction.

Empower Accountability for All

Fleet managers and contractors recognize that accountability is the cornerstone of a successful operation. Implementing technology-driven equipment tracking systems not only improves asset accountability but also empowers equipment operators. With real-time tracking, streamlined workflows and clear responsibilities, these systems contribute to increased productivity, reduced downtime and enhanced equipment health. It's a win-win for both the fleet and its operators. ▲

Rachael Plant is a content marketing specialist for Fleetio, a fleet management software company that helps organizations track, analyze and improve their fleet operations. Visit fleetio.com.



What Contractors Should Know About the Build America, Buy America Act

Unpacking federal requirements for infrastructure projects

BY FRANK J. TANZOLA & KEN CHAPMAN

Battling back from the Great Depression, the Hoover administration passed the "Buy American Act" in 1933. The basic premise of the law was to revive and bolster the economy by requiring U.S.-sourced iron and steel mined or produced in the U.S. to be used in projects for the federal government.

In 1982 Congress passed the "Buy America Act," which expanded the requirement that contractors utilize only U.S.-sourced iron and steel on state transportation projects receiving federal funding. The Buy America Act also expanded the items that must be U.S.-sourced to include manufactured items.

More recently, a further expansion, called the "Build America, Buy America Act" (BABA), was passed in 2021 as part of the Infrastructure and Investment Jobs Act (IIJA). Contractors need to be aware of how the law has changed and how it could affect their businesses in new ways.

Most significantly, BABA material requirements apply to all infrastructure projects receiving federal funding — not just IIJA projects — and not only where the federal government is the contracting party, but also on projects where a state or local government entity is the contracting party. Further, "infrastructure" projects are broadly defined to include:

- Roads, tunnels and bridges
- Railways (both passenger and freight)
- Dams, ports, harbors and other maritime facilities
- Airports
- Water systems
- Electrical transmission facilities and systems
- Utilities
- Broadband infrastructure
- Buildings appurtenant to all of the above, including train and bus stations, toll facilities and even office facilities

Here are some other facts you should know about BABA:

- Along with iron, steel and manufactured products, BABA's requirements extend for the first time to construction materials, which must also be U.S.-sourced. Construction materials are defined to include commodities such as glass, drywall, fiber-optic cable, nonferrous metals like copper and aluminum, and PVC and other plastic or polymer-based products. Aggregates and cement are excluded.
- BABA incrementally increases the required domestic content threshold (by cost) of manufactured goods from 55% to 60% effective October 2022, up to 65% by 2024, and will top out at 75% in 2029. In certain instances, increases have been delayed pending review.
- Commercially available off-the-shelf items made abroad can be used if they are not modified.

Can an item fall into more than one category among iron and steel, manufactured products and construction materials?

No. The guidance suggests that all items incorporated into an infrastructure project fall into one of the three categories. For example, an item combining a construction material, like glass, with another material or a manufactured product (such as a window unit) will be considered a manufactured product.

What exactly is a COTS item?

Under the Federal Acquisition Regulations, a commercially available off-the-shelf (COTS) item is any supply item (including a construction material) that is sold in substantial quantities in the commercial marketplace and used without modification in the same form in which it is sold.

Are waivers available for BABA requirements under the IIJA?

Yes. A waiver may be available if it's found that the mandate is contrary to the public interest or if the materials are unavailable or unreasonably priced. Waivers issued by a particular government agency can apply to that agency or be project specific. Further, under international treaty obligations, products from certain preferred trade partners are treated as made in America for contracts of $7,804,000 or more with certain exceptions, such as Small Business Administration contracts, which fall under Buy American mandates regardless of the project amount.

Best Practices for Contractors

If you're working on a project that's federally funded in any respect, compliance with applicable Buy American requirements is critical to your bottom line. Stay on top of the regulations with these best practices:

- Get certification from your suppliers. Obtain supplier certification confirming that the construction materials or manufactured products comply with BABA requirements.
- Share liability. Construction contracts with subcontractors and suppliers should include language making

these parties responsible for the cost of non-compliance with BABA.

- Stay current with requirement changes. Laws change frequently. Pay close attention to bulletins issued by federal agencies such as the Office of Management and Budget. Conditions for waivers could change along with the types of construction materials subject to BABA. Exceptions to the rule may also change. While cement and aggregates are not currently included in BABA, that could change.
- Don't count on a waiver. BABA is in place for a reason, so waivers will not be easy to obtain and are likely to be project or even product specific. Perform your due diligence, be aware that the timing to implement BABA requirements is not uniform for all federally funded infrastructure projects, and make sure BABA requirements applicable to the project are met.
- Consider dedicating a person to BABA oversight. Documentation is key, so make sure you record all facts surrounding the job and BABA compliance. Task someone in your organization with tracking documentation or consider having a dedicated person in charge of compliance with BABA. Whenever in doubt, seek legal advice.

