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ALERT
NEWSLETTER

FROM THE ASSOCIATE EDITOR

CARMEN CAPOCCIA

I started as the associate editor of Construction Business Owner (CBO) in August 2022, so this issue marks a full year since I entered the construction industry. Over the past 12 months, I've learned about dozers, hydraulic fluid, surety bonds and infrastructure legislation. I've had the great pleasure of interviewing industry professionals and meeting new friends.

I attended my first trade show in January with World of Concrete, then returned to Las Vegas two months later for CONEXPO-CON/AGG. I was astonished by the magnitude of both shows and impressed by innovations in tech, sustainability and operator comfort, to name a few. I also left CONEXPO with a special prize — the opportunity to visit the FAE USA headquarters to tour the facility and interview CEO Giorgio Carera. In June, I traveled to Flowery Branch, Georgia, where I met the FAE team. FAE manufactures most of its equipment in-house, and I was able to walk through the facility, view machines in various stages of production and learn more about the manufacturing process. You can read more about my trip and my conversation with Carera by visiting constructionbusinessowner.com/FAEtrip.

I have learned a lot about the industry through CBO's webinars throughout the year — you can, too! In July, Divvy from BILL presented "Controlling Costs for Construction Companies," focusing on leveraging tech to streamline your business's finances. And this month, Deltek will host a session about job costing for construction. To watch either, visit constructionbusinessowner.com/webinars.

As this issue goes to print, the CBO team is preparing to attend the Construction Financial Management Association (CFMA) conference in Denver, Colorado. Stay tuned for insights and takeaways in the September issue.

Thank you for reading,

Carmen Capoccia



Associate Editor Carmen Capoccia with FAE USA CEO Giorgio Carera. Capoccia won a trip to visit FAE headquarters at CONEXPO/CON-AGG 2023. Capoccia toured the FAE production facility in Flowery Branch, Georgia.

CONSTRUCTION[®] BUSINESS OWNER

EDITORIAL

Associate Editor

Carmen Capoccia
ccapoccia@cahabamedia.com • 205-961-3391

Contributing Editors

Rachel Crosby
Nicole Wisniewski
Hannah Wolfson

CREATIVE SERVICES

Art Director

Jessi Tygielski

Digital Production Designer

Matt Hodges

Web Developer

Greg Caudle

PRODUCTION

Client Services Coordinator

Sonya Crocker
scrocker@cahabamedia.com

CIRCULATION

Subscription Management

constructionbusinessowner@omeda.com
800-256-2785

ADVERTISING

Senior Account Executive

Van Imbragulo
vimbragulo@cahabamedia.com • 205-314-8263

Account Executive

Andrew Arnold
aarnold@cahabamedia.com • 205-961-3384

Sales Development Representative

Fletcher Allen
fallen@cahabamedia.com



Publisher
Matthew G. Conroy

VP of Sales

Greg Meineke

Director of Finance

Brandon Whittemore

Director of Operations

Laurie Tisdale

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



EDITORIAL ADVISORY BOARD

Richard D. Alaniz
Partner – Alaniz Law & Associates PLLC

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Faculty Director, Curriculum and Internship Adviser, FM Program
Coordinator Construction and Facility Management Program –
University of Minnesota

Crawford E. McInnis
Executive Vice President – Epic Brokers

Joseph Natarelli, CPA
National Construction Services Leader – Marcum LLP

Gregg M. Schoppman
Partner – FMI Corporation

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Job Costing for Construction

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Job costing excellence is at the core of high-performing construction companies. Job costing measures the success throughout the job and provides insight into its future profitability. While not used in all industries, job costing is a proven method that the most successful contractors use to steer the financial success of their businesses.

In this webinar, you will learn:

- What job costing is and why it's beneficial to contractors
- The different types of costs and their role in job costing
- How to track and apply equipment costs to job costing
- Key job cost reports (e.g. Work in Progress) that serve as scorecards for each job and your business overall



SPEAKER



John Meibers
*Vice President &
General Manager*
Deltek ComputerEase

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► Sage Acquires Corecon

Sage Group PLC, a software provider for small and mid-sized businesses in the construction industry, announced the acquisition of Corecon Technologies Inc., provider of a cloud-native, preconstruction and project management solution. The acquisition expands Sage's relationships with customers beyond financials and reinforces its position as a provider of cloud-native technology for the construction industry by providing a solution to efficiently manage projects from bid to closeout. Founded in 1999, Corecon has applied its construction industry knowledge to develop a user-friendly preconstruction and project management software solution, enabling growing construction companies to win new work, easily connect project teams, build more efficiently and optimize profitability. Corecon's customers primarily include general contractors, construction managers, subcontractors and custom homebuilders. Its preconstruction and project management solution remains technology agnostic and will integrate with third-party enterprise resource planning (ERP) and accounting systems, as well as Sage Intacct Construction, Sage 300 Construction and Real Estate, and Sage 100 Contractor. The acquisition is said to provide customers the flexibility to choose the right combination of Sage and partner solutions for their needs. Visit sage.com and corecon.com.

► Skyjack Announces Retirement of President Ken McDougall, Appointment of Charlie Patterson

Linamar Corp.'s Skyjack division announced the retirement of President Ken McDougall and the subsequent appointment of Charlie Patterson, effective Jan. 1, 2024. The two will be working together over the next several months to ensure a seamless transition for the organization. McDougall started his career at Skyjack parent company Linamar in 1987 as a tool designer, moving up into various key roles including global sales and estimating manager, and vice

president (VP) of operations. Two-time Skyjack President McDougall's tenure also saw the acquisition of two telehandler lines from Carelift/Zoom Boom and Volvo, a foundation for the company's existing telehandler line up. More recently, McDougall led Skyjack's global capacity increases, taking the number of manufacturing plants from two in Canada to five globally. Skyjack's potential global unit capacity is expected to increase 235% when compared to 2022. McDougall's tenure also saw a number of successful Skyjack product launches, including ELEVATE, updated boom and vertical mast lines. Current VP of International Operations Charlie Patterson started with Skyjack in 2000 as United Kingdom (U.K.) sales manager and went on to head the U.K. and European operations for the organization. Patterson oversaw the opening of Skyjack offices in the U.K., Germany, France, Sweden and Australia, and previously led sales in Asia-Pacific. Visit skyjack.com.

► Senco Opens Global Headquarters in Cincinnati

Kyocera Senco Industrial Tools (Senco), a global provider of fasteners and power fastening tools, has announced the opening of its official global headquarters in Cincinnati, Ohio. The newly renovated facility will bring employees from all Senco divisions under the same roof, allowing closer collaboration and improved quality control, as well as fostering innovation. The grand opening follows an extensive expansion and renovation of the company's production facility, which

began in 2021. Prior to completion, the 500,000-square-foot facility was home to Senco's manufacturing plant, where Senco nails and staples have been made since the 1970s, as well as the company's engineering and product management teams. The renovation project added 32,000 square feet of new office space for business operations staff, including executive, sales, marketing and administrative teams. Senco employs 400 American workers, approximately 80% of whom are now headquartered at the new facility. The facility also features 8,000 square feet of newly renovated and optimized manufacturing space, including a dedicated assembly line for Senco's new built-in-the-USA pneumatic framing nailers — the FN81T1 and FN91T. Kyocera Corp., of Kyoto, Japan, acquired Senco in 2017 and has invested millions of dollars in the Cincinnati facility to support manufacturing equipment and research and development projects over the past four years. Visit senco.com.

► Samantha Lake Joins ProNovos as COO



Samantha Lake

ProNovos Technologies Inc., a technology firm known for its analytics, financial workflows and project-management solutions for construction contractors, announced the appointment of Samantha Lake as chief operating officer (COO). In joining ProNovos as its first COO, Lake brings more than 16 years of diverse experience in associations, technology, organizational culture and training and development, said Bruce Orr, founder, CEO and chief

40 Years



ASV Holdings Inc., an industry provider of all-purpose, all-season compact track loaders and skid steers, is celebrating 40 years of innovative product design for its anniversary this year. The pioneer in the compact track loader market marked the occasion with an open house at its Grand Rapids, Minnesota, facility in June. The event featured a full lineup of legacy and new ASV models, tours of the factory, food and refreshments, and various family activities and giveaways. Since its founding in 1983, the brand has become known for compact equipment products built to handle all sorts of jobsite conditions and locations — from residential backyards to rugged forestry work. Visit asvi.com.

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Controlling Costs for Construction Companies

If you're tired of tedious, costly financial processes slowing down your construction company's growth, this one's for you. Join us for a candid conversation with Cindy Morton from Anchored Tiny Homes about how to control costs and increase visibility by leveraging technology to streamline your business' finances.

Key takeaways:

- Why controlling costs is essential for construction companies
- How increased spend visibility can fuel growth
- How to use technology to keep your accounting team lean

Speakers



Ana Bolerjack
Marketing Manager
Divvy from BILL



Cindy Morton
Financial Controller
Anchored Tiny Homes



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data scientist. Lake most recently served as VP of communications/information technology at the Princeton, New Jersey-based Construction Financial Management Association (CFMA), the only national nonprofit organization serving construction financial professionals. She played a pivotal role in shaping the organization's strategic plan for 2022-2025 and in modernizing their technology stack to better meet members' rapidly evolving needs. During her tenure at CFMA, Lake saw firsthand the need for more efficient and data-driven approaches in construction. Visit pronovos.com.

► MBCEA Presents 2023 Individual Awards

The Metal Building Contractors and Erectors Association (MBCEA) presented two member awards at the 54th Annual MBCEA Conference in Nashville, Tennessee. The Robert and Beverly Ketenbrink "Oil Can" Service Award was given to Keith Wentworth for his dedication and service to the metal building industry. Greg St. Clair was honored as a new member of the MBCEA Pioneers Club for his 33 years of service in the industry. The Ketenbrink Award is presented to an MBCEA member who has given service to both the metal building industry, as well as the MBCEA and its training partner, the Metal Buildings Institute (MBI). Wentworth, VP of Dutton & Garfield Inc. in Hampstead, New Hampshire, is a past president of MBCEA and is currently the president of the MBI. He has worked to develop and promote various MBI/MBCEA training initiatives, such as MBI's insulation module, the Retrofit Roofing informational video and the Temporary Bracing Guide. He has also been instrumental in the creation of career day resources for MBCEA members. MBCEA bestows membership in the Pioneers Club to members who have served for at least 25 consecutive years. St. Clair's career in the industry has seen him in successful roles with Star Building Systems, Behlen Manufacturing,

Nucor Building Systems and now as the president of Arizona Corporate Builders. Since 2020, he has worked to grow the company into one of the largest metal building contractors in the country. Visit mbcea.org.

► Tarlton Promotes Lindsey Widmer to Senior Preconstruction Manager



Lindsey Widmer

Tarlton Corp., a St. Louis-based general contracting and construction management firm, promoted Lindsey Widmer, LEED AP, to senior preconstruction manager. From her time as a project engineer intern,

Widmer has advanced through the organization in preconstruction and operations roles for various projects. Most of her time has been spent in preconstruction and estimating, where she has provided critical project pre-planning for clients. She holds the Leadership in Energy and Environmental Design (LEED) Accredited Professional (AP) designation and earned a Bachelor of Science in civil engineering from Missouri University of Science and Technology. Having celebrated its 75th year in business in 2021, Tarlton Corp. is a Women's Business Enterprise National Council (WBENC)-certified business enterprise that provides preconstruction and construction solutions to clients in the commercial, institutional, government and nonprofit, industrial and power, and energy markets. Visit tarltoncorp.com.

► Newforma Announces Upcoming Staffing Changes

Newforma Inc., provider of project information management (PIM) software for architects, engineers, contractors and owners (AECO) worldwide, has named Mike Lewis the company's new chief marketing officer. Lewis has 25 years of experience in marketing, sales management and leadership, including extensive experience in the business-to-business (B2B) software as a service (SaaS) industry. Newforma also announced the promotion of two

key executives. Marge Hart has been promoted to senior VP of product management, and Tammy Fuller has been promoted to senior VP of software engineering. Throughout their tenure as VPs, Hart and Fuller consistently demonstrated dedication and proficiency in driving Newforma's product success in the AECO industry. Furthermore, Newforma has also added Stacey Vigna as the new senior director of human resources (HR). With a proven background in HR leadership roles at esteemed companies, such as Fastmarkets, Perfectov and Verivo, Vigna brings a wealth of experience in cultivating engaging cultures, implementing effective programs and driving strategic initiatives. Her expertise will be instrumental in nurturing talent and supporting Newforma in this time of accelerated growth. Visit newforma.com.

► Terex Utilities Names a New VP & General Manager



Eric Kluver

Terex Utilities added Eric Kluver as its new VP and general manager. Kluver spent more than 20 years with the Palfinger Group, a multinational business that provides crane and lifting solutions. Building on a

career of various U.S. and international leadership assignments, he was most recently a key member of the North America management team, responsible for six U.S. and Canadian entities while also serving as VP of finance. He is certified as a manager of quality/organizational excellence, Six Sigma Black Belt, and ISO 9001:2000 lead auditor. Terex is a global manufacturer of materials processing machinery and aerial work platforms. Terex Utilities is a business group within the Terex Aerial Work Platforms Business Segment of Terex Corporation. Visit terex.com/utilities.

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ASK THE

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

In which areas of the industry have you seen the most growth this year?



Construction companies have grown the most in the following areas:

1. Today, more than ever, contractors are holding project managers and field supervisors accountable to finish their projects on time and on budget. Business owners and managers got tired of tolerating poor performers who didn't achieve the results they were responsible for accomplishing. Now they have clearly written job descriptions, project goals and regular scorecards with which to update their crews and field supervisors on the actual jobsite progress happening weekly.
2. Market areas experiencing growth are warehousing and manufacturing building construction. The big national distributors and companies have been building huge 1-million-square-foot facilities all around the U.S. This requires contractors to be more technically competent, professional and responsive to the demands of the end users to meet schedule, budget and safety requirements.
3. Retail construction has also been improving since pivoting during the COVID-19 shutdowns of many brick-and-mortar facilities. Because of the slowdown, new retail construction has begun to grow as companies restructure their operations, product offerings and customer experiences.
4. There is now an increase in the number of construction companies requiring their employees to work from their company offices to improve communication, teamwork and collaboration. //

- **George Hedley, CSP, LPBC**, Certified Speaking Professional, Licensed Professional Business Coach
(Hardhat Presentations)



2022 was a banner year for most organizations, but halfway through 2023, many organizations are beginning to see signs of a change on the horizon. Construction spending ended last year on a high 8%, and several segments in the market had double-digit growth. However, there has been the constant specter of a recessionary market.

