Diana Kander on Innovation, Blind Spots & Embracing Failure
SEE PAGE 24
Just what is a Boilermaker? We’re the skilled craftsmen and women trained and committed to stand apart as the best. We work with our hands and our brains to solve the hardest problems. To step up when others step back. To complete the jobs others are afraid to begin.

We’re the choice for owners and contractors who want to get the job done right — on time, within budget and safely. Every time.

We’re a brotherhood. And everything we are begins with our bond.

We’re the International Brotherhood of Boilermakers.

LET’S GET TO WORK TOGETHER.

BOILERMAKERS

www.boilermakers.org
IN EVERY ISSUE

4 FROM THE DESK OF THE PRESIDENT
Tech Thoughts: Takeaways from Cincinnati
Steve Johnson

8 THE INDUSTRIAL RELATIONS CORNER
How’s Business?
Jim Daley

10 THE BRESLIN CORNER
Wellness Is Not Weakness: Doing the Right Thing for Our Workforce
Mark Breslin

12 THE EHS CORNER
Women in Construction—“Don’t Give Me Pink!”
Kathleen Dobson

13 THE LEO CORNER
The Scope of Change
Patrick Baker

15 THE GOVERNMENT AFFAIRS CORNER
The IRAP Wars: An Update from the Front Lines
Todd Mustard

16 THE LEGAL CORNER
OSHA Considering Changes to Crystalline Silica Standard for Construction
Katharine Meyer

IN EVERY CORNER

4 FROM THE DESK OF THE PRESIDENT
Tech Thoughts: Takeaways from Cincinnati
Steve Johnson

8 THE INDUSTRIAL RELATIONS CORNER
How’s Business?
Jim Daley

10 THE BRESLIN CORNER
Wellness Is Not Weakness: Doing the Right Thing for Our Workforce
Mark Breslin

12 THE EHS CORNER
Women in Construction—“Don’t Give Me Pink!”
Kathleen Dobson

13 THE LEO CORNER
The Scope of Change
Patrick Baker

15 THE GOVERNMENT AFFAIRS CORNER
The IRAP Wars: An Update from the Front Lines
Todd Mustard

16 THE LEGAL CORNER
OSHA Considering Changes to Crystalline Silica Standard for Construction
Katharine Meyer

FEATURED ARTICLES

6 The Right Kind of Problem
Steve Lindauer

30 Smartvid.io and Barton Malow: The Safety Revolution Is Here
Lindsey Rem

32 Lean Design and Construction
Dan Heinemeier

IGI COVERAGE

18 Industrial Grade Innovation Conference & Expo (IGI) in Cincinnati

20 Right Here, Right Now: IGI 2019
Tim Speno

24 Diana Kander on Innovation, Blind Spots & Embracing Failure

26 Iowa-based Construction Tech Firm Wins IGI Startup Competition
Tech Thoughts:

BY STEVE JOHNSON, PRESIDENT, GEM, INC.

In September, I was honored to serve as moderator of TAUC’s second annual Industrial Grade Innovation Conference & Expo (IGI) in Cincinnati. You’ll find a thorough overview of the jam-packed event beginning on Page 18 — and don’t miss LEO Committee Chair Patrick Baker’s insightful article as well (Page 13).

Rather than give you a blow-by-blow recap, I thought I’d use this issue’s column to share my takeaways from the event. Here are my bullet-point thoughts on the trends, conversations and ideas that really hit home and caused me to rethink how my company — and our industry — is approaching the whole concept of innovation, tech disruption and investing in the future.

IGI has struck a chord. This was only our second year, but it’s clear to me that IGI has struck a chord with the entire union construction and maintenance community — contractors, unions and owner-clients alike. Attendance was up compared with last year. People were excited. The tradeshow floor was bustling, and the number of exhibitors skyrocketed. What does all this mean? Simple: Our industry is hungry for real, practical information on how technology is transforming the job-site. They want to see the latest tools for themselves. They want to talk directly to startups and innovators about their products. And they want to hear from experts who can help them navigate the complicated world of construction technology.