Failure to comply with applicable BABA requirements can result in the need for removing and replacing completed work at your cost, termination from the contract and potentially even debarment from performing federally funded work. In addition, knowingly failing to comply with Buy American requirements can lead to liability under the False Claims Act, penalties under which includes treble damages.

Note: This article should not be used as legal advice. All parties should consult legal counsel of their choice and seek expert advice on legal and compliance issues. ▲

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Ken Chapman is the executive vice president, surety at IAT. Chapman joined IAT in 2018 to lead the company's Surety business. He brings more than 30 years of experience in the surety bond industry. He is a member of IAT's management committee. Visit iatinsurancegroup.com.



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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.



▲ LEICA GEOSYSTEMS, PART OF HEXAGON

Leica BLK2FLY

Released: 9/5/23

Availability: U.S. & European markets

What's new? The new BLK2FLY, an autonomous, LiDAR-based unmanned aerial vehicle (UAV) is built specifically for capturing smaller indoor spaces and structures. These include arenas, warehouses, power plants, bridges, tunnels and tramways.

Specs: The BLK2FLY's autonomous navigation system heightens the sensor's spatial awareness, allowing for obstacle avoidance in more confined spaces with the assurance the resulting scans will not be compromised by shadows, incomplete textures or missing details. This new capability provides real-time spherical imaging that improves the BLK2FLY's operating range to a radius of 1.5 meters.



◄ CATERPILLAR

988 GC Wheel Loader

Released: 9/11/23

Availability: North American market

What's new? The new Cat 988 GC Wheel Loader delivers reliable and efficient operation, allowing customers to move more material at a lower cost per hour for a faster return on investment. The new loader offers up to 5% less fuel consumption and up to 15% lower maintenance costs than the Cat 988K. Designed to maximize life-cycle value in moderate production applications up to 2,000 hours per year, the 988 GC is capable of delivering production within 6% of the 988K in truck-loading applications. Advanced filtration extends performance and reliability of the hydraulic system. Ground level or platform access to grouped service points delivers convenient servicing. Providing easy access to important daily service checks, access doors are located on both sides of the engine compartment.

Specs: The 988 GC is optimized as a 50-ton truck match loader. Its 12.8-foot dump clearance delivers efficient loading up to the Cat 775G truck. With bucket payload matched to the 988K, the new 988 GC offers up to 740 tons/hour productivity in shot-rock truck-loading applications and up to 581 tons/hour for load-and-carry operations. The highly durable structures of the new loader are built for multiple life cycles and to withstand the toughest loading conditions. Built on the common Cat Large Wheel Loader platform, its full box section rear frame resists torsional shock and twisting forces. Its front frame is redesigned to withstand larger loads and features a new lift arm design.

