THE LEADING BUSINESS MAGAZINE FOR CONTRACTORS

JULY 2024 | CONSTRUCTIONBUSINESSOWNER.COM

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EMBRACING A GAME-CHANGER FOR ESTIMATING TEAMS



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A contractors' guide to tax credits & energy incentives

IN THE FIELD
5 steps to empowering subcontractors for LEED success

CFMA POST-SHOW COVERAGE:
Highlights from this year's conference



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FROM THE MANAGING EDITOR

CARMEN CAPOCCIA



CBO Managing Editor
Carmen Capoccia

As summer rolls into Birmingham, Alabama — home to the Construction Business Owner (CBO) team — the thermometer is ticking ever upward. July in the South means days with the sun bearing down at 90-plus degrees, with a thick blanket of humidity to boot. For the next few months, you can find me by the air conditioner. Although the summer means pool days and strong AC for some, construction's busy season is underway. As workers tackle projects in the sun, leaders must take measures to ensure they are well protected from the season's heat.

The Occupational Safety and Health Administration (OSHA) recommends that employers provide water, rest breaks, proper training and a cool rest area (or shade) to employees. And this advice can't wait: According to OSHA, nearly half of all heat-related deaths happen on the worker's first day. Acclimatization helps build heat tolerance, and employers should allow new workers to adjust the temperature before working full days in the heat. The "rule of 20%" can help workers acclimate. By following this guideline, your workers should be ready for full-time days in the heat after their first week. OSHA lays out the rule simply:

- "New workers should work only 20% of the normal duration on their first day.
- "Increase work duration by 20% on subsequent days until the worker is performing a normal schedule."

You can find more guidance for protecting workers at osha.gov/heat.

As I look toward the back half of the year, I'm excited about CBO's agenda for the upcoming months. In October, I'm heading to San Diego for the International Risk Management Institute (IRMI) Construction Risk Conference from Oct. 27-30, and then Editor Megan Beam will be off to the Greenbuild International Conference in Philadelphia, held Nov. 12-15. We are excited to learn from the experts and return armed with information for our readers.

Don't forget to check out Megan's takeaways from this year's Construction Financial Management Association (CFMA) conference, which was held May 18-22 in Grapevine, Texas, beginning on page 23.

Thank you for reading,

Carmen Capoccia

BPA WORLDWIDE MEMBER

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THE BEST IN THE BUSINESS



OUTSTANDING WOMEN IN CONSTRUCTION 2024

Construction Business Owner Magazine is honoring some of the construction industry's best with a special section dedicated to outstanding women. From GCs to CEOs and specialty trade workers, your nominations will help us showcase the hardworking female professionals who are advancing the industry.

If you work with a woman who is making the industry a better place, we want to know about her. Visit constructionbusinessowner.com/owic2024 for more details on how to submit a nomination.

Nominations close September 6, 2024.



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A milestone for construction financial professionals







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ACI Announces New Committee on Seawater Concrete

The American Concrete Institute (ACI) announced the formation of a new committee whose mission is to develop and report information on concrete made with brackish, saline, and brine water and sea aggregates. ACI Committee 243, Seawater Concrete, will host its inaugural meeting on Sunday, Nov. 3, 2024, at the ACI Concrete Convention in Philadelphia, Pennsylvania. Under the leadership of chair Antonio Nanni, professor and chair at University of Miami, ACI past president and active ACI committee member, the committee will work to develop code language focused specifically on seawater concrete construction. "ACI's decision to form a new technical committee that deals with concrete made with combinations of brackish, saline, and brine water and/or sea aggregates is another critical step to show our commitment to sustainability" said Nanni, chair, ACI Committee 243. "Saving fresh water and natural aggregates is a global goal and the active presence of ACI in this space will facilitate the development of knowledge and documentation necessary to attain it." Visit concrete.org.

Hy-Brid Lifts Announces Director of Sales for South-Central U.S.



Gary Coke

Hy-Brid Lifts, an industry provider of aerial lift equipment, announced Gary Coke as director of sales covering the south-central U.S. Coke's responsibilities include providing customer support as well as continuing the growth and channel development of the Hy-Brid Lifts line of low-level scissor lifts. Coke brings 19 years of industry experience to his new role, largely derived from his time in equipment manufacturing with SkyJack. He spent a majority of his career in sales with a strong emphasis on customer relationships and going above and beyond for every customer. Visit hybridlifts.com.

Garnica Opens First US Warehouse & Adds New Members

Garnica, a global supplier of sustainable plywood solutions, opened its first U.S.-based warehouse in Savannah, Georgia, at the beginning of May. This strategic expansion underscores the company's commitment to enhancing its presence in North America and providing expedited service to its customers across the region. The warehouse, operating under the name "Garnica ExpressShip," will prioritize service to the new Garnica Partner Community (GPC), a group of Garnica's collaborative distribution partners. The facility will stock a wide selection of Garnica's most popular products in standard and jumbo sizes as well as a variety of thickness options. In addition to Garnica's new warehouse, the company is also appointing two new senior leaders to its North American team: Thomas Tornillo, product management and claims manager, and Jack Naish, inside sales manager. Together, they will work to enhance the customer experience and ensure clients receive tailored support through information and resources catered to their needs. Visit garnica.one/en-us.

Finlay Presents 2 New Models at USA Open Days in Atlanta

Finlay recently showcased its latest products — the J-1170+ jaw crusher and the TR-80 radial conveyor — during its Open Days event in Atlanta. Approximately 200 distributors and customers from across North America attended the Open Days, marking the debut of these new machines' first production builds following their official launch earlier this year. The J-1170+ jaw crusher garnered attention for its production capabilities, while the TR-80 radial conveyor highlighted the efficiency and cost savings achievable through the integration of mobile conveyors in material processing applications. The Open Days featured live demonstrations of seven Finlay machines in quarry and concrete recycling scenarios, each showing productivity and efficiency gains in material processing operations. They also provided an opportunity for industry professionals, including quarry owners, operators and Finlay representatives, to experience firsthand the performance of the equipment, as well as to network and share their insights and experiences. Visit terex.com/finlay.

Hexagon Acquires Xwatch

Hexagon, a global provider of digital reality solutions combining sensor, software and autonomous technologies, announced the acquisition of Xwatch Safety Solutions. Xwatch provides machine control hardware and software technologies designed to enhance safety protocols on construction sites. This includes height control, slew control and rated capacity indication (RCI) for heavy machinery, allowing operators to limit an excavator's height and set side boundaries to define a working zone, significantly increasing safety around a machine. Xwatch has previously partnered with Hexagon's Geosystem division to develop the 3D Avoidance Zone system, an integral part of the digital construction product suite. In 2023, Xwatch generated revenues of around 4 MEUR, with operating margins slightly below the Geosystem's division average. Xwatch has 17 employees, mainly within the U.K., and was fully consolidated in April. Visit hexagon.com.

Garrison Spearman Joins Thunder Creek



Garrison Spearman

Thunder Creek Equipment has named Garrison Spearman as the new territory sales manager for the southeastern U.S., covering the states of Mississippi, Alabama, Georgia, Florida and South Carolina. Spearman joins Thunder Creek with both heavy equipment sales and territory management experience, as well as land development/real estate experience in the region. He will represent Thunder Creek in customer support and dealer development with a focus on the

construction, heavy civil construction and agricultural industries. Thunder Creek designs and manufactures fueling and preventive maintenance solutions for off-road equipment and remote service. This includes the original No-HAZMAT Fuel & Service Trailer (MTT), the Multi-Tank Oil Trailer (MTO), and Service and Lube Trailer (SLT) — as well as the truck-mounted No-HAZMAT Fuel & Service Multi-Tank Upfit (MTU) and Service and Lube Upfit (SLU). The manufacturer is also an equipment provider for the hauling and distribution of diesel exhaust fluid (DEF) with its proprietary 2-in-1, closed-loop system. Visit thundercreek.com.

▶ Tarlton Voted 2024 General Contractor of the Year

Tarlton Corp., St. Louis' largest women-owned general contracting and construction management firm, was named 2024 General Contractor of the Year by the American Subcontractors Association Midwest Council at the organization's 31st Annual Awards Gala on April 20. The designation is voted on by members of the ASA Midwest Council. Tarlton was a finalist in the category for the largest general contractor (based on annual sales volume) the previous four years and also won the award in 2023 and 2021. The ASA seeks nominations each year from its membership based on general contractors' bid ethics practices, equitable contact/purchase order agreements, safety policies and practices, payment practices, jobsite supervision, scheduling coordination, subcontractor and vendor relations and administrative procedures. Visit tarltoncorp.com.

▶ Isuzu to Launch Zero Emission, Battery-Electric, Medium-Duty Trucks

Isuzu North America Corporation announced the development of an all-new, zero-emission Isuzu class 6 and 7 truck utilizing an Accelera by Cummins powertrain for both the U.S. and Canada. This truck represents the first zero-emissions solution facilitated by the Isuzu Cummins Powertrain Partnership formed in May 2019. Powered by Accelera's next-generation lithium iron phosphate (LFP) battery technology, this new Isuzu medium-duty truck will support customers in achieving zero emissions while providing all the benefits associated with a low cab forward chassis. Current plans for the vehicle's availability is slated for 2026. This will further broaden Isuzu's product lineup and powertrain offerings providing customers in the medium-duty segment (class 6 and 7) a zero-emission option. Headquartered in Anaheim, California, Isuzu North America Corporation is a subsidiary of Isuzu Motors Limited, one of the world's largest manufacturers of medium- and heavy-duty trucks. Accelera, a business segment of Cummins Inc., is both a components supplier and integrator, focused on batteries, hydrogen fuel cells, e-axles, traction systems, integrated powertrain solutions and electrolyzers. Accelera currently has operations in North America, across Europe and in China. Visit isuzucv.com and accelerazero.com.

▶ RedTeam Adds New CTO & VP of Finance & Operations



Patrick Smith



Mark Ridenhour

RedTeam, a provider of construction management software solutions, announces the appointment of Patrick Smith as chief technology officer (CTO) and Mark Ridenhour as vice president (VP) of finance and operations. Smith brings extensive experience in organizational leadership, business strategy and custom software development to his role as CTO. His technical background spans two decades and multiple industries. Prior to joining RedTeam, Smith served as the platform engagement lead at PwC, where he spearheaded the development of custom software solutions for both internal teams and clients. Patrick's expertise in delivering innovative applications that solve end-user problems aligns perfectly with RedTeam's mission to offer cutting-edge construction management solutions. Ridenhour brings vast experience in his area of expertise within the software as a service (SaaS) industry. In his previous roles, Ridenhour successfully led financial operations for high-growth SaaS providers while maintaining strong stakeholder relationships. His track record of driving scalable improvements and fostering collaborative environments positions him well to drive financial strategy and operational excellence at RedTeam. Visit redteam.com.

▶ Bobcat Installs Stationary Fuel Cells From HyAxiom at 2 Facilities

Bobcat Company has enhanced two of its North Dakota manufacturing facilities with the installation of 14 stationary, natural gas-powered fuel cells from HyAxiom Inc., a global fuel cell and hydrogen solutions provider. These units will operate in parallel with the commercial power grid while carving a pathway to decarbonization by producing clean energy for the facilities' operations. The three fuel cells at the Bismarck facility and the 11 units at the Gwinner location are the first commercial installations of stationary fuel cells in the state Utilized in a wide range of applications, HyAxiom's PureCell M400 is a proprietary phosphoric acid fuel cell (PAFC) that can use natural gas, hydrogen, LPG or a blend of fuels to produce rapidly deployable baseload electricity and heat that are also resilient, sustainable and affordable. While this is the first installation of fuel cells in North Dakota, HyAxiom's fuel cells are in operation nationwide and globally, providing power and heat for commercial and industrial uses. With load-following capabilities, they have become a resilient source of energy for microgrid applications. Visit bobcat.com and hyaxiom.com.

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Quantum Physics & Other Light Construction Thinking

Utilizing conceptual theories as a reflection for construction leadership



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Call it inspiration from "The Three-Body Problem." Call it a moment of deep thinking. Call it watching an episode of "The Big Bang Theory" masked as deep thinking. There are countless theorems, hypotheses and universal laws that canvas the scientific world. Everyone has seen the memes or brilliant pearls of wisdom on social media that attempt to force the reader to think bigger.

Recently, there was a television reference to Occam's razor. The casual viewer might have thought it was for the latest subscription for shaving accessories. Also referred to the "law of parsimony," it simply postulates that the simplest explanation for things is preferable to the complex. For instance, as you lie in bed, you hear the patter of feet on your roof. Is it that pesky reindeer herd making another trip, or simply those raccoons that plague the neighborhood? The simplest answer is most likely the right answer. There is no shortage of "razors," a name which is drawn from the concept of shaving away details to lead to a conclusion. Razors and theorems abound in the world of physics and have a tendency to stretch one's mind to the point of breaking. However, these same treatises can be applied to the world of construction — albeit with a little more fun mixed in.

Occam's Razor

"It is futile to do with more what can be done with fewer."

William of Ockham may have been a construction leader even in the 14th century. His razor was simply an expression of how individuals overcomplicate things or over-rationalize. Consider a contractor who is losing money, year after year. It's the market, it's the weather, it's the people, it's the customers. It's some supernatural phenomena and confluence of forces creating a vortex of unprofitability. No, it's you. Sure, there are bad markets and bad weather. So in those same markets, why are there winners?

Great construction leaders need to revert back to the fundamental answer of how their role within organizations is being executed to set and act upon a strategic plan that has follow-through, rather than random chance encounters that may only have a tangential impact on performance.

Schrödinger's Cat

Watch out animal lovers — this is going to sting a little. Erwin Schrödinger was a Nobel Prize-winning physicist, and he developed a particularly unusual theorem. Consider a cat in a box with some sort of insidious device, say a toxin or nuclear

Photo Credit: Kien - stock.adobe.com



material that will eventually, ahem, end the cat. When the box is closed with the material, Schrödinger postulated that the cat is both alive and dead simultaneously until the box is opened for verification. This is a deep concept within the realm of quantum physics that this author barely can identify with. However, there are plenty of examples of Schrödinger's construction projects that exist in this world. Riddle me this:

1. How can a construction team be both profitable yet unproductive at the same time?
2. How can a construction project be profitable but generate no cash?
3. How can a project have the best team but still fail to be successful?

Whether it is superior crew performance/estimating errors in Case 1, a project that checks all the boxes on purchasing and management but fails on collections in Case 2 or the complete misalignment of a project team with inferior communication in Case 3, the cat is definitely out of the bag. When Occam's razor is applied to Schrödinger's cat — which sounds particularly horrible — there are often firmwide systemic failures that lead to misrepresentations, miscommunications and, most importantly, two parallel conditions that seem at odds with one another.

Borel's Monkeys

Émile Borel in 1913 may have defined the ultimate machine of inefficiency, or the simple phrase, "Even a broken clock works twice a day." Borel stated that if you have an infinite group of monkeys typing on typewriters (remember this was in the 1900s, millennials), that group will eventually produce a document on par with Shakespeare. This mathematical concept seems far-fetched, but contractors engage in this insanity too often. Consider the following:

- *Law of diminishing returns* — While not on the same vein as Borel, there is a law that states that simply adding resources will have a deleterious impact to output. For instance, take an infinite crew and see if the output goes up or down. Borel's monkeys had infinite space whereas most construction sites do not.
- *Failure to pivot, adjust, etc.* — Sure, Borel's monkeys finally wrote the sonnet. How long did it take? Could Monkey Construction have adjusted its strategic logic sooner rather than later before it landed the plane?

Unlike Borel, construction is a finite resource game played as Simon Sinek describes on an infinite timetable. Time is not on any contractor's side, whether it is on the project level or the enterprise level.

Ship of Theseus

Hoping for a golden fleece, were you? More likely a business will find the minotaur among the swampy wastelands. The concept of the "Ship of Theseus" is this: According to Plutarch, Theseus' ship was maintained by replacing one board at a time. As a board would rot, the ship's facility manager would replace it with a new board. Eventually, every board would be replaced on Theseus' ship, leading to the question: Is it Theseus' original ship or a new ship entirely? Sure, this sounds like some buildings that contractors work in, constantly doing "tenant improvements" over and over. The real theme is identity.