There are many construction market segment winners so far in 2023 — heavy civil, health care, multifamily and industrial, to name a few. Bolstered by trends and policies, such as infrastructure spending, renewable energy focus and affordable housing demands, it is not shocking to see these near-term building phenomena. While certainly solid winners in the short term, the smartest organizations are asking the question about 2024 and beyond. Are these the segments that will support our businesses both now and in the future? //

- **Gregg M. Schoppman**, Partner
(FMI Corporation)

EXPERTS



// The construction industry has truly been a tale of two markets over the past year.

On the upside, it has been a strong year for public infrastructure contractors, and I see no sign of that abating anytime soon. The Infrastructure Investment and Jobs Act (IIJA) — also known as the Bipartisan Infrastructure Bill — is pumping federal dollars into public works projects nationally, and the funding stream will continue through the 2026 fiscal year. Bridge, road, power grid, airport and transit projects are all benefiting from the IIJA. Other bright spots in the industry include increased data center construction, manufacturing in some geographical areas and health care.

Elsewhere, significant challenges do exist in several sectors of the industry. Post-pandemic, retail facilities, office buildings and hospitality venues continue to struggle to return to previous volumes, much less see any signs of meaningful growth. Other sectors that are reliant on private funding (e.g., multifamily housing) are struggling, as interest rates have climbed and banks have tightened their loan underwriting criteria. //

- **Roger Cornett**, Senior Vice President & Construction Leader
(Holmes Murphy)



// To answer this question thoroughly, one must address different aspects of the industry and even use a few interpretations of the term “growth.”

With respect to revenue generation and the nature of the work that's moving forward today, manufacturing and infrastructure projects appear well positioned for growing the bottom line.

From another angle, the industry in general is experiencing new forms of growth driven by competition. Today's market rewards those running more effectively or efficiently, as well as those successfully collaborating to accomplish more with shared resources. Small and mid-sized construction companies are entering joint ventures to take on projects together — an interesting development with huge ramifications for the industry's short- and long-term future.

Looking at each organization on its own terms suggests an unprecedented incentive for growth in terms of business sophistication. However, firms are now up against all the usual competitors — plus joint ventures — so they need to be asking where they can improve accounting processes and financial standing, as well as how they can put their best foot forward to win bids and secure financing. //

- **Joseph Ntarelli, CPA**, National Construction Services Leader
(Marcum LLP)

What's your take?

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



Who's Your New No. 2?

A step-by-step guide to choosing your second-in-command



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

Just Ask George.

Send your questions for Hedley to Associate Editor Carmen Capoccia at ccapoccia@cahabamedia.com.

The "think small" and "hire cheap" philosophies permeate many small- and medium-size construction companies where the owner is still involved in all aspects of the business. As companies evolve, oftentimes the tendency is to hire the lowest cost solution with only today in mind, versus keeping what you will need when your company doubles in size front of mind. I often describe this as "letting your wallet control your future." Remember, if your company grows at 15% to 20% per year, it will only take around four years to double in size. Successful business owners hire professionals who are experienced, can run projects from start to finish, need little supervision, have the potential to become leaders and key players in their expanding company and are paid top dollar.

Highly successful construction companies are led by innovative entrepreneurs who focus on the big picture: expanding capacity, developing loyal customers, securing higher-margin work, implementing systems, building top talent, and continuously improving and achieving best-in-class results. These visionary leaders delegate project management, field supervision, crew scheduling and estimating. They make it their priority to stay focused on leadership, building their customer base, mentoring managers and holding them accountable to produce results.

Stop Doing Work

At general contracting firms with \$8 million to \$20 million in annual revenue, the owner needs to stop doing the work. The same is true for subcontractors earning \$5 million to \$10 million in annual revenue with 20 to 30 field crew workers. "Work" can be defined as estimating, project management, field supervision and accounting. At these levels, the owner should have built a strong management team, consisting of a senior project manager, general field supervisor, chief estimator and a financial manager who can run both the projects and the company without much oversight or hands-on supervision.

Managers who hire professionals, however, must still dedicate time to managing their managers by holding weekly managerial meetings, reviewing important estimates, helping develop a winning bidding/sales strategy and watching the numbers closely.

Hire or Promote a Second-in-Command

Once a professional team is onboarded, the owner must focus on promoting or hiring a strong "No. 2." The No. 2 will be the top construction operations manager, responsible for running all operations — including project management and field production — and will report directly to the owner, as do the chief

Who's Your No. 2?

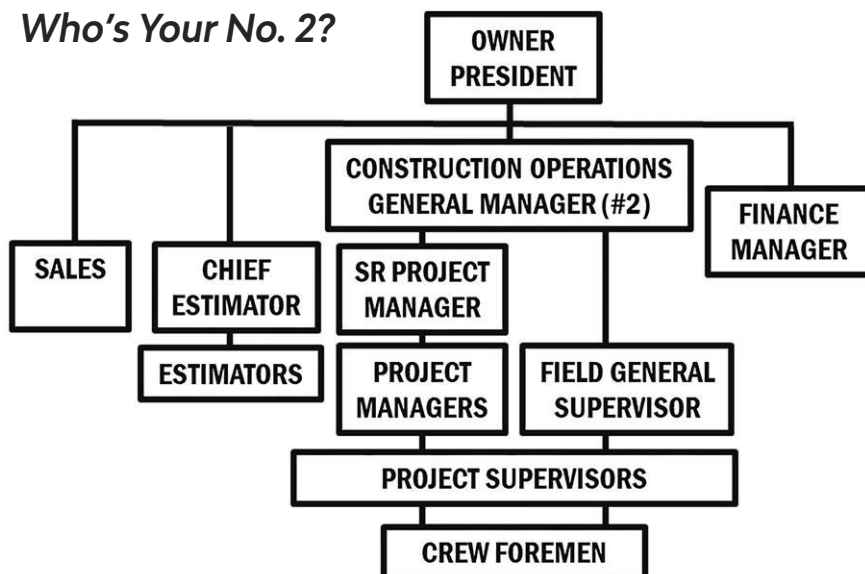


Figure 1. Construction chain of command

estimator, finance accounting manager and sales team. Project managers will report to No. 2., while field supervisors and crew foremen will report directly to their project managers or general superintendent. Figure 1 offers a visual of this chain of command.

The decision to promote someone to No. 2 is tough. Select carefully based on the candidate's ability to coach, generate customer confidence, make the right decisions and earn employee respect. Also, make sure your No. 2 is someone with whom you want to build a business.

Hire Big = Get Big Results

I once met the owner of a full-service retail construction company who was hands-on estimating and managing every project entirely. He was stuck — maxed out at the level of what he could do himself. Finally, he hired a weak project manager and an estimating trainee. These hires helped him move from \$3 million in sales to around \$5 million in over three years. Then he got stuck again.

We often discussed how expensive strong managers were and whether I thought he should take the risk. He was turning down opportunities to negotiate with great customers and build

many more high-profit projects, but his workload was more than he could handle. Finally, he found a perfect person to become his No. 2 and take over all his construction operations. He hired him at 50% more than he had ever paid for a project manager. Today, his company averages more than \$20 million in annual sales, has increased its net profit margin by 6%, and his current backlog is well over \$30 million of negotiated high-margin work. Why? He spends most of his time cultivating clients versus doing the “work” and hoping customers call with low-priced jobs to bid.

Don't be afraid to hire an experienced professional who costs more money than you want to invest. They will take most of your problems away as they build systems, structure and a team of professionals who produce results without your constant supervision. The math is simple and convincing: a \$50,000 more per year salary only takes \$500,000 of additional revenue at a 10% markup to cover (or \$250,000 additional revenue at 20% markup). Don't you think you could generate double or triple those numbers if you weren't doing the “work” and had time to focus on customers, strategy, systems, profit improvement and mentoring?

No Decision = Nothing Good Happens

I met with an owner to help him improve his bottom line. As I dug deeper, I discovered the project managers were not following standard company systems. For example, they billed most of their projects four to five weeks late, performed change orders without prior approval, their subcontracts were riddled with holes, and they didn't visit jobs on a regular basis to review the schedule. To make matters worse, their estimator was hard to communicate with, wasn't expanding his subcontractor and supplier list, and only got one or two bids per trade. He missed bid deadlines, forgot items in his estimates and was unwilling to change.

So, I met with the owner to discuss the problems and review some suggestions for improvement. To improve project management issues, we implemented several new systems and a mentorship program. One project manager quit immediately and was quickly replaced. The other project manager significantly improved and continues to work there.

I demanded he replace his estimator with a good communicator who would meet deadlines, build a strong subcontractor list, attend customer proposal meetings and develop a better estimating template. Unfortunately, the owner postponed replacing the estimator because he didn't want to deal with the issue. The next year, sales and margins were bad. The takeaway? Indecision can suffocate your business.

As a company leader, when you're doing the “work,” you're not building talent or growing your customer base. You're also too busy to manage your managers and spend too much time helping weak employees do their work. The sooner you start moving toward getting a strong person to help take charge, the faster you can reach your vision of what you want your company to become. ▲

Quality Assurance vs. Quality Control

Is rework taking all the reward out of the project?



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

Checklists, testing and manuals — if the topic of quality control is brought up at any construction company, those are usually the top mentions, and they are often followed by a deep yawn. Quality control is certainly an essential part of any organization's infrastructure. However, when looking closely at methods of ensuring a quality product and/or service is offered, especially in an industry characterized by low margins and high risks, a question arises: Is leaving potential rework conditions until the end of a specific phase — or the project as a whole — a reactive and ineffective situation?

To answer this question, it is important to examine the true cost of rework. While hardly an exact science, Figure 1 gives a brief summary of the potential cost multipliers that come with rework.

One must assume the initial cost of putting the work in place, but when

one considers that rework could have a cost multiplier of 10, quality control seems somewhat defensive in posture. In the end, with every mistake there is a potential impact to more than the bottom line, as is demonstrated by everything from employee morale to customer sentiment. So, how does a firm create a culture of quality assurance to complement their quality control?

Migrating From Checklists to Collaborative Tools

Checklists serve a function. However, they tend to be incredibly superficial, and with so many industry professionals who lack experience, there is a risk of simply “pencil whipping” the checklist. Consider the comparison in Figure 2.

A more experienced manager or field leader has probably considered all the alternatives with Option 1. Option 2

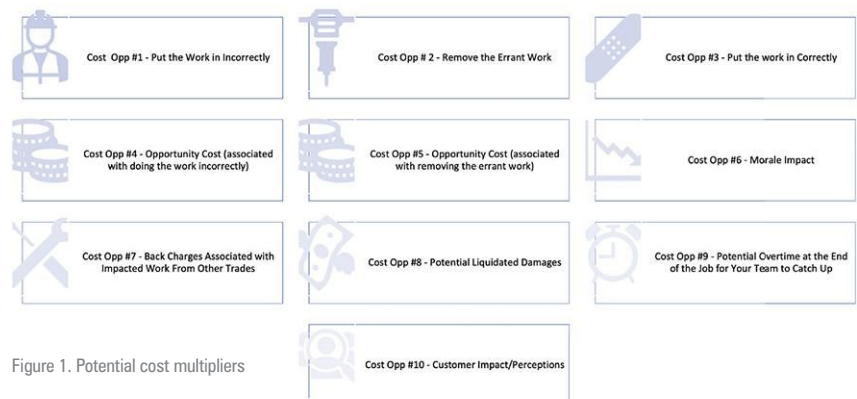


Figure 1. Potential cost multipliers

Option 1

Item	Check?
Mix Design	X
Equipment	X
Reinforcing Steel	X
Formwork	X
Form Release	X
Cleanup	X

Option 2

Item	Preconstruction Considerations	Project Response
Mix Design	- What are the special needs? - Has the engineer approved this? - Is there an alternate mix design allowed if materials become scarce?	
Equipment	- What is the most cost-effective placement technique (i.e., pump, bucket, etc.) - Do we have backup equipment?	
Reinforcing Steel	- What are the lead times on rebar? - Are there any special considerations? - Who has to approve the rebar shop drawings?	
Formwork	- Are special engineered forms required? - What is our reuse plan?	
Form Release	- Are there issues with form release and coatings? - Are the form releases approved?	
Cleanup	- Where is the washout area? - Who will take care of stacking forms?	

Figure 2. Simple checklist versus a collaborative tool

asks questions that force the team to think through the options. For instance, consider the question of the compatibility of the form release and any painting or coating. There are plenty of instances when someone might not have asked this question early enough, only to find out too late in the process that entire wall systems needed to be power-washed for fear of a paint not adhering to the substrate.

Red Teaming

Bryce G. Hoffman, the author of “Red Teaming,” created a masterful concept for all businesses that builds upon the thesis the military uses in its exercises: In any war game or simulation, there is always a team that plays the role of the enemy insurgent. Even in sports, the scout team will run the opponents’ plays and simulate an environment reminiscent of what the first team will see on game day. Organizations can use a similar technique in several capacities to drive a quality assurance initiative. For instance, consider the following processes:

Red Teaming After Preconstruction

Once the team that will build the project has developed an effective plan, a “red team” is organized to challenge the assumptions. These challenges might sound like:

- How will you protect the finished product from damage from other trades?
- How will you manage to drive 1% to 2% more profit to the bottom line?
- How will you avoid a voluminous punch list?
- How will you integrate the service department sooner?

The intention is to create a stimulating yet uncomfortable set of questions to ensure the project team can effectively execute the work. An answer like, “We’ll just do our best to protect the project from damage,” should be a red flag, as no real precautionary planning lies behind it.

Red Teaming During Construction

Next, bring in a small team to simulate a surgical strike at a random time on the project. The intention is to prepare the team before closeout. Too often, issues are left unsettled until the end, leading to the aforementioned punch lists and, ultimately, annoyed customers. The red team’s main areas of focus are:

- Project cleanliness
- As-built drawing and closeout documentation
- “Next-step” preparation (Does the team have the next three to four moves well calculated?)

Red Teaming During Closeout

To be clear, this method does not employ a separate punch list crew or team, but rather another project team enlisted to be that extra set of eyes. How often does a project team wear that set of rose-colored glasses? The red team attacks every aspect of the project from punch list to closeout documents. Certainly, this could be perceived as rework, as any punch list would be, but it is important to note that this puts the red team in the shoes of the customer prior to the actual customer closeout. It prevents repairing customer perceptions and ultimately truncating the closeout timeline.

Valuing quality assurance over quality control is by no means a new concept, and there are professionals who focus solely on ensuring companies provide both quality assurance and quality control. However, there are also organizations that see dedicated professionals as a luxury or added cost.