JCB ►

Pothole Pro

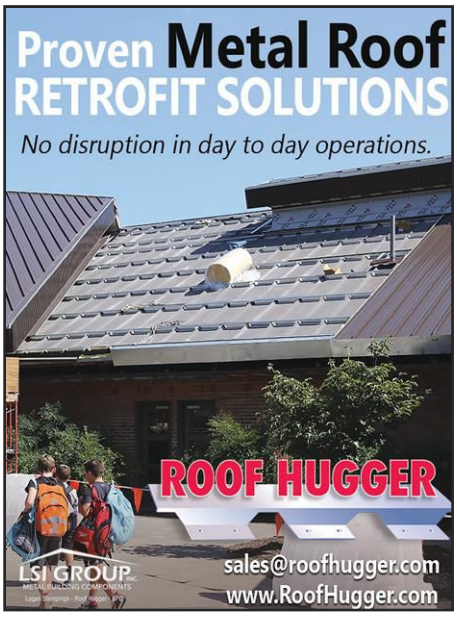
Released: 9/27/23

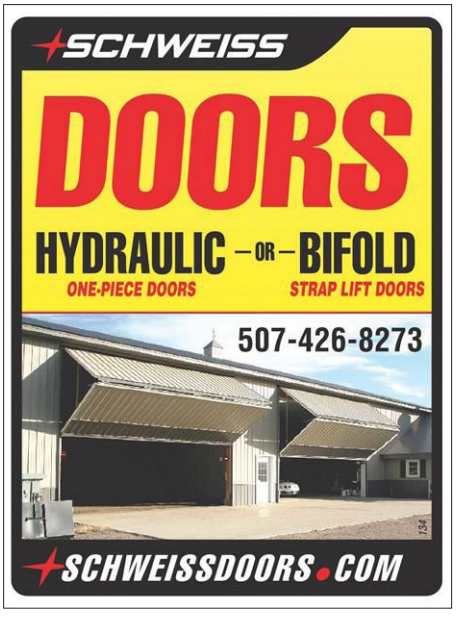
Availability: North American & European markets

What's new? This single-machine pothole and patching repair solution can fix potholes permanently, the first time, without the need for labor intensive repair methods or additional expensive machinery. The Pothole Pro can repair a pothole in less than 8 minutes — equivalent to 700 potholes per month. With a 25-mph travel speed, the machine can rapidly relocate between sites without additional transport costs. The Pothole Pro can prepare up to 299 square yards of roadway in a single shift, or 6,540 cubic yards per month, and allows the contractor or municipality to cut the defect, crop the edges and clean the hole with one machine — mechanizing jobs traditionally done by pothole crews and delivering up to a 50% cut in daily costs.

Specs: The JCB Pothole Pro is equipped with a planer, with mounted on the machine's rear skid steer hitch. The planer is 24 inches wide, with up to 4.26 feet of side-shift adjustment. This allows the operator to plane a full roadway lane from the curb, without repositioning the machine. Hydraulic tilt and depth control provide a consistent depth for larger patches. Safety is also improved as the crew does not have to complete the handheld cutting and breaking, eliminating the risk of hand arm vibration syndrome (HAVS).









▲ NEW HOLLAND CONSTRUCTION

C330 Super Boom Vertical Lift Compact Track Loader

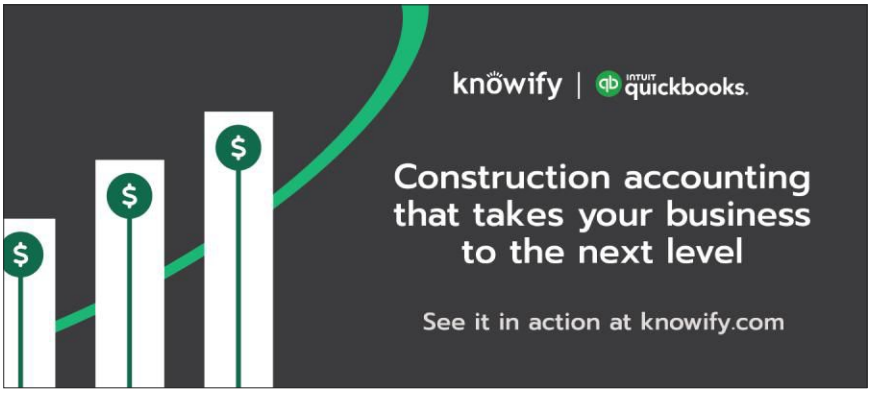
Released: 9/13/23
Availability: North American market
What's new? Built with a medium frame, this robust machine sets a new standard for maneuverability in confined spaces. Boasting a 66-inch working width and a robust 67-horsepower engine, the C330 vertical lift compact track loader showcases the New Holland Construction Super Boom lift. This design integrates elements such as low shoulder positioning and streamlined towers, significantly improving operator visibility and jobsite safety.
Specs: The C330 vertical lift compact track loader possesses 3,000-pound rated operating capacity and bucket tip of 7,300 pounds. The machine has a load-carrying capacity to handle the transportation of substantial materials such as rocks, stone and timber. Leveraging electro-hydraulic control (E-H), the machine can navigate through tight residential spaces to pass through backyard gates and maneuver with ease between buildings. Engineered with lower shoulders, slim cab pillars and a 66-inch heavy duty bucket, the loader makes lifting and carrying materials like pavers, wall blocks, pallets and feed easy with a strong bucket tip of 7,300 pounds and lift breakout force of 3,450 pounds. Operators also experience a smooth ride and improved track life due to the low-profile undercarriage design and steel-embedded tracks rolling on the rubber instead of the steel.