Leaders within firms need to evolve. Reflect on Occam's razor. Assuming things aren't working, change is inevitable. Sometimes that change means individuals change, models change, markets change, delivery systems change. Does that mean Brand X Construction is not the same business or simply reconstructed, one person or software at a time? In this case, firms must evolve or end up looking like a gaggle of monkeys.

To simplify the construction universe, these reinterpretations may have done the opposite. There are rarely philosophers or physicists contemplating the construction universe one brick at a time, but sometimes it comes down to the easiest solution.

Spoiler alert — the cat lived. ▲

Building a Solid Foundation

Strategic tax planning for contractors in 2024



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As 2023 financial statements and tax returns are finalized, it's time for contractors to shift their focus to the current tax year of 2024 and beyond. In a competitive industry like construction, it's crucial to adapt continuously to ensure your company is in the best possible position for current and future success. By having the right software and technology for accurate data interpretation, implementing a solid succession plan and strategizing income tax planning to reduce taxes, you'll build a solid foundation for your company's success and take charge of your financial future.

Tax Planning & Credits

Accounting for Long-Term Contracts

When considering year-to-date company profits for quarterly tax projections, it's essential to discuss your current accounting method with your tax accountant to better understand the potential methods or exceptions that can better help your tax position. The construction industry is unique, and the tax code allows very specific treatment of certain long-term contracts, with many exceptions to the primary percentage of completion (POC) reporting method. Many contractors are unaware that some of these tax options may be available. By maximizing the tax position of contracts, you can help improve cash flow and keep cash on hand for better use within the company. It is imperative that your accountant has experience with the construction industry, as the tax code has many intricacies in this area. Experienced accountants will understand that the code allows for the filing of a request for an accounting method change with the IRS and the potential impact of the alternative minimum tax (AMT).

179D Deduction

179D is a deduction for energy-efficient construction or building improvements to commercial buildings. As of Jan. 1, 2023, the maximum deduction is $1.8 per square foot, but it can now be a maximum of $5 per square foot if prevailing wage and apprenticeship requirements are met. This is a significant opportunity for many contractors. For example, a 100,000-square-foot project may yield a contractor an additional $500,000 deduction.

Understanding this and knowing how to obtain this credit is critical. For contractors that can address energy efficiency on their projects, 179D likely represents a significant advantage.

R&D Tax Credit

Construction companies may be eligible for research and development-related credits if they perform design-build contracts or continuously experiment to improve processes and techniques. Under current law, the IRS requires capitalizing research and development (R&D) expenses over five years. Still, if the Tax Relief for American Families and Workers Act of 2024 passes, those R&D expenses will no longer need to be capitalized through

Dec. 31, 2025. This is a tax credit on items the contractor has already paid for, and provided the contractor qualifies, they can use this credit to apply to taxes owed on the company's profit.

Bonus Depreciation vs. Section 179 Expense

The phase-out of bonus depreciation, which started at 100% depreciation deduction after the Tax Cuts and Jobs Act (TCJA) of 2017, dropped to 80% in 2023. Any fixed assets placed in service from Jan. 1, 2024, through Dec. 31, 2024, will now only be eligible for 60% bonus depreciation. As this bonus phase-out continues, it is even more important to determine if the section 179 expense should be used as an alternative to the bonus. The section 179 expense for eligible assets remains at 100%. However, there are limitations on how much is allowed in 2024 ($1,220,000 with a capital purchase limit of $3,050,000), and the 179 expense can only be utilized to the extent of taxable income. Because bonus depreciation is not subject to these limitations, it may make sense in specific scenarios to still use the bonus. Before making any assumptions, an analysis should be done to consider all state tax implications of each option.

Also, remember that an extension of the 100% bonus depreciation has not been completely ruled out, and is another item included in the Tax Relief for American Families and Workers Act of 2024.

Estate & Succession Planning

Most companies have formal business plans, but few have an equally important succession plan, especially if a retirement-age leader is at the helm and a successor has yet to be identified. Determining a succession plan, how to implement it and when to start the transition are all decisions that must be made in advance. If the current leader plans to sell, there are several approaches to structure a sale that best fits the new and old leadership alike.

Buy-sell agreements, private annuities and self-canceling installment notes are just a few ways to structure sales. Sometimes, family-owned businesses may want to transition leadership to the next generation. Even if the next generation does not have the skills required to take over the company immediately, there are ways to gift or sell that hand over the reins gradually as the new appointee becomes more comfortable managing the business independently. With the lifetime estate exemption still high ($13,610,000 for a single individual) in 2024, gifting business interest outright or using trusts could be one way to maximize the value from an estate planning and succession perspective. The 2024 exemption of $13,610,000 is set to expire at the end of 2025, so it is crucial to take advantage of the current exemption. The intent and goals of every business owner are unique for each company.

Business owners should seek assistance from their accountant or other professional advisors to determine the best fit for their situation.



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Assess Technology & Software

It is no secret that technology is constantly improving; most technologies or software programs that were brand-new to the market just a few years ago are getting leapfrogged by the next latest and greatest versions. Whether these technologies are used by your internal accounting team or in the field, they can significantly impact decision-making and analysis compared to outdated technologies or processes. The most important software for internal operations is an enterprise resource planning (ERP) solution. ERPs should integrate all aspects of your business processes and applications, from accounting and inventory/equipment tracking to supply chain operations and performance management. In the field, project management software exists for time tracking, equipment utilization and live reporting of crucial information to make on-site decisions. These scratch the surface of the options available to construction companies in today's market.

It is hard to know what you could benefit from if you are unaware of the available tech. As you read this, you may be thinking of a report or data you lack today that you wish you had available for decision-making and analysis; there is a good chance that it can be done with the right tools. Speaking with someone who understands your business and the available technologies is a great way to assess your current position and what could help your competitive outlook.

These strategies serve as critical pieces of a comprehensive approach to proactive tax planning for contractors. Each element, though distinct, contributes to a construction company's overall financial well-being and operational efficiency. While it is still early in the year, addressing these issues will leave enough time to design and implement any changes by year-end. ▲

Federally Funded Programs Boost Local Community Projects Nationwide

How grant programs are driving local construction



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.

I want to bring to your attention a sector of a federally funded program that I believe is not receiving adequate attention. The program facilitates local projects that public officials wish to launch. The U.S. Department of the Treasury administers the facilities grant program, which is awarding grant funding to support the expansion of broadband accessibility in public centers. Four of the following upcoming projects will be financed by the multipurpose community facilities program, and two other upcoming projects are noteworthy as they represent another way to serve the same purpose.

Arizona State University (ASU) will oversee the construction of the McCain Library, which is adjacent to the university's Tempe campus. The library, named for the late U.S. Sen. John McCain, will occupy approximately 83,000 square feet and include space for community functions, educational activities and health monitoring programs.

The library project will have presidential funding support and $83 million from the Department of the Treasury's Capital Projects Fund. The facility will be located on the 22.5-acre McCain Campus near Papago Park in Phoenix, just north of Tempe Town Lake. Officials estimate 50,000 people annually will benefit from the library's services. There is no timeline for a construction launch, but design work is underway.

Central Wyoming College has announced plans to construct a permanent campus in Jackson, Wyoming, at a cost of $20 million. A funding award of $12.4 million from the Capital Projects Fund will be consolidated with other state appropriations and federal funding to cover the cumulative costs.

The Jackson campus will house health care, hospitality and English as a second language programs. As a designated multipurpose community facility, it will provide programming and services to support the Jackson community, and it will provide public access to computer labs and career workshops. The design work is finished, and development plans were available for approval in March.

The city of New Haven, Connecticut, will deliver a new home to its Adult & Continuing Education Center by renovating a state-owned social-service building on Bassett Street. This project will be supported by a $20 million multipurpose facilities grant, focusing on expanding community access to high-speed internet. The city's Adult & Continuing Education Center provides educational services to city residents. Programs include academic, health monitoring, workforce training and career counseling. The expanded space will allow the program to meet the growing demand of interested parties. Solicitation documents are expected in late 2024 or early 2025.



Photo Credit: Leo_Visions, Unsplash

A grant of $22.5 million will support an expansion of the Whitman-Walker health facility. This effort marks a significant development in health care and community services. It is expected to create two state-of-the-art multipurpose community centers designed to serve the broader community's needs. The project will deliver planned spaces for telehealth screenings and monitoring services. The center will provide space for job fairs, employment training programs, skills development and education. It will also offer public access to computer terminals and high-speed wireless broadband internet for digital inclusion and connectivity.

The expansion will also allow for an anticipated growth in patient intake to the existing patient base. This project is part of a broader federal initiative to address infrastructure, education and health care needs while bridging the digital divide. As the project unfolds, it promises to enhance the quality of life for residents and create a ripple effect for additional opportunities. Currently in the planning phase, the project will launch over the next year.

The Sacramento City Council has approved conditional use permits, site plans and funding for a $16 million project to construct a community services and vocational-skills training center. The La Familia Opportunity Center will be built in two phases. Phase 1 will deliver a training center containing computer labs and amenities required for training. Phase 2 will provide a two-story building that connects to the training center. When completed, the opportunity center will provide various services, including access to health care and career training, especially for green jobs. Other spaces will be offered for parenting workshops, mental health services and support for youth and older people. The center will also prepare food for meal service activities. The facility will be built across the street from the nonprofit's neighborhood center.

City officials in Hartford, Connecticut, will invest $17.5 million into a construction project to deliver a state-of-the-art Barbour Branch library system. The new library is needed to provide for demand related to technology training and other programming. The new 15,000-square-foot library will include a computer area, a technology laboratory and an area for programming the NextGen Adult Learning Center, offering skill-based training and career-development classes from community partners. The facility will also house a large community room and a dedicated food pantry.

Many cities and counties require these kinds of facilities. With new funding, demand for private contractors and equipment will inevitably rise. ▲

Is Your CPA Holding Back Business Growth?

When & why you should find a new certified public accountant

BY CHARLIE HOLLEMAN

As your business grows to a size that its jobs require bonding insurance, one of the first roadblocks you may experience is with your certified public accountant (CPA) firm issuing your financials. If you find yourself missing out on lucrative opportunities because your CPA is dragging its feet, it's time to address the underlying issues. Here are three reasons why your CPA might be causing delays and how to tackle them head on.

Unresponsiveness: Are You at the Bottom of Their List?

If you're constantly chasing after your CPA for updates or responses to queries, it's a red flag. Your business deserves prompt attention, especially when it comes to financial matters. How do you know if you're at the bottom?

- *Delayed responses* — Do you often wait days or weeks for a response to your emails or calls?
- *Lack of proactive communication* — Are you the only one initiating conversations about your financials?
- *Missed deadlines* — Have multiple deadlines been missed, causing disruptions or penalties for your business?

If you consistently find yourself at the bottom of your CPA's client list, it's time to move on.

They Don't Get You

If your CPA firm is unresponsive, it might be because you're at the bottom of their list. But it could be that they don't do enough construction-specific engagements to know how to get through the process in a timely manner.

The CPA firm performing your audit or reviewed financial statements may be extremely competent, but if they're unfamiliar with the construction industry's unique financial intricacies, it can lead to significant hurdles in dealing with bonding agents and obtaining underwriting.

A CPA firm that focuses on the construction industry has well-established processes in place that enable them to knock out financials very quickly. They'll already know the right questions to ask, how to prepare the financials, what disclosures to include, etc.

Messy Financials: a Symptom of Deeper Issues

But what if you're in constant contact with your CPA — lots of questions, back



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and forth — yet your financials are still delayed? It might be that the firm is unfamiliar with the construction industry, figuring things out as they go along. But it could be that they're cleaning up your mess.

When your CPA constantly raises concerns about your financials, it's a sign that deeper issues may be at play. These issues often trace back to internal problems within your accounting department (or lack thereof) that hinder accurate and timely financial reporting. Here are some common issues your CPA might flag:

- **Poor recordkeeping** practices can lead to missing or incomplete financial data, making it difficult for your CPA to accurately assess your financial health.
- **Inefficient processes** such as manual data entry are prone to errors or redundant workflows.
- Without **proper oversight**, errors or irregularities in financial reporting can go unnoticed until they are flagged by your CPA.
- **Misclassification of transactions** can distort your financial statements and misrepresent your company's financial position. For example, expenses may be misclassified, leading to inaccurate reporting of profitability or financial ratios.
- **Failure to comply** with accounting standards or regulatory requirements, including discrepancies between your financial records and regulatory guidelines such as GAAP (generally accepted accounting principles) or tax regulations, may be flagged.

If your business has grown to the point of requiring a review, it's time to move beyond relying on spouses or friends for bookkeeping. It's time to find a CPA partner who not only ensures timely financial reports but also acts as a proactive ally in your day-to-day operational activities.

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Don't Hold Back

For construction business owners, successfully navigating the financial landscape is as critical as laying the foundation for a sturdy building. If your construction business is experiencing delays or missed opportunities due to your CPA's unresponsiveness, it's time to take action. Find a business partner who understands your industry and can keep pace with your needs. Don't hesitate to make the difficult decision to part ways with your current CPA if they're holding your business back, and seek out a new firm that aligns with your goals and expectations. ▲

Charlie Holleman, CPA, is an assurance director for PriceKubecka PLLC. In this role, Holleman heads up the company's corporate assurance department, responsible for all aspects of audit and attest engagements including planning, risk assessment, fieldwork, conclusion, reporting and client communications. His experience leading highly complex audit and attest engagements for construction companies is valuable to clients that require CPA-prepared financial statements, reviews, or audits in order to grow their businesses. Contact Holleman at charlie.holleman@pricekubecka.com. Visit pricekubecka.com.





Can a Prefabrication Strategy Differentiate Your Business?

4 steps to educating your team & adopting prefab solutions

BY ANGELA JACKSON & GEENE ALHADY

In the ever-changing landscape of the construction industry, efficiency, productivity and cost-effectiveness have become paramount. Traditional construction methods, though tried and tested, often fall short of meeting the increasingly stringent demands of owners and stakeholders. As we look to the future, these challenges, compounded by factors such as rising costs, sustainability concerns and a shortage of skilled labor, present both hurdles and opportunities for innovation.

As prefabrication emerges as a solution capable of addressing multiple challenges simultaneously, general contractors are key to its adoption.

By shifting construction activities from the jobsite to controlled factory settings, developers and contractors gain greater control over costs, project scheduling and risk mitigation. Prefabrication allows for parallel processing of multiple tasks, reducing overall building time by as much as 30% to 50%, according to Modular Building Institute. Moreover, the use of digital tools and advancements in logistics networks further enhance the quality and efficiency of prefabricated structures, aligning with the industry's shift toward productization and supply chain integration.

The Road to Adoption

Prefabrication is not just a construction method — it's a mindset. It requires embracing collaboration, innovation and a willingness to challenge the "but this is the way we've always done it" attitude.

Collaboration among multidisciplinary teams is fundamental to realizing its benefits, as it enables a safer jobsite,



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minimizes waste and drives efficiencies.

To fully embrace prefabrication, general contractors must take proactive steps to educate themselves and their teams before leading with a prefabricated approach.

- *Designate an internal prefabrication champion or champions* — Foster a culture that embraces prefabrication by understanding how it will benefit your business. Prefabrication requires a paradigm shift for project teams and developers, and integration into the project strategy from the outset. Early collaboration, design decisions and continuous iterative estimating aligned with target value design are essential for success.
- *Develop a thorough understanding of available prefabrication options* — Take the time to visit prefabricators and their offerings in your region. Understand product requirements and identify their best use cases. Determine when to involve manufacturers in the process, noting that prefabrication decisions are often made during the conceptual phase of a project. Ideally, off-site construction should be considered before a project is conceived. Additionally, understand the level of prefabrication your subcontractors offer that will help strengthen your prefabricated approach.
- *Assess the current state of your projects* — Create a past-project scorecard that compares initial project schedules and budgets to actual outcomes. Identify areas where prefabrication could have been utilized, and estimate the potential schedule and budget savings. Look for opportunities in areas with high repetition, such as facade systems, mechanical, electrical and plumbing (MEP) racks, boiler rooms, and structural and flooring systems.