The intention of quality assurance through red teaming is to provide proactive solutions with the project teams. Even the red teams are simply redeployed team members who could easily be on the other side, playing defense. Firms that integrate assurance into every aspect of their work create the ultimate assurance in the end: profitability. ▲

DEI: A Solution to Construction's Ongoing Labor Shortage

Dodge Construction Network's newest findings on what initiatives really work



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

Combating the construction industry's labor shortage is a complicated challenge requiring multiple solutions. For several years, Dodge Construction Network (Dodge) has tracked labor shortages in the industry, and a recent study found one potential solution for contractors is to engage a wider segment of potential workers via solid diversity, equity and inclusion (DEI) initiatives. The 2022 "Diversity, Equity and Inclusion in the Design and Construction Industry" SmartMarket Report, published in partnership with the General Services Administration, includes findings (self-reported) from U.S. architects and contractors, revealing the degree of industry engagement with DEI at their organizations and on their projects, as well as suggestions for ways firms can improve in the future.

"We believe these findings suggest that engaging in DEI offers the opportunity to address some of the biggest challenges these companies face today," said Steve Jones, senior director of industry insights at Dodge. "The list of practices benchmarked in the report then provide a road map to the industry about how they can consider increasing their engagement."

According to Dodge, the report features:

- Data on the use of over a dozen DEI practices and policies by architects and contractors at their organizations.
- Practices that are widely employed to improve project impacts on

communities, as well as the challenges to doing so.

- The top organizational and project benefits experienced by those engaging in DEI practices and policies, and the degree to which they are enhanced by deeper commitments to DEI.
- Critical drivers that can encourage more of the industry to embrace DEI at their organizations.
- Articles, case studies and interviews that provide real-world context about why and how DEI is essential to improve individual companies and the industry as a whole, as well as the very projects and communities impacted by them.

Many of the DEI practices widely used by contractors are captured in the following self-reported statistics:

- 66% offer skills training to their jobsite workers beyond what is required for their position, opening additional opportunities for advancement.
- 54% offer DEI training to their staff.
- 36% offer toolbox talks that deal specifically with inclusion and equity.
- 25% offer training on unconscious bias.

Around 25% of contracting firms offer leadership training to all employees — an important way to encourage growth of a more diverse leadership in their organizations. However, the SmartMarket Report suggests that the industry must adapt to appeal to a nontraditional workforce as well. While it does seem that most firms are at least attempting



to include DEI initiatives in their programs, there are many underutilized opportunities that could help them make their inclusiveness clear to prospective workers, as evidenced by the following statistics:

- 19% surpass simple nondiscrimination language in their recruitment practices and actively reach out to underrepresented groups.
 - 22% have a path for advancement that actively considers how to diversify their leadership, with large companies making up the vast majority of these responses.
 - 14% believe that leadership at their organizations is committed to devoting resources to improving inclusion and equity at their companies.
- About 50% of companies with a significant commitment to this area report increased ability to recruit workers, and attract younger workers specifically, to their organizations.
 - Around 50% of highly engaged contractors report project benefits like better collaboration and greater conflict resolution on-site, driving a better jobsite culture.
 - About 50% of companies that are deeply engaged in DEI feel that their practices have led to more innovation in company efforts to solve ongoing business challenges, in addition to seeing their efforts result in a more diverse and inclusive organization.

This data reveals that while the construction industry has embraced some elements of DEI training to improve its culture and alleviate the worker shortage, there is still enormous untapped potential. In addition to the top benefit of seeing their efforts result in a more diverse and inclusive organization, there are additional clear benefits for companies that invest in greater DEI efforts. Some of those include:

The contractors surveyed make it clear that finding workers is the top motivator for further investment in DEI; however, there is skepticism surrounding the validity of the return on greater investment. Nearly 33% note a lack of confidence in the benefits from greater investment as their top deterrent for further investment. More practical information about how contractors have seen improvements from DEI is critical for wider adoption. (Unless noted, the

companies in the report with deeper engagement include architects as well as contractors. However, the combined percentage is only provided when there was no real statistically significant difference between the architect and the contractor responses.)

Contractors need more skilled workers — or at least workers committed enough to advancement and development — to justify investment in the training required to get them the skills they need. Qualitative responses from the SmartMarket Report reveal a belief that increasing diversity could involve seeking less qualified or engaged workers, at the expense of a more traditional workforce. However, practices that encourage recruitment outside of traditional sources, wider access to leadership training within organizations and broadening the path for advancement do not exclude anyone.

As the labor shortage continues, changing the industry to better accommodate those who have not felt like they belong there in the past can be one effective way to attract them to the industry and keep them there long term, allowing for different perspectives, which improve businesses. ▲

5 Questions to Ask Before Applying for a Loan

Leverage your financial tools to boost business growth & protect cash flow

BY HARRY GUNSALLUS

Every business finds itself in need of a loan or line of credit at some point, and for small businesses the need often arises at critical junctures for their very survival. Whether just starting out or looking to grow your business, being able to access a line of credit — expected or unexpected — provides a necessary cushion to survive, and ultimately thrive.

For sole proprietors or small business owners within construction, the question of whether to borrow money isn't always an easy one to answer. For example,

say you need to purchase a piece of equipment that costs \$40,000, and you have \$42,000 cash on hand. You may want to avoid paying interest on a loan and purchase the equipment outright. However, that leaves you with no safety net and can pose cash flow challenges.

Loans and lines of credit can be leveraged as tools to support productive growth and ensure ample cash flow. The options can seem limitless, but asking yourself the following key questions

before signing on the dotted line can make the process easier.

1. Why do I want to borrow the money?

The most important factor in determining whether to borrow money is what you intend to use it for. Is it to purchase equipment? Do you need to bring on temporary workers for a big job? To obtain a small business loan, you must have a stated purpose, and the expectation is that the money you receive will be used for that reason alone. The purpose will help to inform what type of financing best fits your needs.

2. What type of loan do I need?

You should always consult with your certified public accountant (CPA) or bookkeeper on this question, but once you have decided on a banking partner, they can provide sound counsel on what type of financing makes sense for your purpose. While a credit card for everyday expenses may fit the needs of one business owner, a long-term, fixed-rate loan may be a better option for a business experiencing tremendous growth.

3. Am I ready to apply for a loan?

One of the biggest reasons businesses are denied loans is simply because they are not prepared to apply. First, you should shop around and look for a bank with the best rates and no hidden fees. When you decide what financing option to pursue, ensure that you have all the required essential documents and paperwork, including your business license, articles of incorporation, doing-business-as (DBA) paperwork, trade name association, tax returns, etc.

4. Am I going to qualify?

Before you apply for a loan, it's important to analyze whether you are in strong enough financial standing to qualify.



No matter which type of financing you are looking for, there are bound to be many potential partners available to you. Always look for a banking institution that fits your kind of business.

Even if the loan is put in the name of the business, the owner will need to sign a personal guarantee in case the debt is not repaid. As a result, your credit score plays a big role in determining whether you'll be able to receive the loan you are looking for. Luckily, there are many places where you can check your credit score for free. In general, banks look to see credit score numbers at least in the high 600s to approve someone for a business loan. Other factors that will play into your qualification are your loan-to-value (LTV) and debt-to-income ratios (DTI).

5. What am I looking for in a banking partner?

No matter which type of financing you are looking for, there are bound to be many potential partners available to you. Always look for a banking institution that fits your kind of business. If you don't have time to go into a branch, don't work with a bank that only allows you to originate a loan in person at a branch. You should also shop rates and understand the fees that go along with the options you are exploring by going to the banks' websites. Never work with

a bank that doesn't post their rates or disclose their fees.

Applying for a loan to help your business can be a daunting idea, but it is often necessary one for the long-term health of your business. By asking yourself these five questions ahead of time, you can go into the process set up for success. ▲

Harry Gunsallus serves as the chief operating officer for Owners Bank. He oversees digital strategy, builds and maintains fintech partnerships, and develops an integrated suite of products and services to support Owners Bank. He is a leading subject matter expert in helping financial institutions grow through innovation and has held other senior positions in information technology, operations, innovation and product development throughout his career in the financial services industry. Visit ownersbank.com.



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Diverging Roads for Construction Financing

Industry insiders' concerns for contractors in late 2023

BY TODD A. FEUERMAN

The second quarter of 2023 saw a construction industry continuing to thrive. As we enter the heart of the summer and the third quarter, the trend doesn't seem to be slowing. But there is concern that the somewhat unusual economy, as well as the effects of the Federal Reserve System's interest rate policies, might dampen things a bit. That being said, backlogs are substantial; demand is high; employee-retention credit monies are being refunded to contractors; and President Biden's 2022 \$1 billion infrastructure spending bill is slowly making headway into the construction economy. Consequently, the nonresidential construction market could increase by as much as 5%, according to the American Institute of Architects' construction forecast, and the residential market will likely increase by more than 9%.

Alongside the construction industry, the surety industry will likely continue to show growth and an expansion of project-surety programs, which are needed to support a robust construction market. For the remainder of 2023 and into 2024, the surety market will be keeping a close watch on the precarious upward trend while evaluating and assessing bond programs for construction firms.

And watch they must, because a thriving market is not entirely good news: The surge in construction is straining a limited labor pool, and the unpredictability of materials pricing continues to cause instability and

an increase in project disruptions. Additionally, interest rates will continue to rise because of the Federal Reserve's repeated attempts to reduce inflation and stabilize a runaway economy.

As such, the surety market must make difficult decisions as it weighs many complex factors. For contractors who have established effective risk management policies and displayed excellence in their operations, the surety market ensures plenty of underwriting capacity. But contractors whose businesses are less financially sound may struggle to find a surety or bank program that is eager to offer them credit.

The biggest risk factors that may cause trepidation for a construction company's financial partners, including the construction surety market, include the following:

- Labor shortages
- Rising interest rates
- Rising materials prices
- Project delays and cancellations

Labor Shortages

A continually tight supply of skilled workers has been an issue for the construction industry for many years. Specifically, two reliable classes of workers are both currently diminishing. On one end, the youngest of the baby boomer generation is retiring, and on the other, a new labor force from Mexico and Central America has been reduced by the intense pressure on the federal government to limit immigration. Of course, the COVID-19 pandemic

also made everything worse. Amid this ongoing struggle, construction companies are trying to find new and creative ways to attract young people to the industry, which is especially hard if they have a negative perspective on the value of skilled labor. It is no understatement to say that finding workers is a monumental task right now.

When insufficient labor is available to support a project, the production schedule gets the pressure and, ultimately, so does the job's profit. A major focus during underwriting of surety credit has been monitoring labor challenges. To counteract these pressures, the construction industry must find ways to welcome a new generation of workers with new compensation programs and workflow changes, while looking to untraditional workforce groups.

Rising Interest Rates

Since the Federal Reserve started its aggressive interest rate hikes in 2022, and to a lesser extent in 2023, construction firms and project owners have seen borrowing costs skyrocket. Since May 2023, the Federal Reserve bank funds rate has increased to 5.25% and this, of course, has increased borrowing costs to record highs when compared to 2020 and 2021. As of the most recent meeting on June 13, 2023, the funds rate was not increased, but all indications point to two additional rate hikes remaining in 2023. Regardless, general borrowing costs will continue to remain high, thus impacting decisions on current and proposed projects.

Rising Material Prices

Throughout 2020, the cost of materials was very predictable, trending to only nominal increases, but during 2021 and 2022, material prices increased dramatically. According to the U.S.



The surge in construction is straining a limited labor pool, and the unpredictability of materials pricing continues to cause instability and an increase in project disruptions. Additionally, interest rates will continue to rise.

Bureau of Labor Statistics, the increase in overall construction material prices in 2022 was 16.4%, and even higher in the office and industrial building construction segments. These price increases have continued to cause issues with general contract estimating and bidding issues, as well as material-procurement sequencing problems. With concerns about rising inflation, a possible economic slowdown on the horizon and China's attempts at achieving "zero-COVID" through shutdowns, many industry experts predict that construction material prices will continue to remain high in 2023.

Project Delays & Cancellations

The last major issues construction

companies, developers and project owners are facing are ever-increasing project delays and cancellations. As interest rates have risen and continued concerns over the economy and inflation loom, developers and project owners are reassessing the "go versus no-go" decision for pending projects. At a national and international level, this trend of project delays and cancellations can be found in areas like Arlington, Virginia, where Amazon has paused the building of their second headquarters, and Denmark, where Meta has ceased development plans for a new data center. These types of issues will likely continue, which could squash some of the optimism those in the industry felt at the beginning of the year.

The Bottom Line

The construction industry, though faced with rising material prices, rising interest rates and potential project delays, is seemingly poised to have a strong 2023. Banks and surety firms will continue to provide financing and bonding programs, and while they may vary in terms and conditions, the strongest, most well-managed companies will be rewarded with more generous programs. However, the contractors who have not managed themselves or their construction businesses properly will face more tightly controlled program options and a much more uncertain future. ▲

Todd A. Feuerman, CPA, CCA, MBA, is a director in the audit and accounting department at Ellin & Tucker. Feuerman has more than 35 years of expertise in construction industry topics, such as succession planning, financial modeling and forecasting, mergers and acquisitions (M&A), and debt structuring. He can be reached by email at tfeuerman@ellinandtucker.com. Visit ellinandtucker.com.



5 Things Contractors Should Know About the Infrastructure Act & the Inflation Reduction Act

An outline of current legislation for government-funded projects

BY MICHELLE AKERMAN & STUART EISLER

Together, the 2021 Infrastructure Investment and Jobs Act (Infrastructure Act) and the 2022 Inflation Reduction Act (IRA) authorized hundreds of billions of dollars for domestic infrastructure and energy projects — a bonanza for contractors. But those funds do not come without strings attached; there are requirements for firms looking to secure construction projects funded by the Infrastructure Act or the IRA.

The Infrastructure Act authorized roughly \$550 billion for federally owned projects and approved state or local projects receiving federal funding, with earmarked funds for bridges, roads, transit systems, railways, energy security systems and other infrastructure projects. The IRA authorized approximately \$700 billion in spending for a broad range of programs, with hundreds of billions of those dollars allotted for projects focused on drought resiliency in the Western states, energy security and combating climate change.

While the legislation's benefits are massive and clear, the requirements remain opaque. To realize the full value

of this legislation, contractors must meet fairly stringent federal and agency requirements, as well as applicable state or local requirements. Savvy contractors will have a firm grasp on the legislation.

Build America, Buy America Act Requirements

Both the Infrastructure Act and the IRA require domestic sourcing consonant with the 2021 Build America, Buy America Act (BABA), with both acts requiring 100% domestic steel and iron use on projects. The Infrastructure Act goes further, requiring construction materials and manufactured products to be American-made goods based on technical definitions, which evaluate the manufacturing processes and/or ratios of the costs of foreign and domestic components. The Infrastructure Act also adds structures, facilities, equipment, optical fiber, lumber, water and broadband infrastructure projects to the prior road and rail projects, to the list of improvements that must be compliant with the expanded BABA measures. Finally, the Infrastructure Act mandates compliance with the related Make PPE

In America Act enacted during the peak of the pandemic in 2021 to support U.S. businesses producing personal protective equipment (PPE).