There is no magic bullet. As I listened to our outstanding lineup of keynote speakers, I became more convinced of one simple truth: As my predecessor, Jake Locklear of APM, said at last year’s inaugural IGI event, there is no technological “magic bullet.” You can’t buy a single product or hire a single consultant and expect that all your company’s problems will be solved. The adoption and integration of new technology (and the jettisoning of outdated tech) should be seen as an ongoing part of your business strategy, not a one-off purchase.

Don’t believe the hype. This may sound counterintuitive, seeing as how IGI is geared toward highlighting the amazing ways in which technology can and will transform the construction business. However, it’s crucial that contractors and owner-clients approach this brave new world in a sober and disciplined manner. It’s easy to get caught up in the hype over a particular product or breakthrough technology, whether it’s virtual reality or “the next BIM.” But as Brad Keywell, CEO of Uptake...
Technologies, noted, “True possibility emerges after the hype cycle.” Oftentimes, once the initial wave of euphoria and optimism has crested and everyone takes a deep breath, “we start to see the true possibilities [of a product] emerge in a much more disciplined, realistic and effective fashion,” Keywell pointed out.

**Look for blind spots.** As we grapple with big questions about how much to invest in technology and where to deploy our assets, consultant Diana Kander reminded all of us to take a step back and focus not on success, but on failure. That’s right — as she discusses in her insightful interview (Page 24), Kander surprised the IGI crowd by urging them to think long and hard about failure. What does it feel like to be wrong? And how do you know when a big idea isn’t working? “We create success metrics, but never failure metrics,” Kander argued.

**Get outside your comfort zone.** To me, one of the most enlightening aspects of IGI is the chance to hear from people I rarely come into contact with in my day-to-day work. The sheer variety of networking opportunities this year was amazing. It’s the only event I know of where you can walk right up to an entrepreneur who’s spent the last five years of his life creating a revolutionary product and talk to him about it. Presenters at our breakout sessions and discussion groups were highly accessible, too.

For me, one of the more eye-opening sessions was the SCI-FI Panel — that’s short for State of Construction Innovation — Finance and Investment. It brought together nearly a half-dozen venture capitalists on one stage — people who are investing millions of dollars in construction tech startups. It was fascinating to hear their perspective. How do they determine which products and services are worth investing in? What are they seeing as they meet with dozens of entrepreneurs in the construction tech field? What are the latest trends? Their answers and insights were completely new to me, and I came away from that session feeling a little smarter than when it started!

Those are just a few of my thoughts about IGI. If you weren’t able to attend, please mark your calendars for next year’s event, scheduled for Sept. 9-11 in St. Louis. The TAUC team is already hard at work making plans for what I know will be a bigger and better event aimed at helping the entire union construction and maintenance industry make the right decisions when it comes to technology and innovation.
The Right Kind of Problem

BY STEVE LINDAUER, TAUC CEO

Union contractors are always dealing with problems: the economy, a tight timetable for a huge project, craftworker shortages, pressure from non-union competitors, and so on. Even the most successful contractors rarely have a day go by where they don’t add a new “must fix” situation to their to-do list. In fact, oftentimes the businesses that are doing the best seem to have the most problems. Coincidence? Not a chance.

Those who excel in our industry realize that it’s a waste of time and energy to try to avoid difficulties. They realize that in a strange way, problems can be a sign that you’re on the right track and poised for bigger and better things—provided they’re the right kind of problem.

Let’s say your company is chronically late paying its bills, has a terrible safety record and teeters on the verge of bankruptcy at least once every couple of years. Those certainly aren’t the right problems to have if you want to succeed in the long term. If your fundamentals are strong and your management team has a clear, focused vision for the future, chances are you don’t have to worry about those types of messy situations, because they are usually the result of poor planning and lack of leadership. You’re focused on a completely different set of challenges—the kind with immense potential and upside.