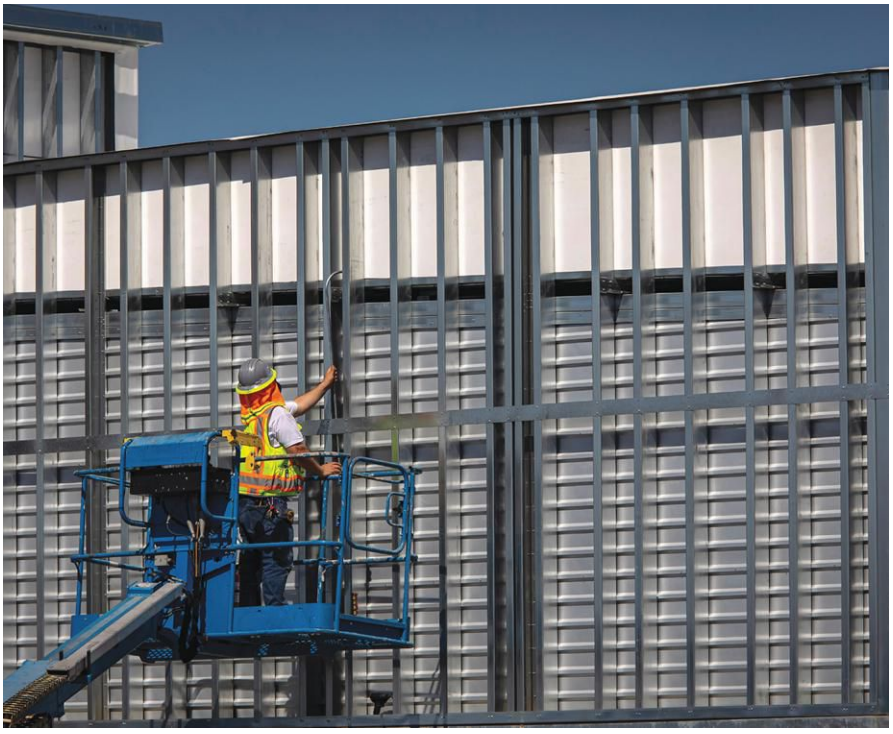


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- *Plan for the future* — Identify upcoming projects that can benefit from prefabrication using available products and systems. Evaluate whether your team is prepared to lead a prefabrication strategy for these projects. Achieving the full value of prefabrication requires early engagement and collaboration. Also, it is just as important to understand when prefabrication is not a good solution for a project — for instance, when a project is already in its conceptual design phase, lacks repeating elements or has complex architectural features.

When Prefabrication Makes Sense

Even though every project may not be suitable for prefabrication, it's essential to adopt a systematic approach to evaluate each project and determine if prefabrication might be feasible. Equally important are the abilities to effectively communicate these reasons to developers and internal teams, and to offer suggestions that could potentially transform a project into a suitable candidate for prefabrication.

Prefabrication represents a shift for the construction industry, offering a pathway to greater efficiency, productivity and sustainability. General contractors can play a pivotal role in driving this transformation and, by embracing prefabrication, position themselves as leaders in an evolving landscape, delivering superior results and value to their clients. ▲

Angela Jackson is director of strategy for Clark Pacific. Before joining the company, Jackson spent 15 years in the technology industry, growing and developing new markets.



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A Contractors' Guide to Tax Credits & Energy Incentives

Navigating the opportunities & complexities of the Inflation Reduction Act's PW&A compliance

BY LAURA CATALDO

Contractors equipped to help clean energy project owners seize opportunities presented by the Inflation Reduction Act (IRA) will be in high demand.

Clean energy projects are ramping up as organizations prioritize energy-efficient buildings to meet environmental, social and governance (ESG) goals and take advantage of tax benefits provided under the 2022 Inflation Reduction Act, the largest energy incentive in U.S. history. What some might not realize, however, is that clean energy projects that comply with prevailing wage and apprenticeship (PW&A) requirements under the IRA are eligible for a five-times (5x) enhanced credit.

The scope of eligible energy properties spans a wide range such as wind, solar, geothermal, combined heat and power, energy storage, electric vehicles, charging stations and renewable fuels. Likewise, eligibility for tax credits extends beyond traditional energy production or manufacturing facilities, constituting a broad array of projects and, in a significant departure from previous tax credit programs, the IRA benefits private and public sector projects. Private sector owners can leverage tax credits as a direct offset to federal tax liabilities for eligible energy properties. Nontaxable entities, such as local governments and not-for-profit organizations, can receive direct payments from the IRS. This transformative change has unlocked new opportunities for entities that were previously unable to capitalize on tax credit incentives.

While credits are limited to project owners, contractors and subcontractors who understand and adhere to the IRA PW&A requirements have a significant competitive advantage in securing contracts and should educate themselves on the parameters and nuances.

PW&A is the most powerful bonus credit under the IRA. At a high level, to receive the enhanced PW&A credit, organizations are required to pay all skilled trade workers the federal prevailing wage, a combination of hourly pay and benefits, and employ qualified apprentices during construction. To put the significance of the 5x multiplier into perspective, consider a $5.4 million eligible property: This property could either receive a base credit of $324,000 or a $1.62 million credit if it meets the project PW&A requirements.

What Contractors Need to Know About PW&A

While PW&A guidelines may seem similar to Davis-Bacon at first glance, they are, in fact, quite different and extremely complex. The IRA operates independently of labor laws such as Davis-Bacon, albeit with alignment on certain foundational principles. Davis-Bacon provides a framework for definitions of both laborer and mechanic and how wage determinations are established; however, the rules and regulations under the IRA diverge significantly. Notably, taxpayers assume a pivotal role as agents, responsible for establishing wage determinations, initiating construction and maintaining meticulous records based on long-standing tax guidance.

Within the IRA, PW&A compliance entails navigating three tiers of apprenticeship requirements and taxpayer penalties for noncompliance, including post-construction alterations or repairs. Proactive management of compliance requires projects to have efforts in place prior to construction to establish a plan and educate all contractors and subcontractors. During the construction phase, it's important to monitor and cure noncompliance, to minimize penalties paid to the Treasury, and avoid maximum penalties of intentional disregard, all of which are paid by the credit seeker.

To receive an allocation of this tax credit, a project will need to continually evaluate compliance of prevailing wage, apprenticeship and penalties, and adhere to stringent recordkeeping requirements throughout the recapture period of five to 10 years. The burden of recordkeeping and potential IRS audits further underscores the criticality of taxpayer responsibility.

Prevailing Wage

To meet IRA PW&A requirements,

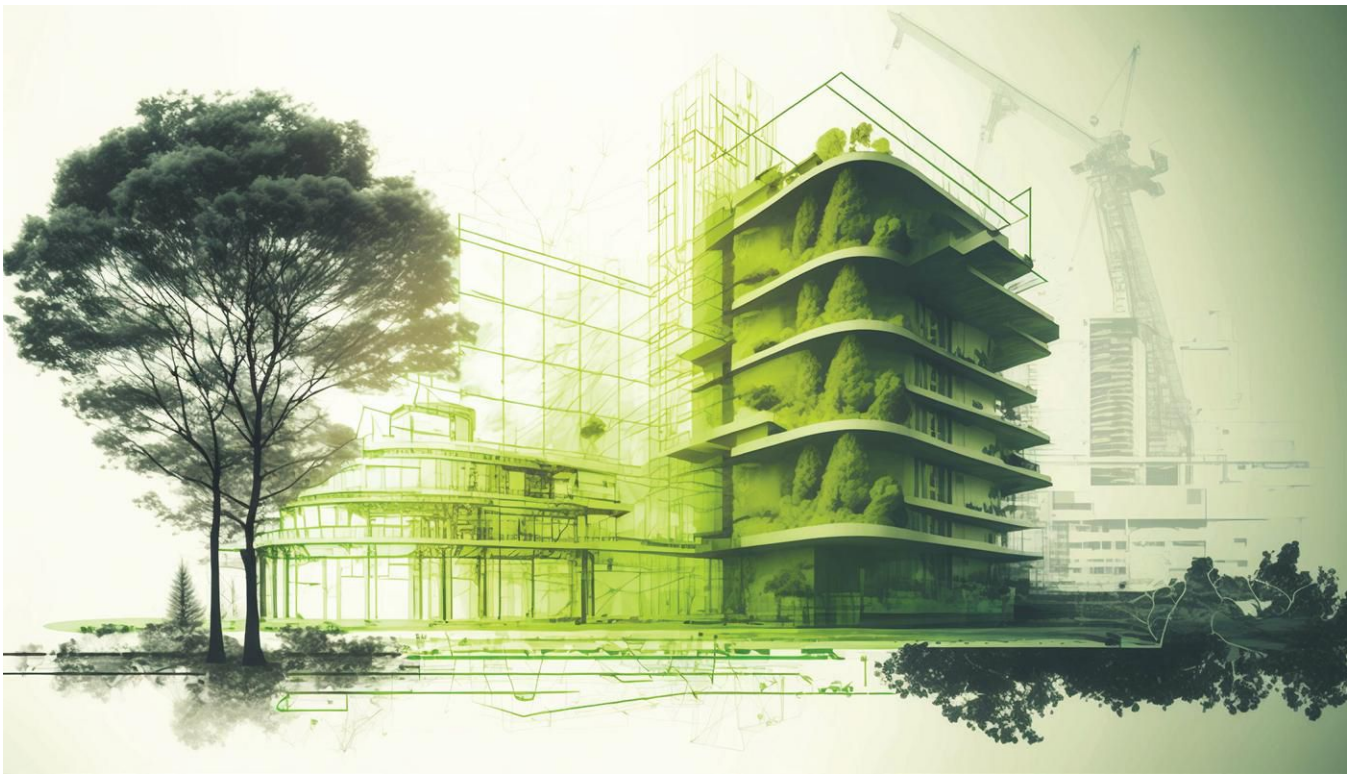


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projects are required to follow the federal prevailing wages and maintain and preserve sufficient records to demonstrate prevailing wages were paid. By definition, prevailing wage is the combined hourly rate of wages and benefits paid to workers in a specific labor classification, on a specific type of construction in the geographic area where the construction is performed, as determined by the secretary of labor.

Prevailing wage rates are locked in at the start of construction unless a substantial change of scope occurs. Wage determination requests should ideally be made within 90 days before construction starts.

Apprenticeship Requirements

PW&A has three distinct apprenticeship requirements: labor hour requirement, participation requirement and ratio requirement. At a project level, there is a labor hour requirement in which a certain percentage of work (10% to 15%) must be completed by qualified apprentices enrolled in a registered apprentice program (RAP). The percentage requirement is determined by the construction start date.

At a contractor level, there is a participation requirement that stipulates that any contractor who employs four or more individuals at any point during the project must employ at least one qualified apprentice to avoid penalties. There are three options for contractors to meet the participation requirement: enroll an employee in a group RAP, create your own RAP or request a good-faith exception, which comes with its own set of stringent rules.

At a daily level, there is a ratio requirement that stipulates that each day an apprentice is working on the project, the applicable apprentice-to-journey-worker ratio must be met. Careful planning is required to ensure the project is adequately staffed in compliance with the ratio. If an apprentice ratio is violated, the excess apprentice hours must be paid at full prevailing wage, and the apprentice hours do not count toward the labor hour requirement.

Contractors must maintain and preserve sufficient records to prove that apprentice labor hour, participation and ratio requirements were met, or risk noncompliance or intentional disregard PW&A penalties. Waivers for prevailing wage penalties exist but come with specific requirements, including paying a correction payment within 30 days from when the taxpayer is aware of the error, again emphasizing the need for diligence in compliance monitoring and recordkeeping.

Turning Challenges Into Opportunities

The apprenticeship requirement presents challenges for many contractors because apprenticeship is

not the standard for training in all geographic areas of the country. Contractors who do not employ apprentices are not prohibited from working on IRA eligible projects, but they must request an apprentice from a RAP to demonstrate a good-faith-effort exemption. If your company participates in a registered apprenticeship program, this is an important qualifier and one to actively promote.

Every contractor is capable of meeting the prevailing wage requirement if they are using the proper wage determination sheet, which should be provided by the credit seeker. However, many contractors and developers do not have experience working on Davis-Bacon projects, so there is a basic lack of understanding of who is covered by prevailing wages and how to calculate fringes and pay apprentices. Contractors are advised to seek outside help to navigate the opportunities and manage the complexities of PW&A compliance.

Contractors Play a Pivotal Role in Maximizing Tax Credits for Clients

Contractors who understand the fundamentals of eligible energy properties included in IRA have a prime business development opportunity. Given that some architects and engineers may not fully grasp IRA energy credits yet, contractors can seize the chance to integrate clean energy elements into both private and public sector projects and help project owners navigate complex requirements to take advantage of lucrative tax incentives. In addition, as project owners, investors and clients pursue the rewarding credits available through IRA, there is an increased demand for contractors who are able to meet the rigorous prevailing wage and apprenticeship requirements that result in the 5x enhanced credit. ▲

Laura Cataldo is a director with Baker Tilly's development advisory practice. She is part of Baker Tilly's IRA Energy Credit team and serves as the firm leader for Prevailing Wage & Apprenticeship Compliance. Having worked in the construction industry for over 25 years, Cataldo is recognized nationally as a subject matter expert on construction workforce. Visit bakertilly.com.





Mentorship Matters: What You Stand to Gain From Mentorship Programs

How making this small investment today can shape & grow the future of the industry

BY JESSICA JOHNSON

By definition, a mentor is "an experienced and trusted advisor," and in the construction industry, there is no shortage of people willing to share their knowledge and expertise. Anyone can be a mentor. Mentorship can take on many forms and is not always achieved through a formal process.

To some, a mentorship could mean casually meeting for coffee once a month to discuss work, life and balancing the two. For others, a mentorship could be deliberately established with certain goals in mind. How someone finds a mentor can differ as well, based on the company they work for and the position they are in. Some newcomers are naturally drawn to leaders and taken under someone's wing, and for others, the process is more intentional.

Regardless, the mentor/mentee relationship should naturally evolve as the mentee's career progresses and their goals change. This relationship built on trust and communication can have ripple effects throughout the participants' lives and careers.



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The Value of Participating in Mentorship

Mentorship holds significant value for both the mentor and mentee, as well as the industry as a whole. It provides a place of support, knowledge sharing, growth encouragement and networking. The mentee learns goal setting, receives professional advice and will personally grow while learning leadership skills. This partnership provides them with a safe space to ask "dumb questions" and voice their fears and hesitations, while also providing them with a peer to learn from outside of their usual working group.

Mentors gain the opportunity to share their knowledge and exercise their leadership skills while gaining a new perspective from mentoring someone. Mentorship re-engages the disengaged and propels the eager further into developing their skills and career. It's truly a win-win for all parties involved.

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For those interested in mentorship opportunities, multiple groups in our industry offer mentorship programs and guidance.

- The Construction Management Association of America (CMAA) provides a mentor program for its Construction Manager-in-Training program. Mentors and mentees are paired together for support and coaching. Visit cmaanet.org/certification/mentor.
- The American Society for Safety Professionals (ASSP) members can access a program for construction professionals in which paired mentors and mentees must meet at least on hour per month for six months for both professional and personal advice. Visit assp.org.
- The National Association for Women in Construction (NAWIC) offers a Leadership Academy program for women in construction to find mentors and training courses. Visit nawic.org and nawicleadershipacademy.org.
- The American Institute of Architects (AIA) offers chapter-based mentorship programs to its members to help professionals launch their careers. Visit aia.org.

For more information on how to start your own program, visit constructionbusinessowner.com/mentorship.

What's the ROI for Participants & Managers?

This is an investment you want to make. As of 2022, 84% of U.S. Fortune 500 companies have visible mentoring programs. Ninety-three percent of millennials believe "ongoing skills development" is essential for their future career growth. Eighty-one percent of millennials stay five years or more at a company when they have a mentor.