The IRA includes several unique applications of BABA as well, such as an adjusted domestic-percentage evaluation of the total cost of mined, produced or manufactured components to become part of the project. The adjusted domestic-percentage threshold depends on the commencement date of construction and generally increases through fiscal year 2026-2027. The IRA reduces the adjusted domestic percentage, however, to allow offshore wind facilities to encourage additional development within this sector.

BABA requirements are poised to become even more stringent in the coming months. In his recent State of the Union address, President Biden announced the introduction of new BABA guidance that will require all manufacturing processes for certain construction materials occur domestically.

Davis-Bacon Act Requirements

Both the Infrastructure Act and the IRA require contractors to meet the federal prevailing wage rates, at a minimum; however, California contractors (and some others) must meet the state prevailing wage rates, which are nearly always higher. This places the onus on contractors to keep and maintain accurate records of hours worked and wages paid, while requiring the same of their subcontractors. In certain scenarios, the IRA requires prevailing-wage compliance to continue through defined alteration and repair periods after completion of construction. A failure to comply with the Davis-Bacon Act — a 1931 U.S. federal law requiring laborers and mechanics be paid the local prevailing wage on public works projects



— may not only jeopardize project funding and a contractor's bottom line, but also expose contractors to criminal liability based on, among other things, false claims for erroneous or omitted certified payrolls.

The IRA also imposes Davis-Bacon apprenticeship requirements on projects based on labor hours. For construction projects that began in 2022, 10% of the labor hours must be performed by apprentices; 2023 projects require 12.5%; the figure is 15% for subsequent years. Additionally, if a company employs four or more individuals on any single project, it must also employ at least one registered apprentice on that project.

Labor Force Requirements

The Infrastructure Act reauthorized the Disadvantaged Business Enterprise (DBE) program, and both the Infrastructure Act and the IRA require compliance with

DBE. But this is another issue that may, in some cases, be rendered moot by more stringent state or local requirements. Under the DBE program, contractors must certify eligibility and compliance. Both acts include anti-human-trafficking provisions. The Infrastructure Act includes additional forced labor restrictions to ensure illegal materials and products made with forced labor are not purchased with Infrastructure Act funds. Complying with the forced labor rules potentially requires formal, written code of conduct policies, annual trainings and implementation of internal controls.

IRA's Green Building Requirements

The IRA set aside nearly \$1 billion in grants for adoption of energy codes meeting specific standards, as well as zero-energy "stretch" codes. It also allocates funds to the U.S. General

Services Administration for green retrofits of federal buildings and more than \$2 billion for installation of low-embodied carbon materials and products in federal renovation or construction projects.

Consequences of Failure to Comply

The acts include other requirements, and a contractor who is the successful bidder on a scope covered by the Infrastructure Act or the IRA must ensure it meets all the applicable standards. Failing to meet its obligations, the contractor faces far more liability than the typical contract remedies for a breach. A noncompliant contractor exposes themselves to False Claims Act liability, performance evaluations and even suspension or debarment. Because of the complexity in defining, evaluating and establishing compliance, we advise contractors to seek legal counsel familiar with the Infrastructure Act, the IRA and their related requirements. ▲

Michelle Akerman is a top-rated litigation attorney at Hanson Bridgett LLP and leader of the firm's construction practice. She represents owners, general contractors, lenders and subcontractors in all manner of construction-related disputes. Her experience includes contract negotiation, claim preparation and evaluation, and prosecution and defense of contractor claims from pre-litigation through trial.



Stuart Eisler is a partner at Hanson Bridgett LLP in Los Angeles and has extensive experience representing award-winning heavy-civil, industrial, commercial and residential developers, as well as general contractors in complex construction disputes. His expertise includes contract issues, project delay and disruption, loss of use, deficient quality, strict products liability, redevelopment matters, and Leadership in Energy and Environmental Design (LEED) green building construction complications. He also provides business counseling and construction document preparation services. Visit hansonbridgett.com.



How to Streamline OSHA Recordkeeping & Improve Safety Training Programs With Technology

What software can do for your safety statistics & compliance record

BY BILL JULIUS

Because construction is on the Occupational Safety and Health Administration's (OSHA) list of the most hazardous industries, construction companies must be extra-vigilant to ensure the safety of employees and jobsites. Being on OSHA's list also means these companies must be extra-vigilant with incident recordkeeping and reporting to stay in compliance. Accordingly, tracking, recording and reporting workplace safety incidents is part of the daily operations at construction companies.

This summer, OSHA is expected to publish its final rule updating recordkeeping and reporting requirements. While we won't know what the final rule looks like until it's published, we can confidently guess that it won't stray too far from the proposed rule issued in 2022, which would require companies with 100 or more employees in certain designated industries — construction included — to electronically submit their OSHA Forms 300, 301 and 300A once a year. For construction companies with 20 to 99 employees, the proposed rule maintains the existing requirement of electronically submitting just their OSHA Form 300A annual summary once a year.

In short, more construction companies will be submitting more reporting with more information provided to OSHA. Because of the proposed requirement of submitting 301A logs, the regulator will have recordkeeping data showing what workplace injuries and illnesses are occurring and how they are happening. Anytime there is a regulatory change, it takes extra diligence to make sure your company stays in compliance with the new rules. Fortunately, technology can help with much of the burden. In fact, technology can help with many aspects of workplace safety — not just compliance.

Efficient Recordkeeping & Reporting

The old adage “the only constant is change” applies to ever-evolving workplace regulations and standards, too. The new OSHA recordkeeping rules will surely not be the last changes the regulator makes, meaning that keeping up with OSHA compliance could be a full-time job within your organization. For most companies, the responsibility of filing reports often lies with safety managers and/or human resources (HR) and can take valuable time out of those employees' days.

Thankfully, OSHA recordkeeping can

be relatively painless with a web-based application that autopopulates data across all required forms, saving time and virtually eliminating filing mistakes. Some technologies also provide real-time metrics for your organization's days away, restricted or transferred (DART) rate, OSHA incident rate and lost-time reports. Plus, implementing a web-based program allows all stakeholders access to the same shared information for tracking purposes.

The data and access are important for internal purposes to help prevent future injuries and incidents, but they will also help you in the event of an OSHA inspection. A company with recordkeeping that is thorough, organized and easily accessible may signal to an OSHA inspector that it takes safety seriously and likely has other aspects of its operation buttoned up as well.

Digital Safety Training

Safety training is another key component of a company's safety program and is another area where technology can help. It's critical that employees are able to recognize safety hazards on jobsites and know how to safely use certain machinery and tools. Regular safety training helps prevent workplace safety incidents and keeps you in compliance with OSHA regulations. However, traditional training methods can be inefficient and expensive.

Automated training platforms can take the place of live, on-site training classes or one-on-one instruction for new hires. These digital platforms can help track employee training requirements and ensure that safety messaging is delivered consistently to all team members. Managers can also include automated testing to verify that employees understand the training and are meeting the required standards.

A digital platform allows safety and HR managers to tailor training by job function or department. This ensures



that workers are trained on skills that are relevant to their specific role. And finally, an automated system means no more paper records that are often difficult to keep track of and find when necessary. All the data on worker training can be housed in one convenient system to which key staff have access.

Job Analysis & Ergonomics

Having a physical job analysis for every position that exists in your organization is helpful for creating job descriptions, but it also helps when determining the work-relatedness of a reportable injury or planning a return-to-work schedule following injury. A job analysis should address the purpose and essential functions of the job; the physical, sensory and cognitive demands; and environmental exposures and common tools and materials the worker will use.

A web-based job analysis program will help companies by providing shared information access to key stakeholders within the organization who can use the

information in a variety of helpful ways, including:

- Determining whether a person can perform the job with reasonable accommodations under the Americans with Disabilities Act (ADA)
- Training employees to work safely and avoid injury
- Assessing whether an injury is work-related or unlikely to have happened within the work environment
- Examining injured employees for fitness of duty (i.e., ability to resume normal or light duties after an injury)

Which Software & Applications Are Best?

As with any tool or program, safety applications and software aren't necessarily one-size-fits-all, and many platforms cater to specific business needs. To ensure the best fit for your organization, it's important to understand your unique business risks and safety goals when choosing specific products.

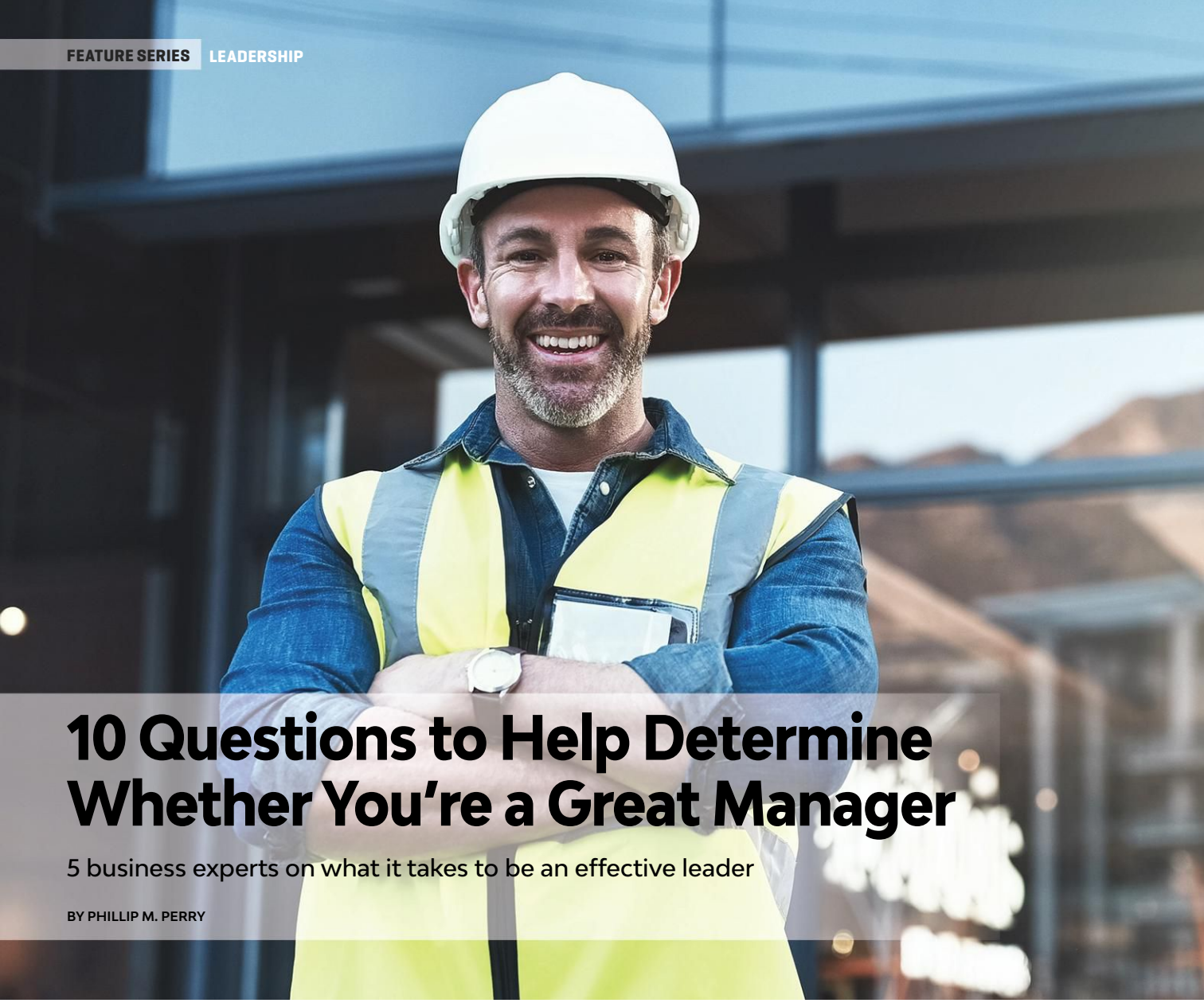
In an industry such as construction,

where the safety requirements and regulations are complex and extensive, company leaders should seek expert help when evaluating software platforms. The wrong software won't achieve what you need it to and may end up being more of a burden than a help, so you want to be sure to get it right.

On the other hand, an investment in the right digital solutions for your organization can pay dividends in everything from better safety data to inform new and safer practices to time saved on the administrative aspects of safety reporting and training to better compliance with regulatory requirements. ▲

Bill Julius, executive vice president of sales at McClone Insurance, is a go-to resource for staff and clients alike. His comprehensive understanding of risk management and insurance solutions makes him a valuable, trusted advisor to clients across categories including construction, manufacturing, distribution and transportation. Visit mcclone.com.





10 Questions to Help Determine Whether You're a Great Manager

5 business experts on what it takes to be an effective leader

BY PHILLIP M. PERRY

Great management skills are more important than ever in today's tight labor market. Businesses, large and small, must take steps to retain top-performing people and attract new ones. Dealing effectively with employees can help achieve just that. Management mastery, however, is not a one-and-done affair. Effective leaders continuously assess their workplace performance and seek ways to improve.

How effective are you as a manager? Below, five business experts specify 10 indicators of effective leadership. Read what they have to say, then assess your own managerial skills by taking the accompanying quiz.

1. Do you listen well?

Effective listening is a core competency that underlies other management skills. "When speaking with employees, managers need to hear both the words and the music," said Johanna

Rothman, founder of Rothman Consulting Group in Arlington, Massachusetts. "That means understanding not just what the person is saying, but also the subtext."

Rothman gave an example: "Suppose a manager asks Jane, 'Is everyone on your team working well together?' and she responds with a lackluster, 'It's OK.' That, to me, is a big red flag and an early warning signal of bigger problems."

On the surface, noted Rothman, the word "OK" is positive. The subtext, though, is that Jane's team has dysfunctional elements that the manager needs to address. Doing so will require follow-up questions that encourage Jane to speak out. A simple "Tell me more about the situation" may do the trick.

2. Do you communicate company priorities clearly?

Shared goals energize a business. "Everyone's priorities should be the same as the company's top executives' priorities," said Lois P.



Frankel, president of Corporate Coaching International in Pasadena, California.

“When you talk about your company’s big picture, where it’s going and how the employees can help it get there, that’s real leadership.”

Inspired by the knowledge of the company’s motivating mission, employees will develop their own creative techniques for boosting performance. “People will not be managed. They will only be led,” said Frankel. “Too often managers communicate how to do what needs to get done instead of letting people do it the way they want.”

Good managers also create milestones to monitor progress, Frankel added. They check in regularly with staff members and offer feedback. “Everyone needs to feel that their unique skills are being used and further developed in a way that contributes to the priorities of the organization.”