The right problems are those that, once solved, take you and your company to the next level. Not only do you enhance your bottom line, but you also deliver better service to your clients. This enhances your reputation, brings in even more business and, as a result, you’re able to grow your operation and hire more skilled union workers. You’re able to increase your market share and “grow the pie” at the same time.

This past September, I attended TAUC’s second annual Industrial Grade Innovation Conference and Expo (IGI) in Cincinnati. I won’t go into detail about the event—we have complete coverage beginning on Page 18, not to mention TAUC President Steve Johnson’s excellent takeaways on Page 4—but I will say that I came away convinced that our industry is making progress integrating technology and innovation into the traditional construction and maintenance sector. Why? Because everywhere I went—on the tradeshow floor, during coffee breaks and in private meetings—I heard contractors, unions, clients and tech company executives talking about problems. The right kind of problems—big-picture, strategic questions about the role technology can play in growth and expansion.

Here are a few (paraphrased) examples:

- My board of directors isn’t convinced that spending all this money on new technology is the best way to stay competitive. It’s asking a lot of my employees to learn a completely new system from the ground up. How do I know it will work?
- Why should I spend the time and effort to train my people on a product that might not be around in a few years?
The right problems are those that, once solved, take you and your company to the next level. Not only do you enhance your bottom line, but you also deliver better service to your clients.

Each one of these situations is a hard nut to crack. There are no easy answers—but the fact that our industry is asking the difficult questions in the first place is a huge step forward. We’re no longer burying our heads in the sand the way we did in previous generations, when non-union competitors swooped in and chipped away at our market share.

Yes, I heard a lot of talk about “problems” at IGI. And that’s why I’m confident our contractors are going to succeed—because they weren’t complaining about the problems, they were determined to find solutions to them. They have realized that on the other side of every problem related to the adoption of new technology is a huge opportunity to transform the way we do business and show our owner-clients that union construction and maintenance isn’t a better option, it’s the only option.

Steve Lindauer is the CEO of The Association of Union Constructors and also serves as Impartial Secretary and CEO of the National Maintenance Agreements Policy Committee, Inc. (NMAPC).

In Memoriam: Alec Rexroat

Alec Rexroat, former executive director of the Heat and Frost Insulators Labor-Management Cooperative Trust (LMCT), passed away on Oct. 6 at the age of 73.

Alec was a stalwart supporter of TAUC and NMAPC for many years and served both organizations in various roles. He was a longstanding member of the TAUC Local Employer Organization (LEO) Committee, and he also served as an alternate on the NMAPC Management Committee.

He is survived by his beloved wife, Jeannie, his three daughters — Michelle Skeffington, Jennifer Cianciarulo and Megan Hansen — and his nine grandchildren.

“All who knew him will remember his good spirit and sense of humor. Throughout his career, he remained a spokesperson and advocate for union construction.

“Al began his career in the insulation industry in 1964, working as a helper in Local 17, Chicago,” McCourt and Revard added. “He went to work for a contractor, then he became a contractor (AJR Insulation), and then went on to serve as executive director of the Illinois Contractors Association. He was a past president of both the National Insulation Association and the Midwest Insulation Contractors Association. He was appointed the first chairman of the National Union Insulation Contractors Association (NUICA) and the first executivedirector of the Heat and Frost Insulators Labor-Management Cooperative Trust (LMCT), serving more than a decade on each.”

Everyone at TAUC and NMAPC extends our sympathies to the Rexroat family.
How’s Business?

by Jim Daley, JJ White

Metrics are the lifeblood of the union construction and maintenance industry. As contractors, we search for hard numbers to help us plan for future work and gauge the overall health of our business. But finding reliable, high-quality data isn’t always easy. In this issue, I’d like to discuss an often-overlooked source of information that can help the entire tripartite community—contractors, owners, clients and crafts—get a fuller sense of where union construction and maintenance is heading on a macro level.