There is now strong evidence that talent development programs, including mentoring, are correlated with positive revenue and profit outcomes for businesses. Mentorship programs increase employee satisfaction, engagement and retention, as well as play a key role in workforce development and succession planning.

Time Investments for Mentorship Programs

As the saying goes, you get out what you put in, and mentorship is no different. Though there is no rule for how often a mentor and mentee should meet, there should be a commitment to consistency. Some may prefer a set schedule, while others prefer a less structured cadence. Treating each meeting as an opportunity to learn and share is paramount to success. ▲

Jessica Johnson is manager of the Political Action Committee for the National Propane Gas Association. Johnson is also the chair of the Women in Propane Council's Communications & Marketing Committee. She is the creator and executive producer of Women in Propane's podcast "Through the Leadership Lens." Johnson also serves as the Women in Propane State Ambassador to the Southeastern Propane Alliance. Visit npga.org.





CFMA's 2024 Annual Conference

A milestone for construction financial professionals

BY MEGAN BEAM

Photo Credit: Construction Business Owner Magazine

The theme for the 2024 Construction Financial Management Association's (CFMA) Annual Conference & Exhibition was "Your Path to Bigger & Better," held in Grapevine, Texas, May 18-22. The event marked significant achievement in the realm of construction financial management.

As noted by CFMA vice president, marketing and communications, Kristy Domboski, "[The conference] was a resounding success, setting new benchmarks for attendance and engagement in the construction financial professional community." With over 1,900 attendees, 42 breakout sessions, 12 mini-conferences, four general sessions, four power sessions, 130-plus industry vendors and more than 100 industry experts, the event set new standards for participation and engagement within the industry.

Inspiring Keynotes & Engaging Sessions

The conference featured an extraordinary lineup of keynote speakers who captivated the audience with their insights and expertise. Shola Richards, founder and CEO of Go Together Global, kicked off the event with a powerful keynote that set an inspiring tone for the following days. His message of positivity and resilience resonated deeply with attendees, providing a strong foundation for the conference.

James Benham, president and founder of JBKnowledge Inc., followed with a tech-forward presentation, emphasizing the importance of embracing technological advancements in the construction industry. His energetic delivery and forward-thinking ideas sparked numerous discussions among participants.

Mike Rayburn, a multidisciplinary artist and TEDx speaker, entertained and educated the audience with his unique blend of music and motivational speaking. His session was a highlight, showcasing how creativity and innovation can be harnessed in the workplace by strategically asking the question "What if?"

CFMA's Chief Economic Advisor Anirban Basu concluded the keynote sessions with his characteristic blend of information and entertainment. His economic insights in "The Good, the Bad & the Ugly" provided valuable context for the industry's future. Basu left attendees with much to consider while still chuckling about his low ratings with Uber and Lyft drivers, as the economic insight conversations seem to extend farther than the conference stage for him.

Recognizing Industry Excellence & Collaborative Efforts

The conference also served as a platform to honor industry leaders for their remarkable achievements. Awards were presented to the following individuals:

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E-Fence is designed to automatically constrain machine motion to limits preset by the operator. It helps you work safely around power lines, traffic, underground utilities and similar high-stress locations.



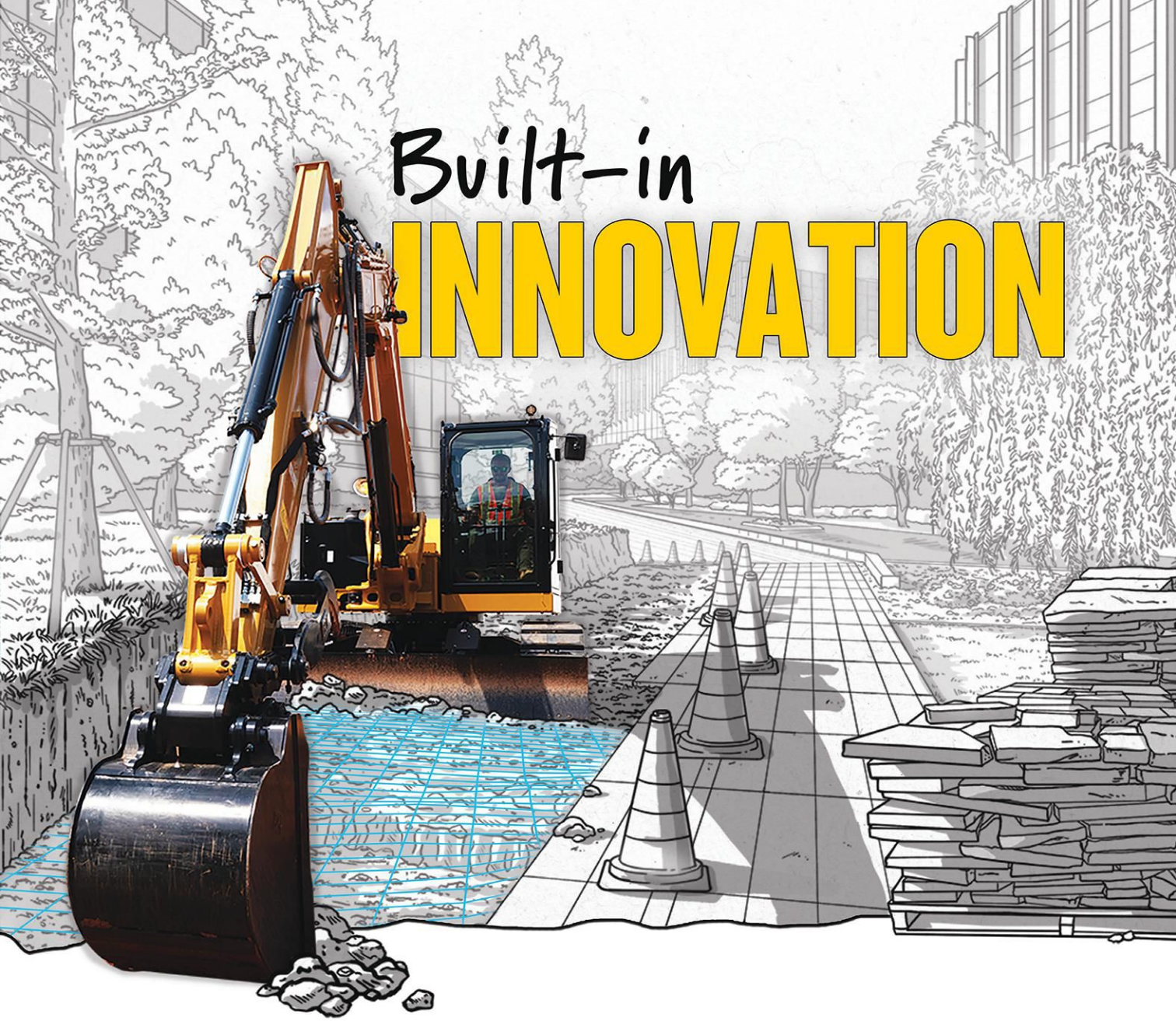
Swing Assist, also referred to as return to trench, is an intuitive feature that automatically stops machine swing at set points, useful in truck loading, trenching and similar applications. As you get closer, the machine automatically decelerates and won't swing past the set point.

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- Scott Rooney: Debra Hahn Memorial Association Award
- Melvin Schneider: Joe Quigley Memorial Chapter Award
- Patsy Anderson-Dunn: CCIFP of the Year
- Don Stephens: Danny B. Parrish Leadership Award

These awards highlighted the exceptional contributions of these professionals to the construction financial management community.

Representatives from various organizations, including the International Risk Management Institute (IRMI), the Association of Equipment Management Professionals (AEMP), Associated Builders and Contractors (ABC), the National Association of Women in Construction (NAWIC) and the Construction Progress Coalition, played a crucial role in furthering collaborative activities. Their presence underscored the importance of partnership and shared goals in advancing the industry.

Addressing Critical Issues: Substance Misuse in the Workplace

One of the standout sessions was led by a dear friend to Construction Business Owner (CBO) and member of our Editorial Advisory Board, Cal Beyer. Beyer is the senior director of SAFE workplaces for the SAFE Project. (SAFE stands for "stop the addiction fatality epidemic.") Titled "The Human & Financial Costs of Substance Misuse," his session delved into a pressing issue affecting the construction industry.

Beyer identified the causes, consequences, costs and counter-controls for substance misuse in the workplace. He emphasized the importance of using tools like the substance misuse cost calculator by the National Safety Council to understand the financial impact of substance misuse.

A significant portion of the session focused on overcoming the stigma associated with substance misuse and breaking down barriers to care-seeking in the workplace. Beyer stressed the importance of caring for individuals as people, not just workers, and highlighted strategies for first-dose prevention of opioids both in the workplace and at home.

One startling statistic presented by Beyer was that 70% of people with substance use disorders (SUDs) are part of the workforce. This highlights the high likelihood of substance misuse issues within the workplace that may not yet be visible. Prevention methods are crucial, as evidenced by Quest Diagnostics' report of a 22-year high in positive drug tests in 2022 and an extraordinary 600% increase

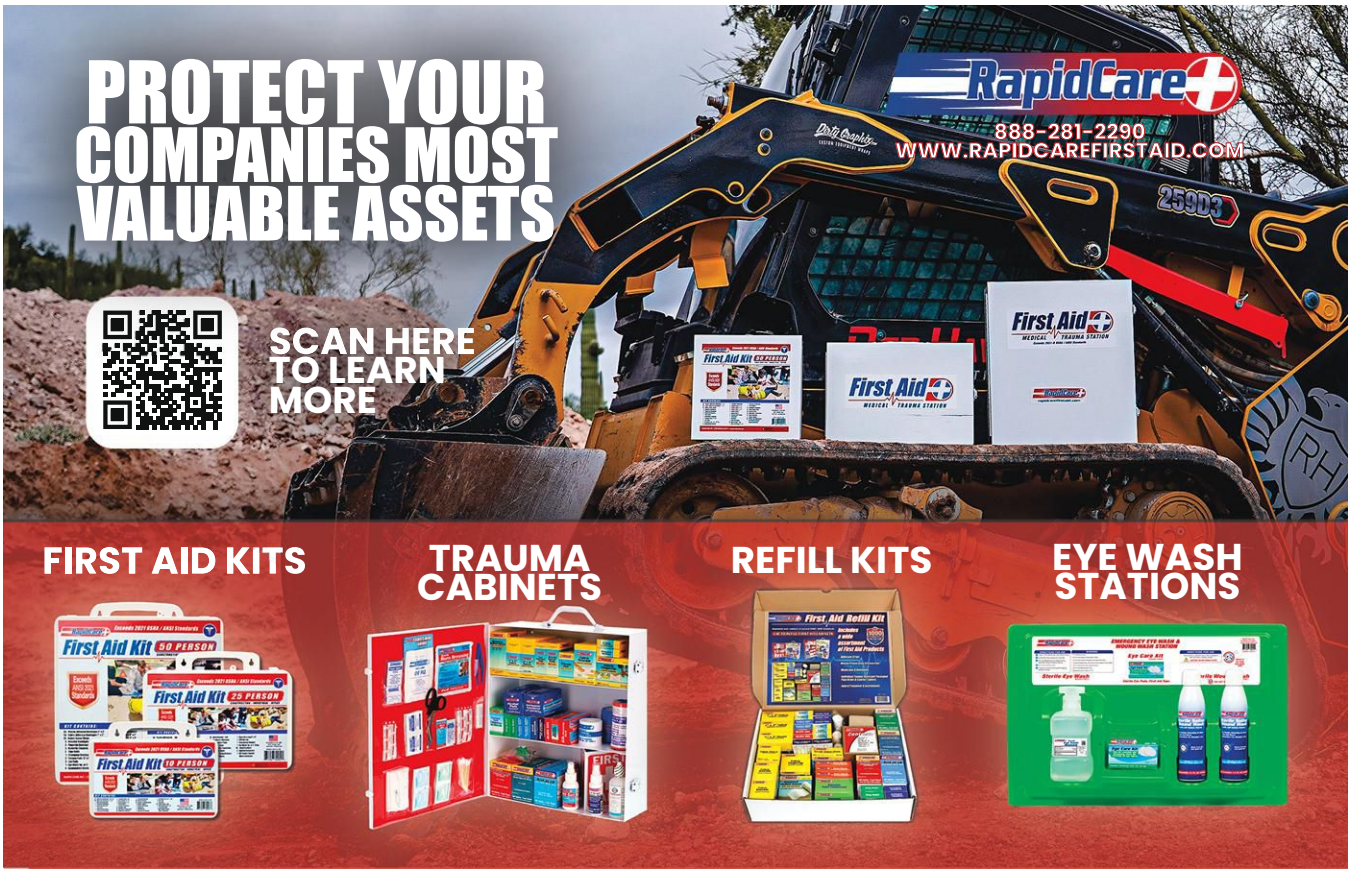


Photo Credit: Construction Business Owner Magazine



in drug test cheating in 2023.

Beyer also addressed the growing demand from business owners and general contractors for pathways to reintegrate individuals into the workplace after a positive drug test. He introduced the concept of a "recovery-ready workplace," which aims to support employees in their recovery journey while maintaining a safe and productive work environment.

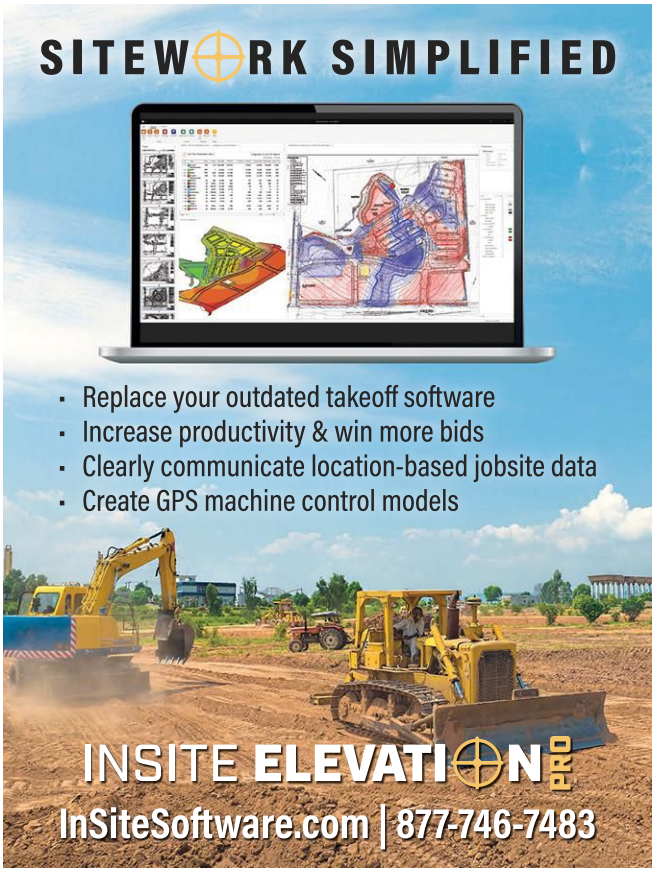
Looking Forward

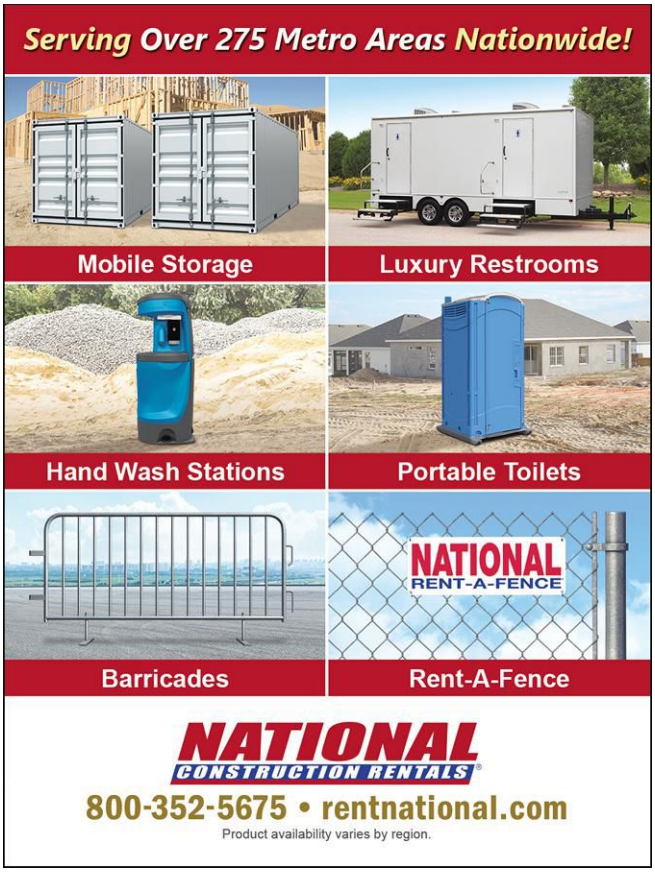
This year's conference was a testament to the strength and resilience of the construction financial management community. CFMA President and CEO Neil Shah shared: "CFMA's 2024 annual conference not only celebrated our achievements but also laid the groundwork for continued growth and innovation in the construction finance sector."