3. Do you delegate effectively?

Delegation is not just about saving a manager’s time and fostering operational efficiency. It’s also about preparing employees for promotion. “Step-up assignments are great tools for grooming people into higher levels of responsibility,” said William J. Rothwell, professor of workforce education and

development at Pennsylvania State University. “And a great way to use them is to systematically delegate a manager’s duties.”

This technique is of particular value for workers who have expressed a desire to get ahead. Rothwell suggests telling such people that the process of delegation is intended to help them step up to more responsible positions. Set reachable goals by delegating one or two items from the manager’s job description every year. “Proceeding slowly will allow time to coach the worker on effective techniques for mastering each duty,” added Rothwell.

4. Do you challenge employees to set reasonable performance goals?

Employees are motivated to perform well when they feel a sense of ownership over their future at the company. Managers must ensure that workers buy into mandated performance parameters,

and that process begins with a clearly drawn road map.

“If we set expectations that are not clearly understood, managers and employees will operate on different wavelengths,” said Randy Goruk, president of The Randall Wade Group in Scottsdale, Arizona. “The manager expects X and the employee thinks, ‘I’m going to do Y.’ The next thing you know, you’ve got somebody not meeting expectations.”

Seek assurance that the employee really understands what’s expected of them, Goruk advises. One way to do that is to invite the individual to restate the expectations you have delineated. It’s better to discover any disconnect now, rather than six months down the road.

5. Do you inspire your employees?

Inspired employees work with greater enthusiasm and invent creative solutions to workplace problems. But how do you inspire someone? The task seems formidable and abstract.

The secret is to look at the big picture. “The way to inspire people is to explain how the business service or product benefits employees, customers and society,” said Rothman. “That will charge workers with the enthusiasm required to perform at peak levels of excellence.”

Becoming an inspiring leader requires making a special effort to relate the goals of employee and company, Rothman added. And that means moving beyond the management techniques one has employed in the past. “If you cannot get rid of what you previously used to do, and if you cannot move beyond your prior expertise, you will not be an inspiring leader.”

6. Do you encourage your employees to contribute and share ideas?

The best ideas come from people on the front lines. Top managers encourage employees to develop and communicate new and productive operational techniques based on their experience. “You need to tap into the collective wisdom of the team,” said Frankel. “Creating an environment where ideas are appreciated, recognized and rewarded will spark ideas that help the business achieve its priorities.”

Encouraging worker contributions means going beyond the company suggestion box. “Reinforce at every team meeting that there are no bad ideas,” said Frankel. “People will speak up only if they understand that they will not be punished for doing so and that the company wants everybody’s ideas on the table.”

When the business comes up with a new goal, Frankel suggests, throw it out to the employee pool and invite input. “Many managers are afraid to ask for suggestions because they fear they will receive unworkable ideas.” The fact is that employee groups tend to be self-correcting and will reject ideas that are impractical.

TEST YOUR MANAGEMENT SKILLS

How well do you manage people? Score yourself on each of these 10 skills. Obtain guidance from the corresponding sections of the article that accompany this quiz. Total your score and check your rating at the bottom of the sidebar.

1 "I listen well."

☐ Never: 0 ☐ Seldom: 4 ☐ Often: 8 ☐ Regularly: 10

2 "I communicate company priorities clearly."

☐ Never: 0 ☐ Seldom: 4 ☐ Often: 8 ☐ Regularly: 10

3 "I delegate effectively."

☐ Never: 0 ☐ Seldom: 4 ☐ Often: 8 ☐ Regularly: 10

4 "I challenge employees to set reasonable performance goals."

☐ Never: 0 ☐ Seldom: 4 ☐ Often: 8 ☐ Regularly: 10

5 "I inspire my employees."

☐ Never: 0 ☐ Seldom: 4 ☐ Often: 8 ☐ Regularly: 10

6 "I encourage employees to contribute ideas."

☐ Never: 0 ☐ Seldom: 4 ☐ Often: 8 ☐ Regularly: 10

7 "I take a personal interest in my employees."

☐ Never: 0 ☐ Seldom: 4 ☐ Often: 8 ☐ Regularly: 10

8 "I coach employees to rebound from performance shortfalls."

☐ Never: 0 ☐ Seldom: 4 ☐ Often: 8 ☐ Regularly: 10

9 "I resolve conflicts in a productive way."

☐ Never: 0 ☐ Seldom: 4 ☐ Often: 8 ☐ Regularly: 10

10 "I behave in a professional manner."

☐ Never: 0 ☐ Seldom: 4 ☐ Often: 8 ☐ Regularly: 10

WHAT'S YOUR SCORE?

80 or more: Congratulations. You have gone a long way toward mastering the essential skills of management.

Between 60 and 80: It may be time to fine-tune your managerial practices.

Below 60: Your business is at risk. Take action on the suggestions in the accompanying story.

7. Do you take a personal interest in your employees?

Managers gain the trust of employees by engaging with them on a personal basis.

"A good manager communicates a genuine interest in the well-being of workers," said Rothwell. "Doing so doesn't require a face-to-face structured conversation. It can be a hallway interaction of a minute or less. It can be a brief talk in the break room, cafeteria, parking lot or even online through direct messages."

Employees who trust their managers will not only work with greater commitment, but they will also share information they might otherwise keep secret due to fear that it could damage their status in the company. Suppose a valued worker is planning to leave for employment elsewhere. If they feel secure enough to share such information, the manager can take steps to improve the work position in a way that will keep the person from jumping ship.

8. Do you help employees rebound from any performance shortfalls?

Effective managers take the initiative quickly when employees fall short in their duties. "If someone is performing poorly, don't surprise them at review time," said Goruk. "Have an early two-way conversation."

Goruk suggests leading off with an open-ended question such as, "How do you feel you're doing?" This provides an opening for the individual to express anything bothering them about their work experience. The manager can then follow up with a statement such as, "You know what? I've noticed the same thing."

The manager should provide specific examples of where the person has fallen short, including dates, times and numbers where possible. "Ask what you can do to help them get back on track," said Goruk. "Then, develop a game plan. What steps can they take to resolve the problem? When will you have a follow-up meeting to assess progress?"

9. Do you resolve conflicts in a productive way?

Organizational change often leads to workplace conflict. Dealing effectively with flare-ups is one challenging part of leadership. While most managers would rather avoid the negative emotions that accompany workplace interventions, company profitability requires the maintenance of a smoothly running work environment.

"Effective managers need to realize that the ability to address conflict is a core competency that they must develop," said Pete Tosh, founder of The Focus Group in Macon, Georgia. Effective managers learn the skills required to help employees deal with disagreements. That means directing the involved parties to reach realistic resolutions, casting light on perspectives and

ideas that can improve overall business performance.

“Focus on solutions, not the problem,” Tosh advises. “Concentrate on commonalities, the future and negotiation, rather than on differences, the past and emotion. Emphasize process, not content.”

10. Do you behave in a professional manner?

Titles empower obedience; behavior earns respect. “A leader’s actions are far more important than their words,” said Tosh. “People listen to talk, then watch the walk.”

A manager’s words and actions must be consistent in order for them to be believed. And they must also conform to the company policies and practices that have been championed by top leaders. Any deviation from them can create distrust.

“When we lead by example, our actions need to be consistent with our words,” Tosh added. “No matter what we say or how we ask others to behave, our actions will always serve as the truest indicator of our priorities.”

Mastering Skills

How well have you mastered the 10 skills described in this article? Find out by taking the accompanying quiz on page

28. Your answers will help you draw up a self-improvement management road map.

Bear in mind that effective management is a process, rather than a destination. Managers must continually learn new approaches and techniques to create an environment where employees perform at peak levels.

“People often make the mistake of feeling they have it made as soon as they are promoted into supervisory positions,” said Goruk. “They stop learning and start coasting. And then they fail as effective managers.” In contrast, managers who make a concerted effort to improve their leadership performance can create motivated employees and greater profits.

“Some people are born with competencies that make it easier for them to be leaders,” Tosh said. “But most people need to get some experience and training under their belts. The good news is that leadership is learnable. All it takes is an individual who wants to succeed.” ▲

Award-winning journalist Phillip M. Perry has published widely in the business management press. He can be reached at [linkedin.com/in/phillippmerry](https://www.linkedin.com/in/phillippmerry).

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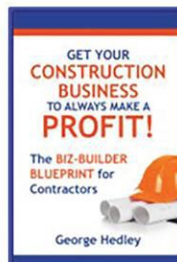
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Leadership Pitfalls to Avoid at All Costs

Why goal setting & delegation are the keys to upping your management game

BY STAFF WRITERS, ASSOCIATION OF EQUIPMENT MANUFACTURERS

Not everyone is born to be a leader. The good news, however, is that leadership skills can be developed and refined over time, opening the door to career advancement and higher wages for many in the equipment manufacturing industry.

According to leadership expert and CONEXPO-CON/AGG speaker Terry Tennant, who is a partner and performance improvement manager with the consultancy group Attainment Inc., the first step in refining one's leadership skills is recognizing what constitutes a good leader. "The measure of a good leader is how well their team functions without them," he said.

It is not the easiest concept to grasp, particularly for those who have worked their way up the corporate ladder and tend to rely on tried-and-true technical skills. These people often have a hard time letting go of the day-to-day tasks they've grown accustomed to doing over the course of years. But in the end they must learn to delegate (and not micromanage) because their ability to step into a new leadership role and fully embrace all the responsibility the position entails depends on it.

Avoid These Common Leadership Pitfalls

- Using the power of the position authoritatively, rather than coaching.
- Putting out fires regularly, rather than proactively developing long-term solutions.
- Making decisions employees should be making.
- Micromanaging employees, rather than helping them develop.

- Not communicating expectations clearly.
- Refusing to hold employees accountable for performance.
- Failing to provide effective performance feedback and training.
- Assuming what motivates them personally will motivate their employees, too.

"These are all symptoms [of a lack of] leadership development," said Tennant. "Great leaders find out what motivates each and every person they are managing."

Similarly, leaders should look for the root cause of poor employee performance. Many times, the cause can be traced right back to the leader. For example, when employees aren't sure what to do or why it's important, there is likely a communication problem. When employees know what to do theoretically but don't know how to do the job specifically, there is likely a training problem. When employees don't want to do the job, there is possibly a motivation or incentive problem.

Prioritize & Manage Through Goals

Terry Tennant's business partner and wife, Linda Tennant, said that one of the biggest challenges for many aspiring leaders today is transitioning from a reactive mindset to a proactive one, as it requires leaders to have a plan that prioritizes tasks and has total team performance in mind. Good leadership "recognizes that efficient and effective are two different things," she said. "Being efficient is about getting everything done as quickly as

possible. Being effective is about getting the right things done. It's important to get the right things done on the task list."

According to Linda Tennant, high-payoff activities (HPAs) — the six most important activities to which an employee should dedicate at least 80% of their time — should be on the task list. First, however, leaders must identify their own HPAs. Then they will have time to help employees pinpoint theirs.

Leadership HPAs vary from company to company because every organization and circumstance are different. In some companies, leaders will be responsible for certain day-to-day technical tasks. That said, there are some common HPAs that all leaders should include on their priority lists, such as:

- Achieve business financial goals.
- Communicate company vision, values and goals.
- Identify HPAs and key performance indicators and create scorecards for employees.
- Provide employee performance feedback and coaching.
- Help employees pinpoint their motivation and determine career and training plans.
- Develop, document and improve processes.

"These areas are where a leader should spend most of their time," Linda Tennant said. "The focus of a leader is their employees' performance. A leader's job is to make the team more productive."

Once a leader determines their HPAs, the next challenge is to get on track in terms of working in such a manner that they dedicate the correct percentage of their time to those tasks. To achieve this, she advises scheduling blocks of time to plan and work on HPAs — being sure to control interruptions during those blocks of time — as well as delegating low-payoff activities to other employees.

Establish a Delegation Plan

It can be all too easy to assume that employees will never do a job as well or as quickly as the leader, which often makes delegation a significant challenge for many leaders. Simultaneously, the leader may fear being viewed by their superiors as not working hard enough or making a big enough contribution.

Still, effective delegation is instrumental to a company's ability to thrive and grow, as it allows employees to master a larger number of tasks, enabling them to take on additional responsibilities as the company expands. Delegation also helps free up time for leaders to spend on their own HPAs — the real secret to maximizing team performance.

"If a leader can delegate one task that takes half an hour each day to complete, the leader will free up an entire month of time over the course of a year," said Linda. Leaders can start by successfully identifying a task an employee could either

A leader shouldn't try to be the employee's friend, but he or she also shouldn't want to be the enemy. The focus simply needs to be getting the job done.

do better, do for less time or money or do for their personal development. "Start with tasks that are pretty straightforward — almost mechanical in how they are accomplished," she added. Doing so will help leaders begin delegating tasks quickly because they will need less time on training and oversight.

Utilize Authority Effectively

Use authority effectively, Terry Tennant advises. By following some basic rules of thumb, it can be done. A leader shouldn't try to be the employee's friend, but he or she also shouldn't want to be the enemy. The focus simply needs to be getting the job done.

Leaders must consistently provide feedback alongside coaching. It is how they help their teams improve. Leaders should never ask if they can provide some "constructive criticism," a popular phrase often used in management because "all the employee hears is 'criticism,'" he said. "Leaders should simply offer to provide some coaching. 'Coaching' is usually viewed as a more positive word because it's about getting better and winning as a team."

It's also important to provide feedback and coaching in a private setting. However, it is OK to publicly praise employees for a job well done. In fact, it's advised. Public recognition when an employee follows through on a commitment is essential to building a self-motivating team.

At the same time, leaders must follow through on their own to build credibility and inspire their teams. "Leaders need a system to ensure that when they say they are going to do something, they follow through," he said.

Finally, leaders must provide clear job expectations in writing. Then, said Terry Tennant, "leaders can provide performance measurements, offer feedback and hold people accountable. When employees understand what is expected of them it makes the leader's job much easier." ▲

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



6 Sacred Principles of Success

Inside one expert's blueprint for leadership & improvement

BY WALTER BOND

My career didn't start out with a bang. As a reserve member of the University of Minnesota's basketball team, I averaged seven points per game. During my senior year, I broke my foot — twice. For a young man who dreamed of a career in the NBA, things didn't look promising. But just a year later, I made NBA history. After signing with the Dallas Mavericks, I became the first undrafted rookie to start a season-opening game. I went on to play for the Utah Jazz and the Detroit Pistons, scoring 874 points over 157 games.

My success story is unusual in and of itself, but here's what might be the most surprising: I was able to achieve my NBA dreams by modeling my mindset on the shark. I knew that for an NBA team to be willing to sign me — an unknown college reserve player — I would have to learn and master the fundamentals of peak performance. Of course, I had to put in a lot of work on the court, but I quickly found out that success is also determined by what goes on in the mind: your attitude, your words, how you handle mistakes, your resilience and adaptability, how you choose to work with others, and much more.