Many TAUC contractors utilize the National Maintenance Agreements (NMA) for a number of their projects. You may not realize it, but every time we report our NMA work hours (as required under the agreement), we are contributing to an immense database of information on national and regional business trends within our industry that stretches back decades. More important, this information is available to all NMA signatory contractors—all it takes is a phone call to the NMAPC Labor Relations Department or by taking advantage of the work hours search function that can be accessed by logging in to www.nmapc.org. Their staff can help you crunch the numbers on your own company’s work over the years, or analyze more general business trends, such as tracking NMA work hours and activity in a particular region.

As a member of the National Maintenance Agreements Policy Committee, Inc.’s (NMAPC) Labor-Management Committee, which oversees the administration of the NMA, I witness firsthand how this work hours data can help tripartite teams deepen and broaden their understanding of the industrial construction sector. So let’s take a look at some of the most recent numbers and what they mean.

**Work Hours:** NMA work hours have increased an average of 16% in each of the last four quarters, with gains realized in all industries served (including the automotive, petrochemical and utility sectors). In 2017, total reported work hours climbed to 53 million; in 2018, that number grew to 61 million. To provide context, we are still working our way out from under the work-hour losses resulting from two disruptive events: the recession that began in late 2008 and the passage of the Mercury and Air Toxics Standards rule in 2011. For instance, before these setbacks, reported NMA work hours totaled a whopping 78 million in 2008.

**Work Scopes:** When owner-clients, construction managers or general contractors request coverage under the NMA for a project, they outline in detail what the job will entail. These “scopes of work” are also termed “Yellow Card Projects,” indicating that the associated work will be performed exclusively by contractors signatory to the NMA with labor from NMAPC-participating crafts. Over the last four quarters, more than $11 billion worth of work has been approved under the Program for 45 projects nationwide. These projects range from retooling of automotive plants and furnace installations to outages and combined-cycle jobs. The total dollar value is even more impressive when you consider that these Yellow Card Projects don’t even make up the majority of work performed under the NMA. The lion’s share of NMA work is completed via contractor’s preference with an approved Site Extension Request (SER) for the NMA. About 14,000 of these are approved each and every year under the agreement.

These top-level numbers give us a barometer of where we stand as contractors, and individual businesses can use the underlying metrics to forecast where their business might be heading in the future. The NMAPC gives you the data; it’s up to you to figure out what to do with it. The program has invested heavily in upgrading its online reporting capabilities over the past several years, so you can swiftly pinpoint the numbers you’re looking for.

In a world where data is king, I encourage every TAUC contractor who uses the NMA to take advantage of this free informational tool. Log in to www.nmapc.org for more information.
IN A PUSH BUTTON WORLD, ALL THE BUTTONS BETTER WORK.

We help heavy industry take better control of operations.

See how.

songerservices.com/automation
Wellness Is Not Weakness: Doing the Right Thing for Our Workforce

By Mark Breslin

To be a construction worker is not an easy career. And if you lack the life skills or tools to manage that career, it can unravel quickly, with a significant effect on one’s work, family and life. What does that look like? Consider the following:

• The construction industry has one of the highest occupational rates of suicide.
• A highly disproportionate number of employees in construction are impacted by alcohol and substance abuse issues, especially opioid addiction.
• Recent studies identify the construction workforce as severely impacted by depression, anxiety and other emotional and psychological issues.

Where do all these problems come from? Construction is challenging because of its unpredictable employment trends, periods of seasonal unemployment, financial highs and lows, wear and tear on the body and mind, exposure to hazards and elements, and transient employment between contractors. None of these provide the stable, predictable platform that most employed people in the U.S. enjoy. Thus, if several of these factors intersect in a negative way, we see a destabilization of the employee and the commensurate impact on the industry and communities around us.

Our rough-and-tough construction culture still does not leave enough room for “wellness” — a concept that includes not just physical well-being, but emotional and psychological stability as well. Why not? Sounds soft. Sounds lame. Sounds weak. And yet how many people and their families struggle because our industry’s “guy culture” too often promotes an ongoing coping strategy that can best be described as “Suck it up” and “Keep it to yourself”?