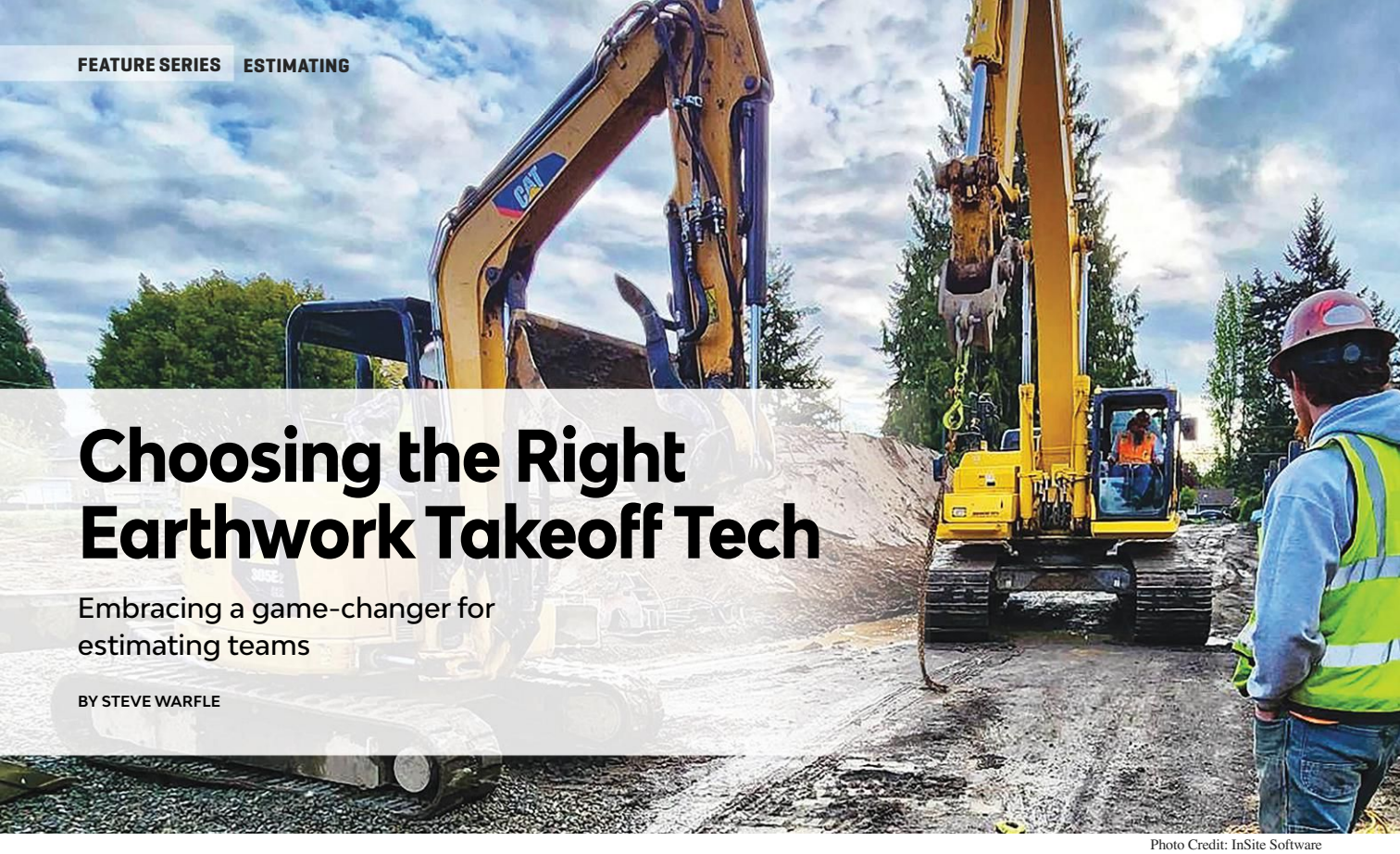
On a personal note, learning the way the myriad sectors within the construction industry intertwine has been inspiring, and it highlights the ways community connections can serve as a limitless resource. Events like the CFMA Annual Conference & Exhibition are opportunities to witness the tangible ways conversation and innovation can encourage collaborative work and action. As the industry continues to evolve, the insights and connections made at this conference will undoubtedly play a role in shaping its future. I look forward to another successful show in Orlando, Florida, in 2025.

For more information about the conference and upcoming events, please visit conference.cfma.org. ▲

Megan Beam is editor of Construction Business Owner Magazine & Digital Media.







Choosing the Right Earthwork Takeoff Tech

Embracing a game-changer for estimating teams

BY STEVE WARFLE

Photo Credit: InSite Software

Successful companies consistently reduce labor costs and enhance quality on jobsites through investments in modern machinery. Similar opportunities exist in the office setting, though the benefits may not be as immediately apparent. Moreover, the mindset of "what we have works, so why change?" can often hinder potential improvements.

Below are 10 considerations for choosing the right tech partner.

1. The office is a production environment.

Top-tier companies minimize risk during the bid process by leveraging all available data — plans, site visits and historical performance — to create a competitive bid. This starts with an experienced estimator or estimating team that has a solid understanding of all phases of the construction project and all production capabilities of the company. These are often the most highly compensated and valuable employees.

Investing in the appropriate technology not only reduces the time required for bidding but also supplies reliable data that can help pinpoint both challenges and opportunities. This allows for aggressive bidding and enhances communication with your team throughout the project's duration. Getting things done faster gets employees home on time and keeps them happy.

2. Grading data comes from multiple sources.

Data for excavation projects may originate from a variety of sources, including multiple PDF pages, computer-aided design (CAD) files, drone and survey topography, Google Earth, geotechnical logs and real-time updates from GPS machine control, among others. It's essential for the software to seamlessly combine data from these multiple sources and allow data from one plan and calculations to overlay the others.

3. Accurate grading quantities are needed early.

Minimizing import and export to reduce excavation costs isn't always a priority during design. A detailed takeoff that factors in topsoil stripping, demolition, unsuitable strata removal, structural and nonstructural fill requirements, topsoil replacement and subgrade aggregate is a must for grading contractors. General contractors who run quantities early and eliminate surprises can also see significant benefits.

4. Great communication is essential.

Detailed, color-coded reports and supporting graphics that clearly illustrate the source of the calculations enhance validation and confidence both during the bidding process and throughout grading. This data should be readily exportable to various bidding applications, and reports must be readily convertible into formats such as PDF, CAD, PNG, KMZ, etc., to facilitate communication with staff and other contractors across the project.

5. Takeoff and design are not exclusive.

The takeoff process assumes that all data necessary to complete



a project can easily be measured. However, intermediate phases of excavation are often required for jobs such as retaining walls and basement layback, storm vaults, etc. These phased projects increase the complexity of the takeoff and risk. Software that allows easy and fast calculation and 3D visualization of each phase of excavation allows contractors to move beyond simple projects.

6. Consider the value engineering opportunity.

A site that has expensive import or export requirements provides an opportunity to offer alternatives to lower costs and generate preferred bidding status. Site balancing tools must allow an easy way to rework a job to a more balanced condition to minimize cost and maintain the drainage and aesthetic requirements of the site. Presentation of the changes in both reports and graphics is critical to credibility.

7. Provide location-based data to everyone on-site.

GPS in mobile devices provide excellent accuracy for reconnaissance, planning and identifying delivery locations to suppliers. Exported KMZ files can provide location-based information to anyone with a phone or tablet for display in Google Earth and other geo-browsers. The original plans overlaid with grading depths and other important data can be sent to site staff, suppliers and other partners.

8. GPS machine control is a must for grading contractors.

Software that allows triangulation-based takeoff from vector sources and enables 3D surfaces to be exported to GPS machine control streamlines the model-building experience and removes dependencies and expense from third-party model builders. The ability to export to all brands of machine control satisfies the mixed fleets prevalent on jobsites.

9. Training is essential.

All computer software is susceptible to the "garbage in, garbage out" principle. The risk associated with generating quantities underscores the importance of effective training. Individuals have unique learning styles. Some people will devour a manual, some will watch videos and others need classes with a live instructor during a scheduled time slot to focus on learning. For most, it's a combination, and it's important that a vendor provides comprehensive learning content and accessible classes for onboarding. It is also important that training is available to all employees involved in takeoff and using the data produced.

10. Choose a partner that provides constant innovation.

Computer-based 3D takeoff has been accessible for over 40 years. 3D takeoff has seen advancements in accuracy, productivity and communication with each generation. For example, the transition from manual grid or cross-section takeoffs to the first digitizer-based systems of the '90s marked a significant increase in productivity, similar to the improvements seen with vector selection takeoff from PDF and CAD files. Modern solutions that facilitate seamless merging and takeoff from multiple documents simultaneously offer opportunities that legacy systems cannot match. Adhering to outdated technology puts your company at a competitive disadvantage.

Commitment Paves the Path to Success

Investing in cutting-edge technology is a step in the right direction, but its success hinges on effective implementation and employee acceptance. Some points to consider:

- The best technology, training and technical support can't overcome unrealistic expectations. Takeoff software is a productivity tool for skilled estimators and will not overcome a lack of experience.
- Commitment must come from everyone involved. The rogue employee who tries to sabotage progress by resisting change threatens your company's future.
- The correct hardware specified by the software manufacturer is essential.
- Training comes before production. Vendor-provided training provides product awareness of all the software's capabilities and allows validation of data input that isn't tied to the risk of a pressing bid. Dedicating time to onboard training is the most efficient route toward optimizing your software investment.

Embracing technology is no longer optional for construction companies looking to thrive in today's fast-paced environment. By choosing the right technology partner and implementing modern solutions effectively, companies can unlock new levels of efficiency, quality and success. ▲

Steve Warfle is the co-founder and president of InSite Software Inc., an industry provider of CAD and PDF earthwork takeoff and GPS machine control modeling solutions. The company's newly designed software solution Elevation Pro, takes the guesswork out of bidding, increases accuracy and speeds up the bidding process so estimators can bid on more jobs in less time. Visit insitesoftware.com.





AI: Your Estimator's New Personal Assistant

How artificial intelligence propels projects forward

BY RYAN BENDER

Photo Credit: Apichat - stock.adobe.com

Artificial intelligence (AI) is leading the conversation across the construction industry. As contractors seek new ways to improve efficiency and productivity in estimating, they're turning to automated processes that eliminate the need for time-consuming, manual work. While machine learning and generative AI offer many solutions to increasing business efficiency, they also come with a level of risk and questions surrounding accuracy.

Whether it's AI in your preconstruction software performing automatic takeoffs on plans, using ChatGPT to increase efficiency in marketing and sales communications, or AI using data analysis to reduce risk and improve operations, it is an essential tool every contractor should be leveraging to allocate, but not replace, resources more efficiently.

What's Out There & How Is It Transforming Construction?

The depth and interconnectivity of AI is vast. The goal of AI is to mimic human behavior. Machine learning is how we break down the human senses into algorithms to mimic human intelligence — how we identify data, classify data, formulate decisions from that data, etc. — and how AI can learn from its experiences.

Generative AI is a variant of artificial intelligence that relies on machine learning and deep learning algorithms for creating new text, video, images or programming logic for different types of applications. Automatic takeoffs, an application of generative AI, are being used across preconstruction, from conceptual estimating to streamlining internal takeoff processes to reviewing bids. With chat, estimators can connect with the plans and specifications to centralize fragmented notes and requirements throughout the construction documents.

AI Is No Longer Hype — It's an Essential Estimating Tool

While digital tools far surpass the accuracy and efficiency of manual takeoff and estimating methods, contractors can still struggle to scale and increase bid output because of a lack of time and resources. AI can significantly increase the efficiency of estimating processes by automating repetitive tasks such as quantity takeoffs and cost analysis. This allows estimators to focus on more complex and strategic aspects of work, leading to faster project turnaround times and increased productivity. Adding AI functionalities to your preconstruction process helps fill in the spaces where workforce shortage or time is an issue, but how many companies are taking this tech revolution seriously? According to new research by McKinsey & Company, the gap in AI maturity between leaders and laggards has increased by 60%. Late adopters of AI will struggle to keep up with the competition and scale at the rate needed to survive in the construction industry. Without AI-powered tools, estimators may struggle to keep up with the growing complexity and demands of projects, leading to inefficiencies in planning and inaccurate bids.



Where there is risk, there is also opportunity. Now more than ever, contractors need to prioritize adaptability with AI. Data standardization, hygiene and security are the most important considerations when adopting an AI solution.

Fear Not, Skeptics: Robots Won't Take Your Job

The worry that machines and robots will take jobs in the construction industry is palpable but not necessarily valid. Technologies are designed to improve the productivity and well-being of human workers, not displace them — but it's on contractors to keep up with the speed of AI's deployment.

While AI is developing at a rapid pace and in the process of being regulated in the U.S., the deep concern lies in the safety, accuracy and security of data with many AI platforms and tools. There is an overwhelming amount of unstructured data in construction, such as duplicate documents causing false relevancy in AI outputs or "stale" or outdated data causing insufficient insights. How can contractors have trust in AI's accuracy when their own data input isn't centralized and standardized?

The Odds Are With You

Where there is risk, there is also opportunity. Now more than ever, contractors need to prioritize adaptability with AI. Data standardization, hygiene and security are the most important considerations when adopting an AI solution. You need to feed the deep algorithms with organized and reliable data to get the hyper accuracy you're looking for in estimates. And with all that data, you need a process to access information that is quick and efficient.

According to an FMI report, "contractors lose almost two full working days each week solving avoidable issues and searching for project information." AI can instantaneously access your data, giving estimators time back in their day to make better-informed decisions and develop effective strategies. It's a more scalable solution than hiring a team of human experts for the task.

You should be looking for software with AI-centric capabilities that use prompt-and-response chat, perform automatic area and linear takeoffs, leverage data in schedules and legends in takeoffs, utilize a plan pre-search focusing on their trade and perform automated takeoff counts on specific symbols. With less time searching, clicking, measuring and counting, you'll be able to focus more on evaluating projects, increasing bid output and maximizing scalability.

Platforms with longevity in the construction technology space will have the most leverage with powerful AI tools because of the historical data that's been created and stored in the software for years. Contech companies investing in research and development are hyper focused on how AI can improve their customers' experience while maintaining the highest standards for accuracy.

AI's Proven Results

Early adopters of AI in construction will see a profound impact on business with these acceleration tools. A recent McKinsey & Company report shows generative AI use cases that could deliver a value in the range of $2.6 trillion to $4.4 trillion in economic benefits. In an industry struggling with razor-thin margins, labor shortages and supply chain woes, contractors could use some economic benefits.

AI has the potential for estimators to do the following:

- Enable teams to allocate resources more efficiently and accelerate estimating volumes.
- Increase productivity to focus more on value-added tasks.
- Eliminate manual errors, reducing material shortages and rework.
- Improve profitability and competitiveness.

Cautious & Calculated

Reliability, accessibility and accuracy are imperative to unleash AI's full potential. Using AI as a tool, not a replacement, is key, and building an AI strategy for your company is vital. Set an AI policy, keep a pulse on regulation and continue workforce development around AI tools.