At the time, I wasn't relating my mindset to the shark or any other member of the animal kingdom. But the skills I developed, which are each inspired by a specific shark behavior, became the foundation for the "sacred six" principles that now guide my life. These are the same ones I teach to audiences around the world. The sacred six are a blueprint for operating with integrity and working toward consistent improvement in every area of life.

Why sharks? Despite their (undeserved) reputation as mindless, ruthless predators, sharks are smart, adaptable, discerning creatures that cultivate mutually beneficial relationships with other fish. You might say their success depends on having the right team. Many sharks live alongside

one or more remoras, or suckerfish. The suckerfish find and eat microscopic parasites on the shark's body, providing a potentially lifesaving service to the shark. In return, the suckerfish receive transportation, protection and meals from the shark. Each creature brings value to the other.

In my book, "Swim!: How a Shark, a Suckerfish, and a Parasite Teach You Leadership, Mentoring, and Next Level Success," I use a business fable to teach the lesson that sharks aren't ruthless loners. Instead, they work with and develop others, constantly seek self-improvement opportunities, admit their mistakes and don't allow the past to define them. The following are my sacred six shark-like traits that can set you on the path to success — no matter what field you're in (or court you're playing on).

1. Sharks never stop moving forward.

Some species of sharks must keep water flowing through their gills to avoid drowning, which means they can't stop swimming — and they certainly can't swim backward. They seek forward progress at all times. So should we.

My college coach used to say, "I see you've been working." This was really impactful after I had made a mistake and worked to do better. The message was this: You are changing your behavior, and because of that change you are improving. Learning to "fail forward," or use mistakes as launch pads for improvement, gave me an edge over players who reacted with blame or self-criticism. Just as forward movement gives sharks life, the progress I made infused me with even more motivation and passion.

2. Sharks never look down; they always look up.

Sharks keep their eyes on the water ahead of and above them, ready to react when prey appears. They don't waste their time

or energy on what's beneath or behind them. Likewise, it's important for us to keep our eyes and attitudes pointed in a productive direction.

In most situations, your attitude is the only thing that can stop you from succeeding. That doesn't mean you'll never lose a game or have a disappointing practice. You will. It doesn't mean teammates will never make mistakes that affect you. They will. Even so, your job is to focus on what you can do, not what you can't, and stay vigilant for opportunities. In basketball and in life, you never know when you'll be able to snatch victory from the jaws of defeat.

3. Sharks are always curious and learning.

Sharks can grow up to a foot a year, and their development isn't purely physical; they are always paying attention and learning. In fact, many sharks don't attack potential prey indiscriminately. They observe and investigate before striking to make sure it's a creature they want to eat. Likewise, we humans should always be growing and improving.

My coaches helped me identify and address my weaknesses as an athlete, but I knew that no matter how much skill I had on the court, I would never reach my potential if I didn't operate the right way, every day. That's when I really started to dive into the fundamentals of peak performance. It's a journey of self-improvement I'm still on to this day. I'm constantly examining my choices and motivations: how I use my time, what I want to accomplish, what opportunities are in front of me, how to address my frustrations, etc.

4. Sharks always respect their environment and recognize other sharks.

Sharks don't typically perceive other sharks as threats, and they seldom attack one another. Just as in the ocean, there's room in your business for multiple leaders, mentors and success stories. There is no need to feel threatened or intimidated by another's accomplishments or positions.

Some species of shark work with others to take down larger prey. They tap into the strengths of their fellow sharks to achieve a common goal, and so should we. This can be a tough lesson to learn as an athlete because everyone wants to be a superstar, but few people reach the top without help from others. So, look for those in your field who are getting it done or are performing better than you are, especially those who influence others by proactively recognizing and coaching them. These people can help you achieve long-term success — not just sporadic wins.

5. Sharks are always flexible.

A shark's skeleton is made of flexible cartilage that enables it to change direction swiftly and efficiently. Sharks are highly

adaptable — they can survive in warm or cool temperatures, swim in shallow or deep water and eat many different types of prey, depending on what's available. All of these abilities are instinctual for sharks, but for humans, changing and adapting to new situations can be extremely difficult.

Reluctance to change is what causes many people to stop moving forward. But remember: It's not your past decisions that define you, but your next decision. As an athlete, I used the offseason to unlearn bad habits and develop new skills. I now do the same thing as a leader. I regularly take time to evaluate what's working and what's not, and how I might need to change. I've found that often, the next right decision lies close to home — choosing to change my attitude or accept constructive criticism, for instance.

6. Sharks always elevate their suckerfish to new levels.

As previously mentioned, suckerfish and sharks enjoy a mutually beneficial relationship. In return for eating potentially lethal parasites, suckerfish receive transportation, protection and scraps from the shark's kills. In the human world, the suckerfish are those who need direction, coaching and guidance; and the sharks are the empathetic, people-focused leaders who provide those things.

We all start out as suckerfish — that's certainly what I was as a young, ambitious basketball player. But as I improved on the court, I was always happy to advise the athletes coming up behind me. I knew that the more energy I put into helping them become better players, the more value they would bring to our team. Now, as an author, speaker and business coach, my mission is to share what I've learned to help others achieve next-level success. I truly believe that you aren't successful unless you take others with you.

Thinking and living like a shark is what separates ordinary players from superstars, whether the game is basketball, business or something else. Just as evolution has given sharks what they need to be apex predators, we all have the raw materials to be impactful players. So much of success is determined by mindset, habits, values, relationship management and lifelong learning. These are things the sacred six help you develop and strive for every day. ▲

Walter Bond is the author of "Swim!: How a Shark, a Suckerfish, and a Parasite Teach You Leadership, Mentoring, and Next Level Success." Bond is also a renowned business coach, motivational speaker and former NBA player. His time in the NBA taught him the fundamentals every team needs to be successful, and today he shares his knowledge with global audiences to help entrepreneurs, business leaders, sales teams and employees get to the next level. Bond has keynoted conferences in numerous countries for brands such as 3M, Hilton and Allianz. Visit walterbond.com.





Conducting preventive maintenance activities in the field can save time and money compared to transporting equipment to a shop.

Keeping Equipment on the Front Lines for Optimal Uptime & Profitability

How to achieve more uptime & healthier machines

BY NIKI PATTERSON

"An apple a day keeps the doctor away." As adults, we know the old saying may not exactly be true. (Although it's a heck of a marketing strategy for the apple industry!)

What is entirely true: That old saying's message of preventive measures to ensure long-term health is entirely applicable to running a fleet of heavy equipment.

"Check the operator's manual" is an easy mantra when it comes to scheduling preventive maintenance (PM) activities, but we all know it's more complicated

than that. There are working schedules, machine location, staff and resource availability to consider. The most important thing to remember is that those PM intervals are not merely suggestions — they are the manufacturer's best recommendation for the optimal uptime and performance of your equipment.

In this article we'll discuss the importance of PM and the merits of building a PM schedule and practice in your business around performing that work in the field. There are technologies

today that simplify field PM activities, don't require massive service trucks, and help ensure that PM can be performed cleanly, to original equipment manufacturer (OEM) standards and with consideration for fluid integrity and safe handling.

More Uptime

Another old saying that we really don't give enough weight to is "time is money." While fleet managers may prefer to take equipment back to a more clean and controlled shop environment to perform PM activities such as oil changes, the time and expense it takes to pull that machine from the site and transport it back to the shop include time that machine isn't running, labor associated with the truck driver getting the machine to and from the shop, and then wear and tear on the hauling truck itself.

Bringing all the tools needed to perform PM to the field helps reduce that excess time and allows you to schedule PMs for off hours when the machine isn't working. This ensures the optimal uptime of the machine (profitability during working

hours available) while decreasing input costs into your business (labor, trucking, etc.). Between the increasing adoption of telematics and the ability to bring more of the PM activities into the field, it presents business owners the ability to establish a more mobile and decentralized fleet management strategy, which can shift focus from “How do we get equipment back to the shop?” to “How do we service it where it is and simply focus on getting it to the next job?”

Less Downtime

In addition to scheduling and performing PM work in a way that ensures it doesn't conflict with billable hours, it should also always be remembered that faithfully performing PM work will help prevent future inefficient machine use and failures.

This could be as simple as a hydraulic system not functioning properly and slowing down performance, or as devastating as a complete engine or emissions systems failure that renders a machine useless.

Building a fleet management strategy focused on performing PM in the field removes the opportunity or willingness to say, “Oh well, that machine only needs another week on-site ... We'll let it go for PM until we can get it back to the shop.” You can instead focus on taking the PM work to the machine at the recommended timing from the manufacturer to ensure ongoing optimal performance.

And why is this all important? Committedly staying ahead of or on schedule with PM will minimize the opportunities for failures to occur — failures that have the potential of incurring much higher repair bills, much longer downtime and a significantly higher total cost of ownership of that machine over its lifetime.

Rethinking the “Service Truck”

The reality is that many small- to midsized businesses and contractors can't afford to



Today's trailers and other technology simplify field PM and make it easier to find people to perform it.

own a full-sized service truck decked out with all the fluid storage and tools needed to perform PM.

That may have been a deterrent in the past — the purchase price, the insurance costs, liability, finding drivers who have the appropriate certifications — but newer technologies have been introduced into the industry in recent years that make it possible to get everything needed to perform PM work to the field without those requirements.

While local laws may apply, there are multiple trailer platforms now available to consumers that allow you to transfer all fluids and materials needed to perform PM work to the field:

- In tank volumes and configurations that eliminate the need for a driver's HAZMAT endorsement
- In gross vehicle weight rating (GVWR) combinations that do not require the driver to have a commercial driver's license (CDL)
- That are inclusive of all critical fluids, filters and systems that encompass the most common PM activities: oil (numerous types/weights), grease, diesel, diesel exhaust fluid (DEF), and reclaim systems that help you effectively transfer and dispose of waste fluids once the PM is complete

These advantages make it easier to find suitable labor to drive the trailers and perform the PM work needed in the field. We are seeing businesses create entire jobs/positions around personnel with standard driver's licenses who can drive the truck and trailer and perform the PM work in the field.

These trailers can also be fitted with utility boxes and compartments for critical field maintenance tools such as compressors, generators, welders, greasing systems, DEF systems and more, delivering as much value to the jobsite as a larger, more expensive service truck.

The lesson: The overall cost and labor expense of performing PM work in the field can now be less than it has ever been before, while delivering you all the advantages of PM work in the field that focuses on uptime and machine performance — helping you be more profitable throughout your entire operation. ▲

Niki Patterson is the regional sales manager at Thunder Creek Equipment. Patterson has spent her entire career in the equipment sales market, including 12 years at Mahindra, two years at Bad Boy Mowers and the past year with Thunder Creek. Visit thundercreek.com.





How to Diversify Your Business Offerings With Attachments

3 tips for expanding your equipment lineup to stay competitive

BY MIKE FITZGERALD

Having a well-thought-out mix of machine attachments is a cost-effective and efficient way to remain competitive in the industry. As such, thinking about your machine lineup as a portfolio of tool carriers can help determine an attachment strategy that is best for your unique business opportunities.

As a construction business owner looking to diversify via equipment, you may think it is necessary to purchase

a new piece of machinery dedicated to a specific purpose to effectively expand your business opportunities. However, by simply outfitting your skid-steer loader, compact track loader or compact excavator with a new attachment, you could reap the benefits of new job opportunities while also adding significantly to your bottom line.

That said, selecting the right attachments for your business's

needs can be overwhelming given the many options available today. In addition, many attachments come in various sizes or configurations, which can further complicate the decision-making process when first incorporating new attachments into your lineup.

To make the process a bit easier, use the following three tips for diversifying your business via an expanded attachment lineup:

The decision to buy or rent boils down to being able to complete your work in the most efficient and affordable manner. It is entirely dependent on your company's specific operations, so take the time to fully evaluate what is best for your business.

1. Take stock of current inventory.

Before you decide to invest in multipurpose tools, take stock of your attachment inventory. Then, consider your current workload and how your existing lineup of attachments meets, or fails to meet, those workload needs. Are you able to complete all your jobsite tasks efficiently with the attachments you have now?

Once you have sorted that out, review past projects and evaluate your upcoming work schedule to help determine which attachments can increase your jobsite performance and business revenue. Are there any upcoming projects that require a piece of equipment you do not have? Do you regularly turn down jobs because you lack the proper attachments to perform the work efficiently? If so, there might be opportunities to expand your business by introducing new attachments to your inventory.

Buckets, grapples, snow blades and augers are just a few core attachments that can increase jobsite versatility. Specialty attachments, such as concrete breakers, box blades, trenchers, snowblowers and brush cutters deliver additional, year-round jobsite capabilities that can help diversify your business offerings, thus growing your business.

2. Assess jobsite conditions.

If your projects' terrain or space constraints are changing, it may be time to consider adding attachments that can increase jobsite versatility and performance.

For instance, if you are a utility contractor with a skid-steer or compact

track loader, you likely have a trencher attachment. Adding a planer, breaker, drop hammer or wheel saw could be just what you need to remove asphalt or concrete in preparation for utility work, increasing the scope of work and, hopefully, the profit margin.

Compact excavators are perfect candidates for attachment integration, helping expand your job opportunities far beyond earthmoving projects. With their ability to access tight areas, compact excavators and their attachments are as effective in pavement and utility rehabilitation applications as they are in new construction. They can also be used to replace aging utilities, such as gas and sewer lines and septic tank systems. Attachment mounting systems and auxiliary hydraulics allow compact skid-steer loaders, compact track loaders and compact excavators to be effective tool carriers for a wide variety of attachment operations.

3. Clarify upfront costs.

Buying an attachment may be the right choice if it can meet your current project needs and support your business expansion plans by empowering you to complete key tasks you previously subcontracted. For example, a utility contractor who adds a planer or breaker to their attachment lineup can tackle concrete removal work rather than relying on a subcontractor to do so before utility work can begin.

Consider as well the cost-effectiveness of buying a new attachment if you are not going to use it on a regular basis. When

you are loading dirt and aggregate one day and moving brush or breaking up concrete the next, it may be more economical to rent attachments from your local compact equipment dealer — especially when considering the costs associated with storing and maintaining attachments.

The decision to buy or rent boils down to being able to complete your work in the most efficient and affordable manner. It is entirely dependent on your company's specific operations, so take the time to fully evaluate what is best for your specific business.

Once you have done your due diligence, talk to an equipment dealer about your attachment options. The dealer staff will provide guidance on the right types and sizes of attachments to pair with your current equipment. They can also give you guidance on the specific types of attachments you may want to consider, given your current work opportunities and market demand.