◀ DEWALT

TOUGHSYSTEM 2.0 Adjustable Work Light

Released: 10/1/23
Availability: U.S. market
What's new? The modular lighting solution delivers up to three hours of runtime (per charge, with both lights on maximum brightness level, using a DCB205 20V MAX 5Ah battery) and features two pivoting LED heads that provide to 4,000 lumens (using both lights) and seven brightness levels. The light offers users versatility through cordless and corded power options.
Specs: The light can be used freestanding, stacked on TOUGHSYSTEM 2.0 toolboxes, mounted on a tripod or hung using the built-in folding wire hook. The unit is designed with a TOUGHSYSTEM 2.0 Auto-Connect Latch, side slots for tool mounting as well as LED indicators for brightness level of each light and AC power and battery status. With ample storage space, an integrated folding handle and durable design, this TOUGHSYSTEM compatible product delivers the versatility needed for demanding jobsites.



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

2. Your primary job title is: *(Check only one)*
❑ 10 Owner, Partner, President, CEO, CFO, COO, Vice President, Director
❑ 11 General Manager, Manager, Foreman, Superintendent, Purchasing Agent, Controller, Accountant
❑ 12 Engineer, Architect
❑ 06 Consultant
❑ 99 Other (please specify)

3. Approximate annual contract sales volume:
(Check only one)
❑ 01 Less than $500,000
❑ 02 $500,001 – $1,000,000
❑ 03 $1,000,001 – $2,500,000
❑ 04 $2,500,001 – $5,000,000
❑ 05 $5,000,001 – $10,000,000
❑ 06 $10,000,001 – $20,000,000
❑ 07 $20,000,001 – $50,000,000
❑ 08 More than $50,000,000

4. Which of the following products/services are you planning to buy during the next 12 months?
(Check all that apply)
❑ 01 Earthmoving Equipment
❑ 02 Trucks, Trailers and Accessories
❑ 03 Compact Equipment
❑ 04 Lifting and Hoisting Equipment
❑ 05 Safety Equipment and Apparel
❑ 06 Attachments
❑ 07 Concrete and Paving Equipment
❑ 08 Survey and Site Prep
❑ 09 Compressors, Generators and Pumps
❑ 10 Financing and Accounting Services
❑ 11 Software and Technology
❑ 12 Insurance and Bonding
❑ 13 Training and Education
❑ 14 Telecommunications
❑ 16 Greases, Lubricants and Filters
❑ 17 Jobsite Lighting
❑ 18 Building Supplies
❑ 19 Rental Equipment
❑ 21 GPS Equipment and Security

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Annual Value of Construction Put in Place

August 2021/2022/2023 Annual Rate Comparison

This chart compares the two previous years' total value of construction put in place to an annual forecast based on August 2023 figures. (Millions of dollars. Totals may not add up perfectly due to rounding.)

	2021	2022	2023
Total Private Construction	**1,242,217**	**1,425,963**	**1,551,822**
Residential	786,589	912,913	879,896
Nonresidential	455,627	513,051	671,927
Total Public Construction	**341,869**	**355,314**	**431,648**
Residential	8,909	9,080	9,907
Nonresidential	332,960	346,234	421,741
TOTAL Construction	**1,584,085**	**1,781,278**	**1,983,470**

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

$1,983,470

AUGUST 2023 TOTAL ANNUAL VALUE OF CONSTRUCTION PUT IN PLACE

"Business conditions at architecture firms continue to be sluggish," said Kermit Baker, Ph.D., AIA chief economist. "New project work coming into architecture firms as well ongoing project activity remain stalled in a relatively narrow range and exhibit very little month-to-month variation. Though this pause has taken pressure off tight staffing conditions across the profession, there is considerable uncertainty over the direction of future activity."

AIA Architectural Billings Index (ABI)

National			*Regional - Billings				*Sectors - Billings			
Month	Billings	Inquiries	Northeast	Midwest	South	West	Multifamily Residential	Commercial/ Industrial	Institutional	Mixed
Mar-23	50.4	53.1	49.1	51.4	47.4	47.2	44.2	49.7	48.8	53.9
Apr-23	48.5	53.9	47.2	51.2	48.7	49.3	41.5	51.8	50.6	52.1
May-23	51.0	57.2	48.7	49.6	52.3	47.7	43.0	47.5	53.4	52.7
Jun-23	50.1	56.7	50.6	52.4	50.5	48.6	47.4	47.8	55.4	48.8
Jul-23	50.0	54.5	49.3	51.6	48.9	49.6	45.4	52.7	51.2	46.3
Aug-23	48.1	54.8	50.6	48.1	49.9	45.8	44.1	51.5	49.4	46.9

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

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



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