Estimators still need to have an intimate knowledge of project details and be aware of AI's capacity for accuracy. Do your due diligence and make sure the information processed is correct. AI mistakes don't get financially covered by a machine — that falls 100% on the contractor.

Innovation and technological breakthroughs will always force us to recalibrate our understanding of AI's impact on our work and lives. Given the speed of AI's deployment today, the need to accelerate digital transformation and reskill labor forces is great. ▲

Ryan Bender is junior product owner at Stack Construction Technologies: Since 2016, Bender filled many roles at Stack, including internal estimating, product quality assurance and customer training. In his current role, he brings his expertise in technology and background in construction to advance and simplify the takeoff and estimating process. Visit stackct.com.





Photo Credit: Develon

3 Advantages of Articulated Dump Trucks

Why ADTs are the backbone of bulk material handling at construction sites

BY BRANDON CROCKETT

An excavator operator skillfully empties a bucket of dirt into the dump body of an articulated dump truck (ADT). After the payload is topped off, the truck takes off on a predetermined path. Upon arrival, the operator empties the material and returns for another load.

While this may seem unremarkable to some people, the work done by ADTs is critical to the success of construction projects. For more than 70 years, contractors around the world have relied on ADTs for efficient bulk material handling.

You may ask yourself why an ADT and not a traditional rigid-frame dump truck. Read on to discover three advantages of these machines.

Maneuverability

ADTs feature a unique articulated design that is significantly different from traditional rigid-frame dump trucks. The ADT frame is split into two parts connected by a pivot point. This allows the truck's front and rear sections to articulate independently. As a result, ADTs have exceptional maneuvering capabilities for off-highway applications, particularly when working on uneven terrain.

Another feature of the truck's articulated design is a tight turning radius. This allows operators to more easily work next to other construction equipment or existing structures on a jobsite.

Many ADTs available today are designed with all-wheel drive (AWD). The truck's powerful engine generates the power, and the power is distributed to all wheels simultaneously — improving traction and stability, particularly on challenging terrain like wet and muddy jobsites. Some customers feel AWD is critical for maintaining control in adverse conditions, which are common in construction environments.

Another functional design feature of ADTs is a low center of gravity. Even when ADTs are fully loaded, they can traverse uneven ground while remaining stable. Manufacturers build ADTs to evenly distribute the weight (material) across the chassis, providing the necessary stability for operators moving from point A to point B.

Photo Credit: Develon



Some ADT manufacturers offer a transmission retarder adjustment lever to help control speed and braking on steep surfaces and slopes. Many offer four levels of retarder force: 100%, 75%, 50% and 25%. As an alternative, a keypad button may serve the same function as the lever. A slight press of the ADT's accelerator pedal can also quickly reduce retarder power.

Versatility

ADTs can move easily across a variety of surfaces, making them a popular choice for bulk material handling. Off-highway, they are especially functional for muddy construction jobsites, rocky quarries, waste processing facilities and sandy conditions.

When it comes to working with sand, a Florida contractor found success using ADTs to move the material during a beach repair project. After a hurricane damaged the beach, the contractor utilized multiple ADTs to transport sand and aid in restoring the beach. The trucks easily navigated across the sand, in contrast to conventional rigid-frame dump trucks which would have struggled with traction and stability.

Even for their large stature, ADTs have a relatively low ground pressure. The design minimizes pressure to the surfaces beneath them. This can prevent excessive soil compaction and help reduce the risk of damaging underground utilities.

Bill Stanton, vice president of operations at an organic processing center near Lakeland, Florida, relies heavily on ADTs for its daily operations, namely transporting materials. In addition to appreciating their versatility, he recommends the off-highway trucks from a serviceability standpoint.

"ADTs are well balanced for operating in this environment because the surface material tends to soften," Stanton explained. "These trucks are very responsive, and they offer a lot of space around the mechanical components. Because working with this carbon material is volatile, it's essential that we can easily clean the machines at the end of the day."

For additional ease of maintenance, ADTs can be outfitted with an automatic lubrication system. The centralized system makes sure that the truck's critical parts are properly lubricated at the correct intervals.

Stability

Jobsites often require trucks to drive across uneven terrain. ADTs excel in this situation because of their design. As an ADT moves across uneven terrain, each section of the truck can move independently to adjust to the contours of the surface. This feature helps the truck's wheels maintain ground contact for enhanced stability.

Additionally, ADTs are typically designed with advanced suspension systems to absorb shocks and vibrations when traveling across bumpy terrain. The suspension system provides a stable ride when transporting material, as well as more comfort for the operator.

Some ADT manufacturers offer electronic control systems for additional stability. Even on uneven surfaces, the stability systems make sure the ADTs can safely be loaded. ADT operators can use the systems to monitor the truck's wheel slip, tilt angle and steering input for optimal performance.

ADTs have proven to be the best solution for off-highway construction projects requiring bulk material handling. Today's trucks incorporate additional performance, safety and operator comfort features. Visit a local dealer to learn more about ADTs for your next construction project. ▲

WEIGHING SYSTEMS ENHANCE EFFICIENCY

Articulated dump truck onboard weighing systems provide a variety of benefits to operators, including:

1. Measuring the amount of material loaded into the truck accurately.
2. Improving efficiency by reducing the trips required to move the necessary material.
3. Minimizing fuel consumption and wear on the truck.
4. Ensuring compliance with weight restrictions and preventing overloading, which can result in fines and damage to the truck.
5. Enhancing safety by preventing overloads, which contributes to a safer work environment for operators and other personnel working in proximity to the truck.

It is always recommended that operators refer to the ADT operation and maintenance manual for the proper loading and unloading procedures for routine use.

Brandon Crockett is the product manager for articulated dump trucks and dozers at Develon. He has more than 20 years of construction equipment experience in product management, sales management and marketing. Visit na.develonce.com.





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Prevent Water Damage From Wreaking Havoc on Your Bottom Line

How to effectively manage risks with AI-based technology

BY YARON DYCIAN

The impact of inefficient and ineffective water management on construction projects is increasing at an alarming rate. Water damage has long been one of the most common insurance claims in the industry, and it now accounts for up to one-third of all payouts on builder's risk policies. The cost of those payouts has been rising steeply for several years, and insurers have consequently taken severe steps to mitigate their risks. Therefore, deductibles related to water damage on jobsites can reach $1 million or more on large projects.

The construction industry used to regard water loss and damage as an unavoidable inconvenience. Until recently, few solutions were available for monitoring water supplies on-site. The existing monitoring applications were blunt and did little to mitigate risk over the long term. Some of those old-fashioned technologies, such as floor-based leak sensors, are still in use.

As risk and exposure rise for contractors and insurers alike, this approach is no longer viable. General contractors, project developers and operational building management companies must find new and innovative strategies for mitigating water-related risks and reducing costs in order to remain competitive.

Over the last several years, new technology has provided effective solutions in water management for construction sites and large commercial buildings. Many of these can be installed during the construction phase and will continue to operate throughout the building's life cycle — protecting from damage and saving on water waste. These advanced systems use artificial intelligence (AI), data analysis and machine learning to identify anomalies, leaks and waste at their source. They provide real-time alerts to construction and facility managers in the case of unusual activity and will even shut off water supplies when necessary.

Applying cutting-edge AI-powered technology can:

- Monitor water-use patterns on the site.
- Detect leaks at the source before the

damage has spread.

- Automatically stop the water flow.
- Issue real-time alerts across multiple communication channels.
- Identify the exact location of the leak.
- Allow shut-off of a specific valve from a remote location.
- Use reliable backup energy supplies to operate before electrical infrastructure is installed or in the case of a power outage.

It's a cost-effective way to reduce the risk of major property damage from burst pipes and undetected leaks that can turn into floods, meaning insurers pay out less money in the long run, and contractors or property managers can drastically cut the cost of repairing the damage as well as downtime caused by addressing these risks, thus gaining more affordable insurance coverage.

More and more general contractors are showing impressive results with today's advanced water management technology. Solutions like these have a significant impact on water costs and reduce the number of water-related delays and claims on a project.

For example, one large multinational general contractor has nearly eliminated water damage across its portfolio using an AI-powered technology system. After three years of consistent use, the company has not filed a single water-related insurance claim and reports a major reduction in project overhead and overall water consumption.

The successful application of AI-based water management technology has opened endless possibilities for further development. In order to urge their customers throughout the construction industry to adopt risk-management solutions, insurers are developing financial instruments and incentives. One global carrier now offers a groundbreaking warranty initiative, in partnership with a technology provider, that protects general contractors and developers from the steeply rising costs of water damage in the construction industry. In the event the partner system fails to prevent water leak damage, the insurer will reimburse the deductible cost of resulting water damage up to $250,000, therefore significantly reducing or even eliminating the exposure to high deductibles that are very common in the market.

Innovative water management solutions are capable of delivering immediate, meaningful results throughout the built ecosystem. By transforming how contractors and other built professionals manage an unmanaged natural resource, these systems empower a variety of industries to reduce waste and risk while elevating the experience and satisfaction of customers. In today's business environment, advanced water management technology must be considered an essential element of any strategy to manage and mitigate risks. ▲



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Yaron Dycian is chief product and strategy officer for Wint, a software company that produces artificial intelligence-powered leak detection and water management solutions. Wint serves some of the world's largest organizations including technology, construction and real estate businesses. Visit wint.ai.







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5 Steps to Empowering Subcontractors for LEED Success

How to guide your team to higher environmental standards

BY TOMMY LINSTROTH

The built environment is the bedrock of thriving communities.

It may also be their most potent liability, with enormous climate and environmental repercussions. This is why governments, regulators, activists, communities and, increasingly, construction companies are taking notice and adapting their approaches accordingly. One Deloitte analysis notes: "The engineering and construction (E&C) industry has noticed that many customers are becoming sustainability-conscious and placing greater pressure on developers to lower the carbon footprint of new builds."

At the same time, Leadership in Energy and Environmental Design (LEED), a voluntary rating and certification system aimed at increasing the environmental and health performance of buildings' sites, structures and neighborhoods, is evolving its standards and providing a framework for builders looking to meet the moment.

The Latest LEED Standards

LEED — the most widely used green building rating system — provides a framework for creating and certifying healthy, efficient and cost-saving green buildings. Developed by the U.S. Green Building Council (USGBC), LEED standards have been applied to 197,000 building projects globally, reaching 186 countries and territories.

The latest version of these standards, LEED v5, is updating the global benchmark to align with the Paris Climate Accord's 2030 and 2050 targets while addressing issues of equity, health, ecosystems and

resilience in the built environment. As USGBC explains, LEED v5 looks to:

- Decarbonize the building industry.
- Inspire and recognize adaptive and resilient built environments.
- Invest in human health and well-being.
- Achieve equitable outcomes for all stakeholders.
- Support flourishing ecosystems through regenerative development practices.

These outcomes are a boon for builders and the people residing in these communities. However, achieving LEED certification is contingent on more than just builders' desire and readiness. It requires close collaboration with subcontractors, who perform between 70% and 90% of construction work on any given project.

This is often easier said than done.

Best Practices for Empowering Subcontractors for LEED Success

Ensuring the entire project team, especially subcontractors, is on the same page regarding the project's sustainability goals is crucial to LEED certification.

Here are five best practices for empowering subcontractors for LEED success.

1. Communicate Why LEED Matters

Don't assume everyone understands LEED standards or why they matter to your project. Instead, intentionally communicate why LEED matters and how certification will be achieved.

Conduct training early on to cover why we need LEED documentation, what documents look like, the important information to look for, where to find these documents and how to integrate compliant products into their wheelhouse.

Put differently, ensure subcontractors understand LEED requirements and how their work contributes to meeting those standards.

2. Provide the Right Resources

LEED standards and requirements are updated frequently enough that past training might not fully prepare subcontractors for LEED certification success on the next project.

Leaders can address this learning curve by ensuring subcontractors have updated resources and tools that track the certification process and document its completion. For example, they can proactively guide subcontractors to appropriate websites and resources, and work with them to clean up their submittals.

This forward-thinking partnership helps

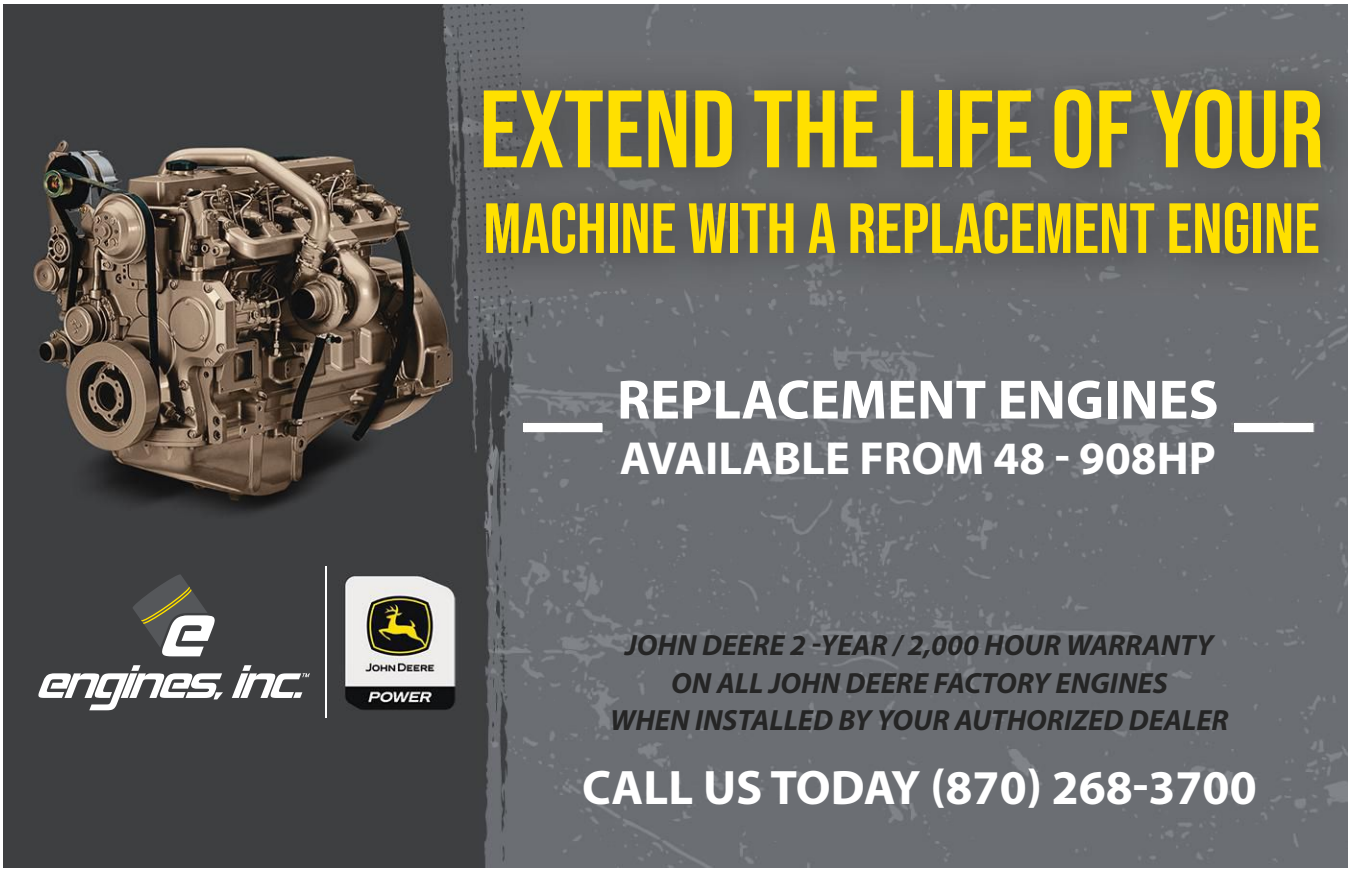
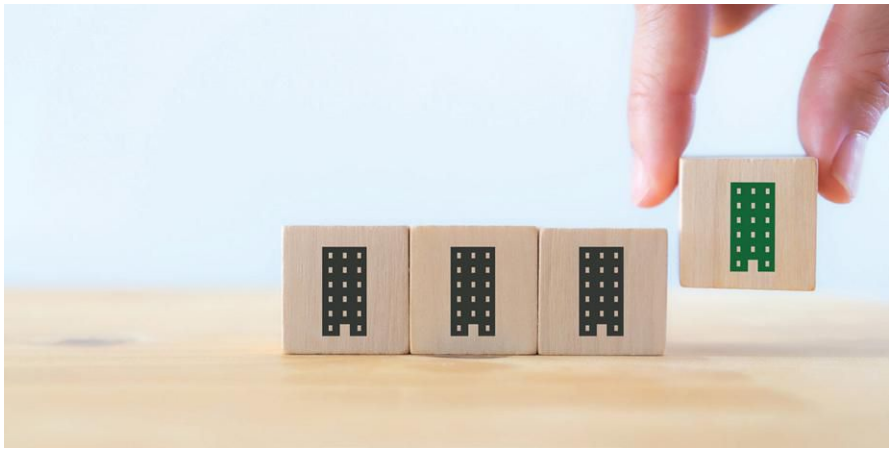


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ensure that all efforts are informed by and aligned with the latest standards and best practices.