Adding attachments to your fleet can be a cost-effective way to increase your revenue and reduce the need for specialty or dedicated carriers. As always, making your machines as productive as possible remains top of mind, and with the right attachments, you can make that a reality. ▲

Mike Fitzgerald is a marketing manager with Bobcat Co. With more than 40 years of industry experience, Fitzgerald uses his vast expertise in compact equipment to help customers be as productive as possible on the jobsite. A member of the Society of Automotive Engineers, Fitzgerald holds one European and two U.S. patents. Visit bobcat.com.





10 Foolproof Ways to Improve Jobsite Safety

Your quick guide to hedging against lost workers & diminished profits

BY JOHN LACK

According to the National Safety Council (NSC), 70 million days were lost due to injuries in 2021 alone. Considering wage losses, medical expenses, administrative expenses and employer costs, NSC estimates the average cost per medically consulted injury in 2021 at \$42,000. Completing jobs on time and to standard requires a healthy workforce, which also leads to a healthy bottom line. The following 10 actions can help you create a safer

business, improve jobsite safety and mitigate on-the-job accidents.

1. Establish a safety culture.

Create a site safety plan that includes company policies, work practices and potential job hazards. Common construction injuries to address include strains, cuts and falls. It's also important to lead by example. By showing you're not above the safety standards, you establish that no one is exempt from

the rules and that you are taking safety seriously.

2. Conduct safety training.

Develop a mix of in-depth, off-the-job training, such as Occupational Safety and Health Administration (OSHA) 10-hour training and quicker, on-site "toolbox talks," or refresher safety briefings. If you find yourself thinking something is common sense or shouldn't need to be stated explicitly, you probably need to do a toolbox talk on it. Even if it has been explained before, it may be time for a refresher. Your insurance company may have resources available to help with these trainings.

3. Address mental health.

According to the Centers for Disease Control and Prevention (CDC), the suicide rate in construction — about 53 suicides per 100,000 workers — is the highest of all industries at almost four times the

national average. Many construction workers may be afraid to ask for help or even acknowledge they have an issue at all. Working to reduce the stigma and providing a supportive workforce can create a safer place for your workers. Make mental health resources accessible to everyone on your team. OSHA has many resources available that are specifically tailored to the construction industry. If you are having a hard time, you are not alone. Remember that these resources are for you, too.

4. Provide safety items on the jobsite.

Appropriate personal protective equipment (PPE) should be offered to employees and site visitors. Security fencing helps ensure the site is clearly labeled, allowing for controlled access to the premises. Clear and accurate signage should provide directions to specific areas and a list of materials required for entry. The list might include PPE like hard hats or helmets.

5. Implement jobsite inspections.

OSHA requires frequent and regular inspections of the jobsite. One way this can be accomplished is by a job-safety analysis (JSA). JSAs improve safety for your business, site or facility. By identifying tasks, listing steps, analyzing threats, determining secure practices and deciding if PPE should be used, you can develop a safe working environment.

6. Communicate with your team.

Open communication is necessary to create team camaraderie and an effective safety culture. This means considering employee opinions when finding solutions to problems. After showing them efficient ways to voice their concerns, you should also give employees the leverage to offer their ideas for a solution. Make sure your team knows how and when to reach you. One way to improve communication is

to have quick morning safety meetings in which you go over the JSA for the day, as well as what was found during the site inspection. Investigate all incidents and keep your employees up to date on important or relevant issues and what you are doing about it. Listen to your workers when they describe near misses so they don't become injured or worse.

7. Prepare for the elements.

Develop a weather plan. Spring often brings severe storms, rain and lightning. Your site may need increased inspections for downed power lines or trees before work can begin. In the summer, contractors should be mindful of the heat as their equipment gets hotter. Hydration also plays a key role in worker safety. Summer usually means an increase in vehicle and foot traffic, as well as children's activities. Because of these increases, a construction site should be extra secure to ensure it cannot be easily accessed by the public.

Plan breaks in the daily schedule for your crew to hydrate and rest. If you are in an area with winter weather, ensure snow and ice removal resources are available. While the winter season requires more equipment checks, contractor's equipment insurance can protect small tools, employees' tools and other borrowed equipment, as insurance companies understand that without functioning equipment, your job would be impossible.

8. Develop an emergency plan.

An emergency can happen despite your best efforts. An emergency plan can help alleviate stress and confusion during such incidents. Like some of the other tips, an emergency plan comes back to communication. When everyone on the site is aware of and comfortable with the plan, they can act faster and with more accuracy if something goes wrong. Make sure employees know where the first-aid kits are, have important phone numbers

available, and know the address of the site where they're working.

9. Be aware of jobsite distractions.

Distractions can arise from chatting, talking on cellphones, listening to loud music or a plethora of other common jobsite happenings. They can also come from loud equipment in adjacent areas or chemical smells traveling beyond the confines of the area where they're being applied. It's important to identify these distractions and mitigate where you can. Set expectations, not just for one area but for the entire site. For example, consider whether the jobsite is set up properly to contain chemical exposure or if additional workers need PPE, even if they're not working directly with the chemicals. Taking a holistic view of the jobsite can remove blind spots that may occur if you are focusing too narrowly on any one area.

10. Be proactive.

You can say safety is a priority, but if you cancel a safety meeting or ignore unsafe behavior to meet a deadline, your workers will notice. Do not ignore an unsafe situation; remember that actions speak louder than words. When employees experience support from management, it provides a sense of trust. It is better to proactively call out a problem than to deal with avoidable and unfortunate consequences.

To ensure your jobsite doesn't end up as a headline or a statistic, a hands-on emphasis on safety can increase employee engagement and decrease on-the-job incidents. ▲

John Lack brings more than 35 years of office and field experience in the construction industry, including carpentry, welding, project management, contract negotiation and much more, to Acuity Insurance. As Acuity's construction consultant, Lack shares his experiences to help contractors protect and expand their businesses. Visit acuity.com.





7 Ways to Prolong Equipment Life

How quality lubricants & preventive maintenance reduce downtime & improve efficiency

BY GARY ROBERTS

Staying competitive in the construction industry requires meeting deadlines, reducing operational costs and maximizing equipment availability. Equipment downtime at a construction site can severely compromise project schedules and result in the loss of revenue, so it's vital to keep vehicles and equipment operating properly.

One way to keep on track is with a preventive maintenance program, which can include scheduling engine oil-drain and greasing intervals and making sure coolants are at the proper mixture and freeze point. Regularly checking lubricants is an easy way to provide protection for engines and chassis drivetrains. Regularly

scheduled maintenance intervals for lubricants can help reduce equipment ownership costs, improving equipment life and efficiency. Choosing the right lubricants and services related to the needs of your vehicles and equipment can help to make a significant impact on your bottom line.

1. Engine Oil

Using full-synthetic or synthetic-blend heavy-duty diesel engine oils can provide advanced engine protection and performance. These advanced lubricants perform well in heavy-duty diesel engines, especially in extreme temperatures, and provide protection that can help save

money. They also prevent metal-to-metal contact caused by low speeds, high loads, cold starts, shock loading and extended idling — all of which can cause engine damage. Synthetic lubricants increase fuel economy and operational savings, in addition to reducing the operator's carbon dioxide (CO₂) footprint.

Daily demands on your equipment require engine oil with critical properties, such as adequate viscosity control in extreme conditions to prevent abrasive wear. For on-highway vehicles, full-synthetic and synthetic-blend engine oils can help provide enhanced fuel economy capability without compromising engine protection or durability.

The most common low viscosity diesel engine oils are 10W-30 and 5W-40, which are suitable for many modern diesel engines. They can provide the same level of protection as a 15W-40 with some important benefits. These 10W-30 and 5W-40 oils flow through engines quicker on cold start-ups, causing less friction to be generated and preventing unnecessary engine wear.

2. Greases

On-site conditions are often unpredictable, and this can have a significant impact on pins and bushings, as well as bearings. To protect components and keep them moving as they should, a high-quality grease that can maintain performance even in the harshest environment is required. It is important to consider a range of greases that can deliver a reliable level of performance, mechanical stability to avoid breakdowns, oxidation stability for system efficiency and water washout resistance for corrosion protection. Always be certain to use greases that meet the specifications of your equipment.

3. Hydraulic Fluids

Hydraulic fluids play several important roles in construction equipment, from optimizing production efficiency and operability to reducing noise on-site. They also keep machinery running smoothly, protecting and lubricating components to support efficient power transmission.

However, uneven terrain and dusty operating conditions expose oil to particulate contamination, which can accelerate component wear and reduce fluid life. This often leads to reduced component performance and even possible equipment failure. To prevent this, the hydraulic fluid must offer reliable air release, excellent filterability and improved cleanliness. Some biodegradable greases, hydraulic fluids and gear oils offer reliable equipment protection while

helping to reduce the environmental impact of your on-site operations.

4. Transmission Fluid

Dirt, dust and water on a jobsite can break down oil in equipment, limiting its effectiveness and exposing the transmission to premature wear. A high-quality transmission oil with good oxidation resistance can limit this fluid degradation, reducing downtime by extending oil change frequency. A transmission fluid with good frictional properties and high fluidity can provide excellent protection for heavy-duty transmission systems and help keep equipment running efficiently for longer, which can improve productivity.

5. Desiccant Breathers

The accumulation of moisture in hydraulic fluid can cause corrosion and premature mechanical wear. Moisture in hydraulic oils can alter viscosity, deplete additives and instigate the formation of sludge. Hydraulics utilize air to “breathe” as they operate, and this is a main source of how moisture and contamination can enter lubricant reservoirs. Using high-quality desiccant breathers can reduce particulate and moisture contamination in hydraulic fluids on mobile construction and stationary equipment.

6. Coolants

A 50-50 ethylene glycol and water mixture in heavy-duty diesel engines offers a combination of good heat transfer and effective freeze protection down to roughly minus 34 degrees Fahrenheit. The ethylene glycol helps prevent freezing and raises the boiling point, and water is necessary because it is more effective at heat transfer than ethylene glycol. In extremely cold environments, a slightly higher concentration of ethylene glycol may be considered.

A growing number of vehicles and construction equipment now require

nitrite-free engine antifreeze/coolant formulations to better protect aluminum components. Nitrite-free coolants provide improved protection of aluminum components, including modern brazed aluminum heat exchangers, and meet many of the latest original equipment manufacturer (OEM) specifications.

7. Oil Analysis

With long oil-drain intervals now common, one of the most important actions you can take to help prevent engine damage and downtime is to conduct regular oil analysis. This will enable you to monitor the engine oil and detect oil contamination or other undesirable conditions that need to be corrected to help prevent severe engine issues. A consistent oil analysis program can also assist in optimizing oil-drain intervals, increasing equipment reliability, minimizing unscheduled downtime, and improving operational efficiency tracking accuracy and overall maintenance practices. This valuable combination can play an important role in lowering the total cost of ownership for equipment.

Using high-quality lubricants in combination with a proper preventive maintenance program can reduce equipment downtime and help keep operations on schedule and on budget. By working closely with a lubricant supplier, you can determine the best lubricants to meet the needs of your construction equipment, which can ultimately improve your overall operational efficiency. ▲

Gary Roberts is an off-highway product application specialist for Shell Global Solutions (U.S.) Inc. with more than 25 years of experience working in construction and mining. In his current position, he is responsible for providing technical solutions and support through proper fluid selection and lubricant recommendations to many construction, agriculture and mining OEMs. Visit shell.com.





3 Considerations for Transitioning From Hard Hats to Safety Helmets

How your choice in headgear can have major repercussions for your workers

BY ZACK GARNER

Over the course of a century, the construction industry has become synonymous with the sight of workers proudly donning brightly hued hard hats. Serving as an iconic representation of the industry itself, these hard hats have come to symbolize a rite of passage for new entrants into the field of construction. However, this traditional jobsite staple is on the brink of transformation as more construction firms across the country are choosing safety helmets as superior alternatives to hard hats.

The adoption of safety helmets effectively addresses the pressing issue of head injuries in the construction industry.

By providing a new level of protection that further reduces the risk of such injuries, firms can shield their workforce from potentially devastating impacts. By reducing the likelihood of head injuries, safety helmets improve the physical well-being of workers and nurture a jobsite culture of safety. When general contractors are ensuring workers are in the safest possible environment, workers are able to allocate their valuable time toward their work.

As you weigh the costs and benefits of the transition from hard hats to safety helmets at your firm, the following are three things to consider.

1. Safeguarding Against Traumatic Head Injuries

With traumatic brain injuries accounting for nearly 25% of all construction fatalities, according to the Centers for Disease Control (CDC), headgear that provides adequate protection against slips and falls is a crucial responsibility for safety teams. The introduction of chin-strapped safety helmets, with an additional foam layer between the strap and shell, offer more protection than the basic hard-hat designs. Most traditional hard hats only offer a Type 1 level of protection (specified by the American National Standards Institute), while helmets are designed to protect workers from falling objects and impacts to the top of the head, with much greater defense against impacts to the front, back and sides of the head. According to the CDC, safety helmets decrease the likelihood of serious head injuries by 30%.

2. Leveraging Safety Innovations

Construction tends to have an “If it isn’t broken, don’t fix it” mentality when it comes to change, whether through leveraging new forms of technology, incorporating new software or upgrading

personal protective equipment (PPE). While safety-oriented technological advancements in construction have typically trended up more slowly than in other industries, the last decade has seen significant strides toward fostering a strong, data-driven safety culture.

On the project site of McCarthy Building Companies Inc.'s new Poultry Science Complex project at the University of Georgia in Athens, Georgia, and the expansion project at Piedmont Cartersville Medical Center in Cartersville, Georgia, for example, the pivot to safety helmets has had a positive impact on incident rates, which have remained well below national averages during construction.

3. Cultivating an "All-In" Approach

Establishing and committing to a culture of safety should always be prioritized, regardless of the investment cost. While

safety helmets may initially carry a higher price tag than hard hats (approximately three times higher), the long-term cost savings they offer helps to lessen some of the sticker shock. More than that, one cannot estimate the price of permanently altering someone's life after a fall that causes a brain injury.

As helmets gain traction and become the preferred safety method on construction sites, the surge in demand opens new possibilities for mass production. This downward trend in manufacturing expenses has the potential to make safety helmets more accessible to a wider range of construction firms and workers, bridging the gap between safety and affordability. Making these safety changes financially manageable is crucial in expanding the presence of helmets in our industry.

An emphasis on safety should be

deeply rooted in every partner you work with, beginning with orientation and continuing every day after. Diligently monitor overall project incident data, as using comprehensive reporting will keep employees and partners safe on the job. A sound safety culture that encompasses every worker and every project directly correlates with improved overall protection, productivity and profitability.

A proactive stance on safety serves as a catalyst for change that can also inspire other construction firms to embrace this critical evolution in safety and further protect the workers who are building the future. ▲

A graduate of the Georgia Institute of Technology, Zack Garner serves as the regional safety director for the Southern region of McCarthy Building Cos. Inc. Visit mccarthy.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.