3. Leverage Safety Meetings for Ongoing Support & Reinforcement

While early-stage planning meetings are critical to achieving LEED certification, regular follow-ups will make the certification process more successful.

Leaders can incorporate this into daily safety meetings, providing support and reinforcement as needed. To make these as effective as possible, leaders can:

- Connect safety and sustainability, explaining how LEED standards and sustainable materials contribute to a safer work environment and meet LEED standards.
- Track and share progress, regularly updating the team on the project's LEED certification progress, including milestones reached or areas of improvement.
- Recognize contributors, highlighting individuals or teams who have made significant contributions toward achieving LEED compliance.
- Distribute resources, ensuring everyone has the information they need to perform their job successfully.
- Provide an open forum for subcontractors to voice concerns, ask questions, or offer suggestions for LEED and sustainability practices.

Regardless of the format, regular communication touchpoints will help keep everyone informed and moving in the right direction together.

4. Identify Sustainability Champions

Only some members of a team will prioritize sustainability.

Identify team members who show a genuine interest in sustainability practices, whether through their suggestions, questions or the initiative they take on related tasks. Assigning these champions to be the point of contact will help ensure that sustainability goals are disseminated appropriately and objectives are achieved.

It's important to give these champions the authority to make decisions in areas that align with LEED goals, ensuring they have the power to effect change and expect input or results from the other team members.

5. Continue Updating Your Knowledge Base

You can't lead a team down a path you won't follow yourself. That's why construction executives must update their knowledge before prompting subcontractors to do the same.

To achieve this, regularly read industry publications, attend webinars and participate in conferences focused on sustainable construction and LEED certification.

Perhaps most importantly, leverage the USGBC's educational programs to grow your knowledge and advance your professional potential. The agency's education programs allow participants to earn digital badges that validate their knowledge and provide official recognition of accomplishments.

Participants earn knowledge-based green building badges by taking four courses from the USGBC's expansive course catalog and passing the quiz for each course. These badges can be shared on social media and added to resumes, email signatures and promotional materials.

Certification Is a Collaborative Process

The built environment's climate change implications are enormous, inspiring consumers and requiring builders to make their practices more sustainable. That's why LEED standards are especially critical right now, requiring construction leaders to deploy an intentional and strategic approach to sustainability and compliance.

Empowering subcontractors with the resources, training and leadership needed to play their critical role in the compliance process is the necessary next step for builders, creating a bridge from sustainable building plans to final products that impact communities.

With expansive construction projects on the horizon, now is the right time to refine your processes and implement best practices that align every stakeholder with the environmental outcomes we all want. ▲

Tommy Linstroth is the founder and CEO of Green Badger, a software-as-a-service (SaaS) provider simplifying sustainability and environmental, social and governance (ESG) in the built industry. Visit getgreenbadger.com.





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How to Spot & Avoid Unexpected Project Delays

Revealing why workers fall behind & ways to address those factors

BY ROBERT SALAJ

Here's the thing about construction project delays: It's not a matter of if they will happen — it's when they will happen, for how long and why. There are many reasons for a project delay: weather, supply chain hiccups, labor shortages, financing and more. Most of these reasons are out of the control of the project manager or construction business owner, while others are not. The key to project profitability is identifying and addressing the factors that are in your control before it is too late.

Going beyond the "hindsight is 20/20" maxim, there is a way to get ahead of project delays. The obvious option is to use technology, but recent data suggests that technology is one of the primary drivers for delays, despite increased investments in it.

Survey data from iCornerstone reports that in 2016, 15% of construction projects experienced delays, while in 2022, the number rose to more than 28%. Meanwhile, an April 2024 Quickbase survey of nearly 2,000 workers found 66% of their organizations are actively increasing investments in software designed to enhance productivity, work management and collaboration. However, 58% spend less than 20 hours a week on meaningful work that drives results. Therefore, it probably comes as no surprise that 42% of survey respondents reported challenges related to project delays or projects missing delivery times.

Despite having seemingly unlimited technology options to improve efficiency, workers are falling even further behind. Arguably, the sheer volume of apps, tools and platforms may be the very reason for project delays. Here is what is really happening behind the scenes.

The Quickbase survey found that 9 out of 10 respondents report being overwhelmed to some degree by the amount of software solutions they use on a daily basis. This explains why over 45% spend 11 hours — or more — per week chasing down the information they need just to do their jobs.

Photo Credit: HN Works - stock.adobe.com



If your employees are spending more time working and getting less done, consider that their valuable time is being lost to this issue, also known as gray work. And it is not relegated to the back office. The rise in mobile devices and apps used on the jobsite has increased.

According to JBKnowledge, 92% of contractors and construction workers use their smartphones every day at work, and 22% use six or more construction apps. However, only 5% of those apps are integrated, which extends the gray work issue from the office to the field.

Now that you recognize the problem of gray work and its impact on projects, how do you fix it? One way to eliminate this issue is to shift to relying less on the tools and more on connecting the information in those tools. An integrated approach brings data together in a way that makes it easier to manage projects instead of bogging down workers in tedious, repetitive tasks that take up time that could be better spent on more impactful activities.

While many construction business owners have approached this issue using a project management platform, they are finding it limited in terms of reducing gray work. This is often due to learning curves, integration challenges or having to customize parts of the platform for their specific needs. Alternatively, a dynamic work management platform makes the most of existing investments in tech, including project management platforms, by making it easier to access information across the company. Information that is vital to spotting potential delays before they creep up.

Realistically, no technology solution can serve as a crystal ball. Project delays are inevitable, but a dynamic work management platform can reduce gray work and get ahead of delays that are in the construction business owner's control. These delays are typically:

- *Staffing gaps* — While technology cannot solve the industry's persistent labor shortage, it can keep accurate records of certifications, journeyman levels and past project experience. This informs the superintendent's planning, hiring and assignments, and the right time to bring on subcontractors.
- *Local, state and federal requirements* — Having project mandates, inspector names, fees and compliance regulations readily available can be a considerable time-saver. Once the information is input into the platform, it can be easily accessed by other crews working in the area, providing an added bump to the time and cost savings.
- *Potential accidents* — Create an opportunity to decrease jobsite accidents with digital recordkeeping that eliminates paper-and-pencil forms. That leads to knowledge sharing, including near-misses, throughout the company. The information can be used for toolbox talks, identifying and fixing existing processes that can inadvertently lead to mishaps, and safety recordkeeping. As data accumulates, a project manager can dig in to spot trends and get even further ahead on preventing accidents. Additionally, solid recordkeeping is critical in the event of an Occupational Safety and Health Administration (OSHA) investigation.
- *Tracking daily progress* — Against project plans, daily logs, budgets and the schedule. Oftentimes, these critical sources of data are kept in different reporting systems. When they are brought together, it is easier to get a big picture view and spot potential issues.
- *Project reporting* — Project stakeholders, both internal executives and the client, expect regular status updates. Telling them the reports are delayed due to employees spending hours tracking down information is simply not an option.

The ability to spot and thwart project delays is considered a win. And if it makes work easier for employees without compromising the quality of the project, it is an even bigger win. This is not a futuristic goal — it can be done now if technology is used in a strategic way. ▲

Robert Salaj is Quickbase's director, customer advisory team, construction. He is a 19-year veteran in merging lean-operational excellence with low-code software for organizational transformation. For the past eight years, he's spearheaded digital transformation in the construction sector, emphasizing data-driven decisions through KPIs and dynamic work management. Visit quickbase.com.



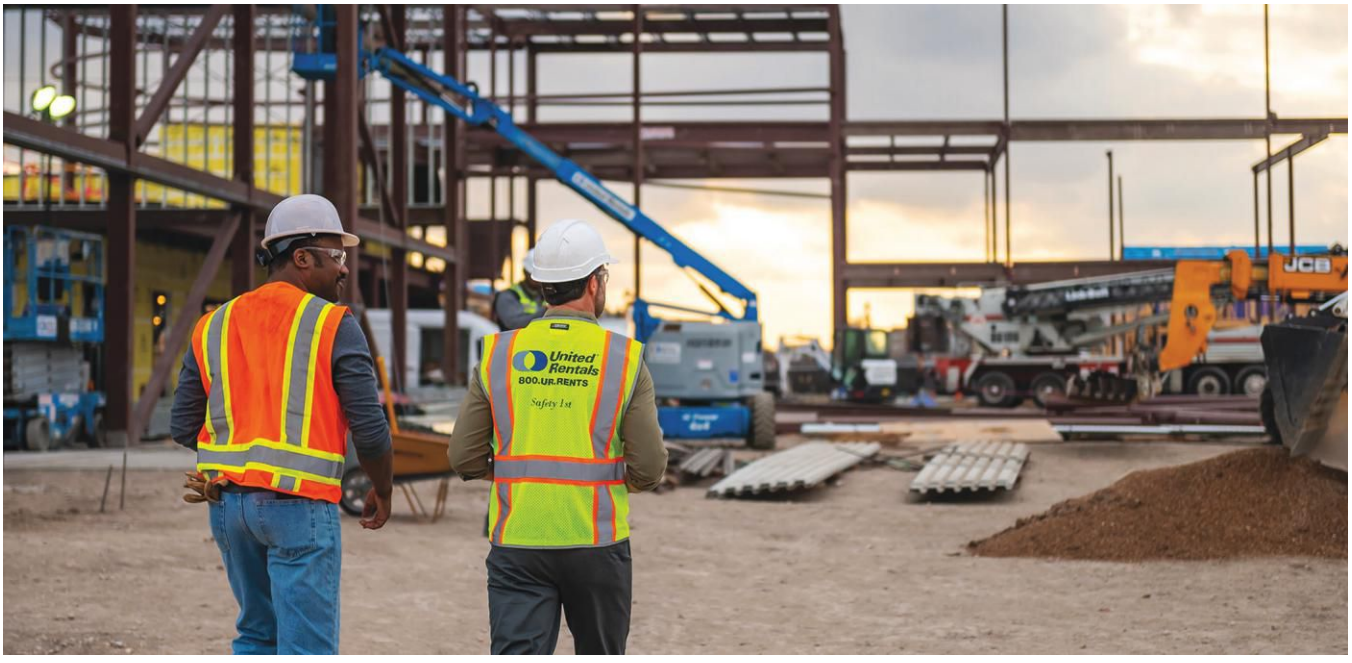


Photo Credit: United Rentals

6 Ways Renting Can Be More Sustainable Than Owning

Recognizing the environmental advantages of your equipment options

BY GRANT ZOLDOWSKI

Construction equipment typically makes up a small percentage of a project budget, but it plays a large role in the environmental impacts of day-to-day operations. How equipment is powered and whether it's purchased or rented affects the fuel consumed, the greenhouse gas emissions produced and the amount of natural resources used.

If you're a midsized general contractor, you have several reasons to choose renting over owning. It lets you avoid a capital expenditure, eases the burden of performing maintenance and repairs, and has the potential to shrink overall fleet costs depending on utilization and operating expenses. But there's yet another potential benefit of renting: It can increase your company's sustainability without compromising productivity.

Below are six reasons renting is often the more sustainable choice compared to owning.

1. Newer equipment may be more fuel efficient.

It's not uncommon for construction business owners to keep some construction equipment for as long as 10 years. Older equipment can continue to perform well if it's been operated properly and well maintained, but worn-out equipment may run less efficiently than newer equipment, requiring more fuel and producing more carbon emissions.

When you rent equipment from a respected temporary equipment vendor, you're typically getting relatively new machines. Newer machines may run more efficiently simply because they operate closer to peak performance; in addition, they tend to have updated designs that make them more fuel efficient.

2. Renting is a low-stakes way to test alternatively powered equipment.

Most equipment on jobsites today — including mobile power generators — runs on diesel. While Tier 4 Final diesel engines run cleaner than older diesel engines, diesel still produces 10% to 20% more carbon emissions of propane, for example. Electric equipment, meanwhile, produces

zero emissions at the source.

Renting affords you the opportunity to try alternatively powered equipment you may not be ready to purchase, such as solar-powered light towers and electric machines. Electric machines currently on the rental market include forklifts, aerial lifts, skid steers and mini excavators, and those offerings continue to expand.

Electric construction equipment has come a long way in recent years thanks to advances in battery technology. The performance is now on par with that of fuel-powered counterparts. Renting provides the chance to assess its role on projects, test run times, and experiment with charging methods and schedules.

Deciding which electric equipment to pilot can be challenging. One smart approach is to begin by identifying the equipment in your existing fleet that generates the most carbon emissions. Software tools available from some rental providers as part of their fleet management platform automatically calculate the estimated emissions of equipment based on engine hours and fuel type.

3. Equipment maintenance is built in.

Routine service and preventive maintenance are crucial for keeping equipment running as cleanly and efficiently as possible. Machines that are well maintained also last longer, which maximizes the resources and materials used to make them.

Implementing and overseeing an effective preventive maintenance program is challenging and time-consuming, especially when equipment is moving from jobsite to jobsite.

Renting removes the maintenance burden from construction business owners, whose core competencies lie elsewhere. Top-tier rental providers maintain their equipment in accordance with the original equipment

Photo Credit: United Rentals



manufacturer's requirements, regardless of its age, so it remains in top operating condition.

4. The sharing economy increases equipment utilization.

Equipment underutilization is common on jobsites and in privately owned fleets. Reducing underutilization can boost a company's return on investment; it also increases the sustainability of construction operations. The more equipment is used, the fewer pieces of new equipment manufacturers need to produce.

Renting allows you to keep and pay for only the equipment that is actively needed. As a result, fewer pieces of machinery sit idle on the jobsite or in the yard. If a project no longer requires the number of forklifts, boom lifts or backhoes on site, returning some or all of them is as easy as making a phone call or tapping a few buttons on the vendor's mobile app. Selling underutilized owned equipment, on the other hand, is a larger undertaking.

5. Renting makes it easier to track.

Often, companies don't realize when equipment is being underutilized. Some rental equipment providers outfit their machines with telematics devices that transmit the location of the equipment in real time so it's not "lost" on the jobsite or hoarded. By leveraging a cloud-based fleet management system, you can not only see every piece of telematics-enabled equipment on the jobsite, but you can also see when it was last used.

A fleet management system that allows users to run utilization reports helps managers understand whether a project is over- or under-fleeted, and which pieces of equipment or equipment category classes are no longer needed.

6. Renting may reduce highway miles.

Equipment must be transported from jobsite to jobsite by truck or trailer. Those road miles contribute to a company's carbon footprint. Renting equipment for each new project can potentially reduce the total miles driven.

Best-in-class rental companies use logistics and route optimization tools for delivering and picking up equipment. Equipment is loaded to fully utilize trailer deck space and maximize the number of deliveries and pickups per trip. Delivery trucks are kept within concentrated geographic areas and on preferred roads. These strategies reduce the number of empty loads and the number of miles driven so trucks consume less fuel and generate fewer carbon emissions.