▲ KOMATSU PC130LC-11 excavator

Released: 6/20/23

Availability: U.S. market

What's new? The newly upgraded PC130LC-11, with a longer undercarriage design, increases lifting capacity by up to 20% compared to the previous model. This durable, reliable and productive 97.2-horsepower small conventional tail-swing excavator is easily transportable and offers a unique combination of lightweight power and agility in a small package. The large one-piece hood, ground-level grease points, engine oil and fuel filters provide quick-and-easy service access for this upgraded excavator.

Specs: Engineered for efficiency, the PC130LC-11 uses up to 12% less fuel than the previous model [PC130-8]. The user can also reduce the fuel consumption on this excavator with the auto-idle shutdown feature that one can set to automatically stop the engine after a preset amount of idle time. The Komatsu diesel oxidation catalyst (KDOC) helps reduce particulate matter by using passive regeneration over 98% of the time. High hydraulic pressures help optimize high-arm and bucket-digging forces. For long-term durability, steel castings in the boom foot, boom nose and arm tip help spread working loads away from high-stress areas.

HEXAGON ▶

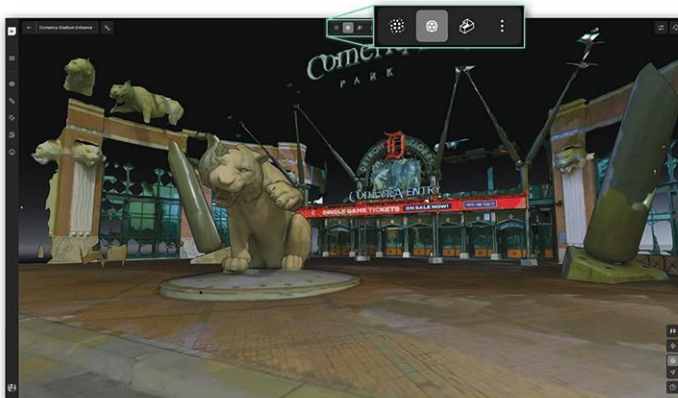
Reality Cloud Studio

Released: 6/14/23

Availability: U.S. & European markets

What's new? The Reality Cloud Studio allows construction and engineering project managers to upload and automatically register reality capture scans, process and mesh point clouds, collaborate in real time and export data in a variety of formats. This makes it easier to visualize, collaborate and adjust projects before breaking ground.

Specs: Connects people, processes and technologies in the cloud and delivers greater workflow efficiencies. Offers visualization and collaboration of data in real time for visual depictions of project status, resulting in greater efficiencies. Enables cloud-based automation for reality capture processes including registration, meshing and field-to-cloud workflows..



◀ WESTERN GLOBAL

FuelCube Type-S

Released: 6/27/23

Availability: U.S. market

What's new? Designed to safely transport and dispense diesel fuel when and where it's needed without hazardous material placard requirements, it's a robust and more secure alternative to slip tanks. This new solution offers 110% containment, security features and increased versatility. The dual-purpose adaptability of the tank allows businesses to use it as a truck bed tank or an on-site tank. Double-walled containment that eliminates the need for pans or basins. This significantly reduces the potential of an operation-halting fuel spill should the tank become damaged.

Specs: The FuelCube Type-S features a 119-gallon capacity and is optimal for 3/4-ton pickups or larger due to the tank's weight when filled with fuel. Unlike slip tanks, which are often difficult to remove, contractors can easily lift this tank out of the truck using the tank's four-way forklift pockets. This increases contractors' efficiency as they can use valuable truck bed space while using the tank as a stationary refueler to keep the operation rolling. Corner brackets make the tank stackable when empty to save space on the jobsite when removed from the truck.





◀ BOBCAT

AT450 articulating tractor

Released: 6/20/23

Availability: U.S. market

What's new? This rugged and versatile machine excels at material handling, turf maintenance and snow removal, and is an ideal solution for hobby farms, commercial properties, golf courses and sports facilities. The AT450 powers a variety of front-mounted, belt-driven attachments. The tractor's articulating and oscillating frame keeps all four wheels in contact with the ground — even on rough, uneven terrain — which helps limit surface disturbance during turns. The AT450 can navigate slopes as steep as 30 degrees, with attachments following the ground contour for professional results in one pass. The machine's large, 7-gallon fuel tank means fewer fuel stops so operators can maximize their time at work.

Specs: The AT450 features a 32-horsepower, liquid-cooled gasoline engine that produces generous power for front power take-off (PTO) attachments. With the articulating tractor's attachment system, operators have added versatility to put a host of attachments to work. Comes equipped with a standard front hitch system, which allows operators to switch out attachments quickly and conveniently without tools. Skid plating along the underside of the frame helps protect components, enhancing the articulating tractor's durability for a long and dependable service life. For convenience, Bobcat grouped service points and access to electric components under the hood. Operators also have unobstructed access to the battery, which is protected from outside elements in a compartment below the joystick.

PHILIPPI-HAGENBUCH ▶

Load Ejector System

Released: 6/23/23

Availability: U.S. market

What's new? The Load Ejector System is engineered to virtually eliminate material carryback, effectively increasing load capacity and improving operational efficiency. This solution allows operations to haul the full-rated capacity with each load and reduce downtime associated with removing carryback from the truck. Load Ejectors are professionally engineered to fit the exact make and model of any articulated or rigid frame off-highway haul truck and address the specific areas of the body where material tends to build up.

Specs: Consists of an overlapping jointed plate lattice design that rests flat against the front slope and floor inside of the truck body. When the body is raised, the Load Ejector separates from the truck bed by gravity, removing material as it hangs vertically away from the body. This leaves an empty truck with its full capacity for the next load. Offers two material options to match the Load Ejector with different applications. The standard-duty design is made of high-strength Grade 80 steel and is intended for operations with a minimal abrasion, while the heavy-duty design is built with Hardox 450 Steel for applications that haul highly abrasive materials.



◀ DEVELON

DX42-7 mini excavator

Released: 7/6/23

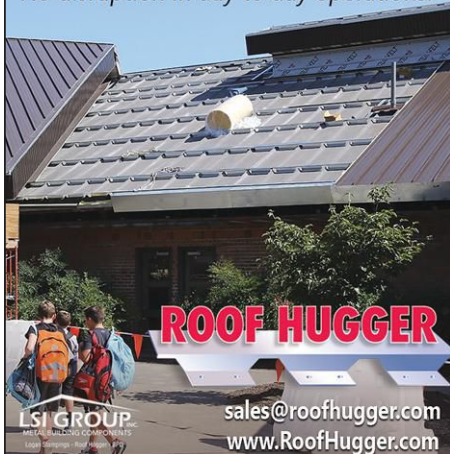
Availability: North American market

What's new? With a 47-net-horsepower and conventional tail-swing configuration, this model is ideally suited for navigating tight, congested jobsites and urban areas. Part of the next-generation -7 Series mini excavator lineup, the DX42-7 offers features such as fast cycle times, efficient torque-limiting piston pumps that respond to load demands and a larger counterweight for improved balance and durability. One optional standout feature is its four-way swing blade on the front, enabling optimal blade positioning and reducing the need for frequent machine repositioning, as well as facilitating efficient backfilling. Additional productivity features include the following: a thumb-ready arm, quick-coupler-ready design and lever-pattern control.

Specs: The cab of the DX42-7 is easy to enter, exit and work in, offering optimal comfort for operators. Two cabin options are available: open-canopy and enclosed-cab configuration. Enclosed cab models come with standard heating and air conditioning and hands-free Bluetooth audio. The superior air-conditioning system improves airflow through multiple vents, enhancing operator comfort even during long, hot days. A simple thumb switch located on the right joystick controls auxiliary hydraulic functions, making fine adjustments effortless and improving efficiency and comfort throughout the workday. Moreover, the boom swing is also controlled by a thumb switch on the right joystick, eliminating the need for foot pedals and further simplifying operation.

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▲ GLOBAL CLOUD FLEET

VS900 dashcam

Released: 6/8/23

Availability: U.S. market

What's new? This dashcam enables a new level of fleet driver monitoring and real-time accident prevention, with the help of powerful artificial intelligence (AI).

Specs: Global Cloud Fleet's newest dashcam uses advanced artificial intelligence to:

- Monitor both the driver [of construction equipment haulers] and the road
- Send real-time driver alerts to prevent accidents
- Send instant fleet manager notifications to give insight into driver behavior



▲ INDUSTRIAL TRUCK BEDS BY HILLTIP

Interchangeable Winter Maintenance Bed

Released: 7/5/23

Availability: North American market

What's new? Operators can use the Interchangeable Winter Maintenance Bed with interchangeable-style truck bodies. Compatible with all major brands of cable-hoist truck body systems, the new bed offers numerous performance advantages for winter maintenance professionals, in addition to the increased efficiency of using an interchangeable system. A key feature of the Winter Maintenance Bed is a rear cutout to better fit and protect a salt spreader chute. This specialized design allows the user to mount the spreader farther forward on the truck, resulting in improved weight distribution and shorter overall length. De-icing sprayers also fit well on the Winter Maintenance Bed for added versatility.

Specs: During the offseason, hinged stand-up legs allow the bed to be dismantled with the spreader still installed. The legs are fully boxed and painted for durability. If a spreader is not permanently installed, the bed can be dismantled without the legs using the included roll-off kit. The Winter Maintenance Bed comes with integrated, 360-degree rope rings for strapping down a spreader or any other equipment. It does not have a bulkhead, helping to provide maximum visibility. Removable, adjustable board pockets are optional to help maximize versatility. Available in 11-foot to 16.5-foot lengths and 82-inch to 102-inch widths, the Winter Maintenance Bed can be ordered with steel or 304 stainless-steel deck construction. A36 structural-steel channel cross members provide maximum strength.

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- ☐ 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

May 2021/2022/2023 Annual Rate Comparison

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

	2021	2022	2023
Total Private Construction	1,203,308	1,436,045	1,513,192
Residential	751,747	938,198	857,438
Nonresidential	451,561	497,848	655,754
Total Public Construction	341,964	343,755	412,373
Residential	8,983	9,075	10,192
Nonresidential	332,980	334,680	402,181
TOTAL Construction	1,545,272	1,779,800	1,925,565

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

\$1,925,565

MAY 2023 TOTAL ANNUAL VALUE OF
CONSTRUCTION PUT IN PLACE

“The modest improvement in overall demand for architectural services that we saw last month is encouraging news,” said AIA Chief Economist **Kermit Baker, Hon. AIA, Ph.D.** **“However, there continues to be variation in the performance of firms by regional location and building specialization. This suggests that overall business conditions for the profession likely will continue to be variable.”**

AIA Architectural Billings Index (ABI)

National			*Regional - Billings				*Sectors - Billings			
Month	Billings	Inquiries	Northeast	Midwest	South	West	Multifamily Residential	Commercial/Industrial	Institutional	Mixed
Dec-22	47.5	52.3	46.5	49.4	48.6	45.5	44.3	45.2	47.3	54.8
Jan-23	49.3	55.2	50.9	51.6	46.9	51.3	45.9	46.8	48.6	56.0
Feb-23	48.0	55.0	48.4	48.8	47.3	50.4	46.2	45.8	46.9	57.0
Mar-23	50.4	53.1	49.1	51.4	47.4	47.2	44.2	49.7	48.8	53.9
Apr-23	48.5	53.9	47.2	51.2	48.7	49.3	41.5	51.8	50.6	52.1
May-23	51.0	57.2	48.7	49.6	52.3	47.7	43.0	47.5	53.4	52.7

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).

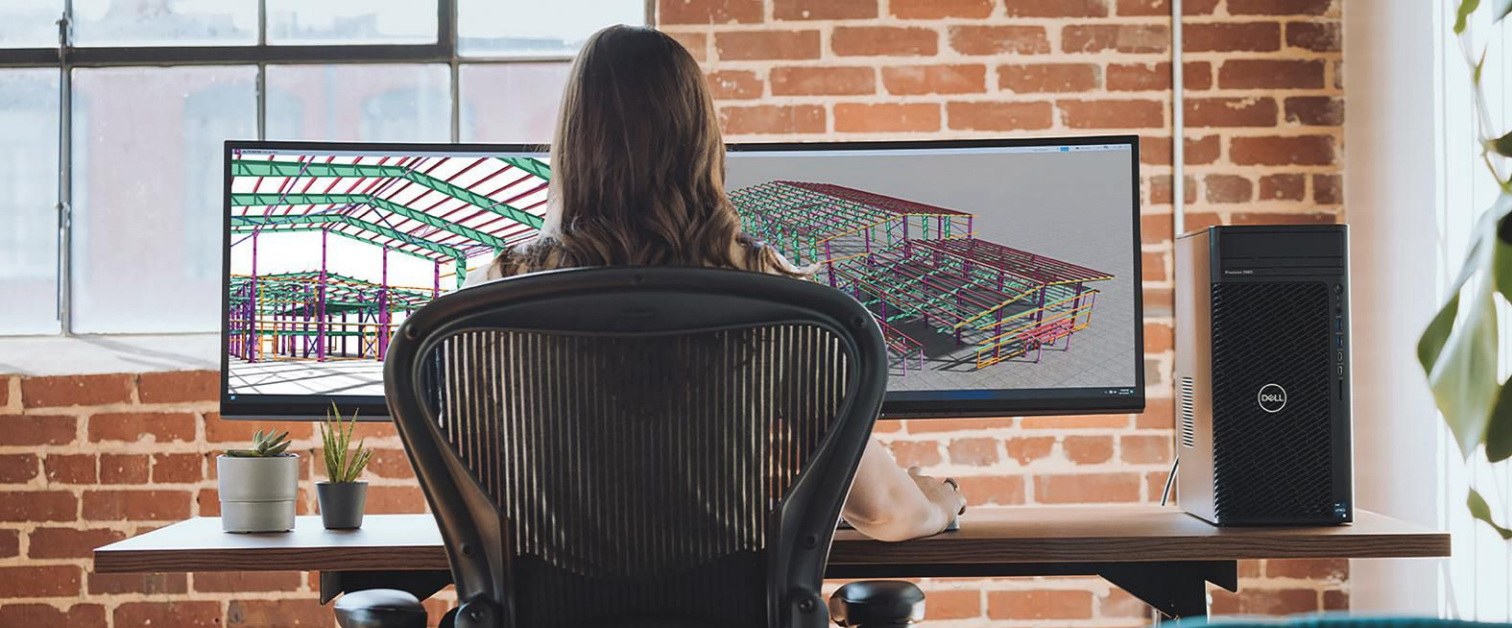
*Regional and Sectoral indexes are three-month moving averages, due to small sample size. All data is seasonally adjusted.

**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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