Renting and owning both have their advantages. While the largest general contractors often rent all the equipment necessary for megaprojects, many midsized companies are best served by a combination of rented and owned equipment. Leaning more heavily on renting is a practical, cost-effective way to lighten your environmental footprint and increase efficiency at your jobsite. ▲

Grant Zoldowski is an expert in the environmental management sector with over two decades of experience. Currently serving as the director of environmental management at United Rentals, Zoldowski has overseen pivotal projects and environmental initiatives for over 17 years. Prior to this role, he showcased his expertise as a project manager at Burns & McDonnell and as an environmental scientist with ERS of Illinois Inc. Visit unitedrentals.com.



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Getting the Lead Out

Replacing aging water infrastructure will require a digital transformation of U.S. utilities

BY BRAD BARTH

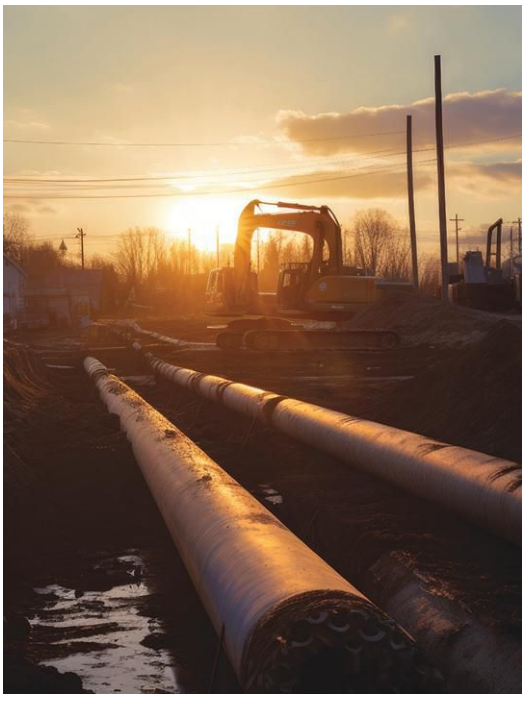
The Environmental Protection Agency (EPA) recently proposed significant changes to the Lead and Copper Rule to address the health risks posed by lead in drinking water. The proposed rule would require water systems across the country to replace millions of lead service lines within the next decade. This comes on the heels of a broader effort under the Biden-Harris administration to eliminate 100% of lead pipes in the U.S.

Grappling with aging infrastructure, a chronic skills shortage and a growing population, U.S. water utilities are currently facing a significant challenge. It also comes at a time when the water sector's performance will be exposed to increasing scrutiny with utilities now required to report on everything from infrastructure performance to cybersecurity threats. While major improvements are currently underway, efforts to repair, upgrade or expand water networks are being hampered by a wave of industry retirements that could see vital engineering skills lost forever.

Addressing the threat of not only lead pipes but also aging and leaky pipelines will require a major overhaul of national infrastructure to help ensure clean, plentiful and affordable drinking water across the U.S. and to protect and preserve public health and the environment from lead exposure. The effort is supported by a historic investment of $55 billion from the Bipartisan Infrastructure Law (also known as the Infrastructure Investment and Jobs Act), allocated to enhance the nation's drinking water, wastewater and stormwater system. The investment includes $15 billion dedicated specifically for lead service line replacement, signifying positive movement toward improving an aging system which is indisputably critical to public health and economic prosperity.

Achieving the necessary transformation with tight budget limits and timelines will require streamlined construction while delivering efficiency savings across entire project life cycles. Executive orders on water upgrades also require enhanced coordination among all

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water stakeholders. This calls for more collaborative project management software with the capacity to share data between stakeholders across the ecosystem such as supply chains, local contractors, procurement managers and project owners.

New regulations and reporting requirements also create a renewed imperative for technologies such as connected data platforms to bring greater transparency to water infrastructure performance. And the loss of critical technical skill sets to mass retirement will require new technologies to form a bridge of data transferring vital knowledge across generations.

Yet, U.S. water utilities have been slow to invest in digital technology and have focused on short-term, fragmented upgrades to network monitoring and control rather than implementing a network-wide digital transformation. Addressing the current string of circumstances, from demands for accelerated infrastructure development to a spiraling skills shortage, will require a major transformation in sector-wide digital modernization.

Bridging the Skills Gap With Data

The U.S. water workforce is approaching a retirement cliff edge, with one-third of the water utility workforce to be eligible for retirement within the next 10 years and a growing shortage of new workers to replace them. This not only creates a talent shortage but could also cause the permanent loss of valuable experience and insights from previous projects, further hampering the necessary updates to national infrastructure. Connected data platforms will enable water companies to collate, curate and integrate insights from previous projects into future projects, allowing lessons from past projects to improve future projects and project insights. Smart data analytics enables companies to collect critical data from previous projects and connect it to other relevant data points throughout the project life cycle.

Smart data allows companies to institutionalize individual insights and learnings so that data collected from sensors or engineers becomes organizational knowledge, collectively improving the performance of all future partners, projects and suppliers. This could also form an intergenerational bridge of data, transferring knowledge from past workforces to upskill future workers as a framework for best practices or sharing insights across sectors. Ultimately, this could create an economy of data where past project knowledge is continually recycled into future projects, enabling water infrastructure development to become progressively faster and more cost efficient. This could help avoid the current skills gap and enable faster onboarding of new workers.

Increased Reporting Requirements

Utilities are facing increased regulations from the new lead and copper rules to tightening of wastewater discharge regulations. This will likely spur a threefold increase in private capital investment to dramatically improve the transparency and resilience of water infrastructure in line with regulatory demands. This will necessitate the introduction of tools and technologies to allow all marketplace stakeholders to monitor and manage assets across end-to-end project life cycles. Technologies enable real-time oversight across project life cycles with existing tech stacks while other tools enable the live identification and tracking of all project materials and equipment across multiple sites and supply chains. If implemented correctly, this will bring unprecedented transparency and improvements to new water infrastructure and enable near real-time reporting.

Maximizing Critical Investment

The EPA's proposed rule to replace lead pipes will play a crucial role in removing lead from U.S. water infrastructure. The rule mandates the removal and replacement of all lead service lines within a 10-year time frame — a significant shift from previous guidelines which were more permissive and allowed utilities to implement partial replacements or other interim measures. The $15 billion allocated by the bill will likely not cover the large investment needed to replace lead service lines in U.S. water infrastructure.

Addressing this will require digitalization of new infrastructure projects to predict and control project costs and create efficiency savings. The first step is for water utilities to control costs and prevent budget overruns for new capital infrastructure projects and upgrades. New digital tools now enable greater project certainty through more realistic budgets and schedules that are

properly adjusted for risk, while automated earned value management (EVM) metrics will allow project stakeholders to accurately track project progress against planned cost and timelines in real-time. The overarching benefit of these new integrated project controls solutions is faster and more collaborative planning — putting project teams in a position to plan and react more swiftly to address challenges as they arise.

Unification of infrastructure data across multiple projects will also enable knowledge from past projects to drive cost efficiencies in new capital investments. Real-time connected data will allow greater oversight and control of costs across project life cycles. With the need to overhaul national water grids within tight budget limits, there is no better time for the industry to start collecting crucial data points which will allow companies to make projects more efficient, reduce costs and improve projections. Connecting data from back office to jobsite and across project life cycles could also help utilities meet the demands of recent executive orders for greater coordination and integration across all water stakeholders.

Looking Ahead

Achieving the removal and replacement of all lead service lines within a 10-year time frame is critical to public health. U.S. utilities have an opportunity to harness the benefits of technology to retain vital knowledge and bring greater transparency and efficiency, which could in turn accelerate capital infrastructure investments. Adopting an integrated project controls platform can allow for knowledge and skills to be transferred across projects to create a virtuous circle of smarter construction. Connecting and consolidating all data through a single project management platform can deliver unparalleled efficiencies, improve network resilience, reduce costs and drive greater transparency. Connected data will also help foster cross-sector coordination and collaboration across multiple organizations. This would ensure new infrastructure can be planned, monitored and maintained to meet growing demand while protecting water resources and public health from ever-growing challenges. ▲

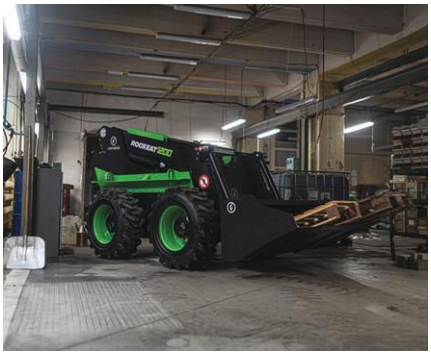
As InEight's chief product officer, Brad Barth is a member of the company's executive leadership team and a key architect of the company's product vision and strategy. Barth has driven many industry innovations in project controls software, most notably in the area of cost-schedule integration. Visit ineight.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.



▲ FIRSTGREEN INDUSTRIES

ROCKEAT Electric Skid Steer Loader

Released: 3/27/24
Availability: U.S., Canadian & European markets
What's new? ROCKEAT is Firstgreen Industries' newest line of electric, cabinless skid steer loaders. Designed with low clearance, 360-degree camera and remote operability for safety and efficiency for hazardous industries. The line includes 700 and 1200 models with a maximum power of 3x36.2 horsepower and maximum torque of 3x89 foot-pounds.
Specs:

ROCKEAT 700

- Loader type: Wheel skid steer
- Maximum load capacity: 1,543 pounds
- Tipping load: 3,086 pounds
- Maximum total weight: 7,165 pounds
- Operating weight: 5,622 pounds
- Overall width: 66.9 inches
- Battery type: Lead-acid/lithium
- Usage type: Remote

ROCKEAT 1200

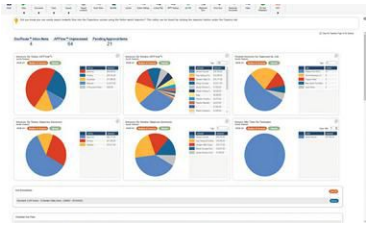
- Loader type: Wheel skid steer
- Maximum load capacity: 2,646 pounds to 3,707 pounds
- Tipping load: 4,850 pounds
- Maximum total weight: 11,133 pounds
- Operating weight: 7,826 pounds
- Overall width: 71.3 inches
- Battery type: Lead-acid/lithium
- Usage type: Remote



◀ DEWALT

TOUGHSERIES Construction Jack

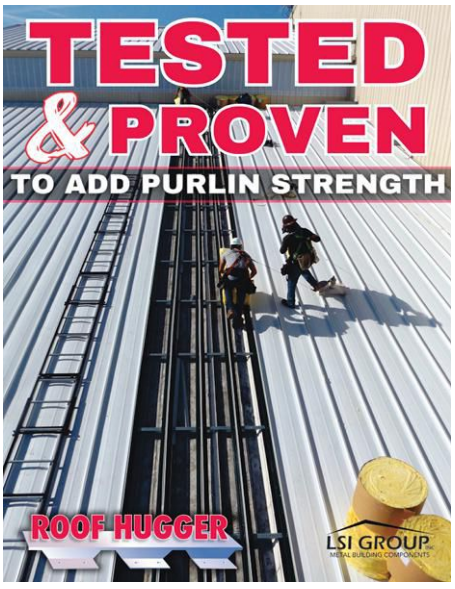
Released: 6/1/24
Availability: U.S. market
What's new? This new product is a heavy-duty, hands-free lifting tool designed for a wide range of applications. As part of the TOUGHSERIES lineup, the construction jack features a lift capacity of up to 340 pounds (results based on initial laboratory testing) and a lift height of 8-3/4 inches, allowing users to complete demanding lifting, leveling and installation tasks.
Specs: Includes: step-to-lift function enabled by the reinforced-handle for hands-free lifting (the handle can also be squeezed by hand when preferable); precision-controlled lowering tab that assists with fine tune adjustments when leveling; no-load quick-release button that instantly sets the tool under the area of application; slim, tapered base that provides efficient under-application access and counter sunk holes for additional flush mount support; and ergonomically designed handle with an overmolded grip for comfort and reinforced metal ribs that provide durability for heavy loads..

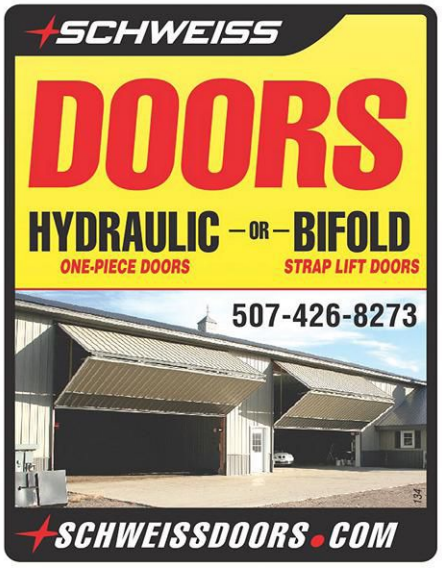


▲ SAGE

Sage Intacct Paperless

Released: 5/22/24
Availability: U.S. market
What's new? The new cloud solution simplifies and automates processes from project start to finish by reducing paper-heavy and manual tasks that drain time and budget. It builds on Sage Paperless Construction, the existing on-premises version of the product that integrates with Sage 100 Contractor, Sage 300 Construction and Real Estate, and Sage Intacct Construction. Together, the two solutions create Sage Paperless for Construction, offering both on-premises and cloud-based versions.
Specs: Sage Intacct Paperless is a cloud-based solution that delivers an easy way to store, retrieve, and route accounts payable (AP) documents. The add-on solution integrates with Sage Intacct Construction, the native cloud financial management system purpose-built for construction.





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❑ 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

April 2022/2023/2024 Annual Rate Comparison

This chart compares the two previous years' total value of construction put in place to an annual forecast based on April 2024 figures. (Millions of dollars. Totals may not add up perfectly due to rounding.)

	2022	2023	2024
Total Private Construction	**1,394,715**	**1,500,713**	**1,611,908**
Residential	891,513	845,441	890,438
Nonresidential	503,202	655,273	721,470
Total Public Construction	**350,086**	**407,664**	**487,131**
Residential	8,926	9,766	11,854
Nonresidential	341,160	397,899	475,277
TOTAL Construction	**1,744,801**	**1,908,378**	**2,099,039**

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

$2,099,039

APRIL 2024 TOTAL ANNUAL VALUE OF CONSTRUCTION PUT IN PLACE

"These findings indicate that while there is **still caution** among clients, there are also **positive signs** with **increasing inquiries into new projects**," said Kermit Baker, Ph.D., AIA chief economist. "Continued high interest rates make it difficult for some projects to move forward, but **there is ongoing interest in pursuing these projects once conditions improve.** In the meantime, design activity is expected to remain sluggish."

AIA Architectural Billings Index (ABI)

National			*Regional – Billings				*Sectors – Billings			
Month	Billings	Inquiries	Northeast	Midwest	South	West	Multifamily Residential	Commercial/ Industrial	Institutional	Mixed
Nov-23	45.3	56.9	44.4	49.0	46.7	39.5	42.1	45.7	46.6	42.7
Dec-23	45.4	53.1	45.9	50.3	43.4	45.3	45.8	46.4	46.5	42.3
Jan-24	46.2	53.8	43.6	50.9	45.2	46.6	44.6	47.0	48.5	42.9
Feb-24	49.5	56.0	44.0	50.8	47.7	47.2	44.9	46.1	50.7	47.1
Mar-24	43.6	54.9	46.0	45.2	45.3	47.6	44.2	42.9	49.9	48.3
Apr-24	48.3	54.8	45.9	44.2	44.7	47.8	45.6	47.4	46.1	43.9

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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Preventative Maintenance & Inspections.

The Customer Equipment Solutions team at United Rentals specializes in owned equipment repair, maintenance, parts and inspections. Our inspections meet ANSI, OSHA, and CSA requirements so you can protect your investment and safeguard your employees. We can service your owned equipment in the field or at one of our locations and we specialize in medium to heavy-duty equipment, such as scissor lifts, backhoes, mini excavators, and boom lifts. Our trained technicians can keep your owned fleet operating safely, at peak performance, and according to regulations!

For more information contact CESsupport@ur.com

Call 800.UR.RENTS or visit UnitedRentals.com/CES

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