But having said that, I also know that real progress is being made to fight back against these outmoded and dangerous attitudes (see sidebar). The non-profit Construction Industry Alliance for Suicide Prevention has grown rapidly over the past few years and now boasts more than 50 member groups, including TAUC, North America’s Building Trades Unions (NABTU), LIUNA and the United Association of Plumbers and Pipefitters. The alliance is working hard to connect craftworkers in crisis — substance abuse, family issues, whatever — with the help they need. And many union locals have developed member assistance programs (MAPs) that involve peer-to-peer counseling. Sometimes it’s more effective to have someone else on the job who’s faced similar problems reach out and offer to help rather than a supervisor or contractor, whom the person in crisis might not even know.

These are all great solutions, but we need more of them. There’s still an awful lot of work to do, and a lot of attitudes and mindsets that need changing. If our industry is true to its value system, then safety is the number one common foundational theme. But what is going on inside our craftworkers is perhaps more profoundly influential to their safety than any piece of PPE we can ever provide. If you look at other industries, holistic employee wellness is increasingly viewed as an investment, something that pays for itself and eventually boosts businesses’ bottom lines. That’s the philosophy the construction sector needs to adopt sooner rather than later.

So how can we — as individuals, contractors and members of the union construction community — help out? Let’s think about ways we can change the traditional meaning of “healthy” to include not just the physical aspect, but the emotional, financial and relationship elements, too. If that means spending more time and money on training, so be it. Supervisors need to add keen observation and empathy to their skill sets to help those who can’t — or won’t — help themselves. Another crucial task is letting people know they have permission to ask for help in the first place.

The economy’s going gangbusters right now, and many contractors have more work than they can handle. But ironically, the “good times” can inflict a serious toll on workers out in the field, with longer hours and complex projects that require them to spend days or even weeks away from friends and family. It’s up to us — those who have the vision, resources and responsibility — to do what we can, when we can, and to make the difference that matters. Wellness, like the most important things in our industry, isn’t about the work; it’s about the people.
Here are several online resources and organizations that can help contractors, unions and owner-clients do a better job of addressing workers’ overall wellness, especially in the areas of emotional distress and addiction/substance abuse.

Construction Industry Alliance for Suicide Prevention
The name says it all; this nonprofit group, with dozens of industry and union members, is a great place to start if you have questions and/or are new to the topic of emotional wellness. Be sure to click on the “Resources” button.
www.cfma.org/news/content.cfm?ItemNumber=4570

Man Therapy
As this innovative website explains: “Working aged men (25-54 years old) account for the largest number of suicide deaths in the U.S. These men are also the least likely to receive any kind of support. They don’t talk about it with their friends. They don’t share with their family. And they sure as heck don’t seek professional treatment. They are the victims of problematic thinking that says mental health disorders are unmanly signs of weakness.”
www.mantherapy.org

Recovery Resource Hub
A “one-stop shop” for a wide variety of local addiction recovery resources in your area, from health and wellness to advocacy, legal, and counseling services.
www.recoveryresourcehub.org

Labor Assistance Professionals
LAP is “dedicated to obtaining comprehensive alcohol and drug treatment and mental health services for our members at a reasonable and fair price. In addition, we advocate for member assistance program development within labor, and for recognition of the key role labor plays from the field’s professional organizations and treatment providers.”
www.laborassistanceprofessionals.com

Free “Warn Me Labels” and Drug Disposal Envelopes
The National Safety Council has developed this great no-cost tool. It will send employers free DEA-compliant disposal envelopes so employees can safely get rid of unused prescription meds and prevent them from falling into the wrong hands. The NSC also has free “warn me” labels that workers can attach to their insurance cards to remind them to talk to their doctors about the risk of prescription drug abuse.
https://safety.nsc.org/stop-everyday-killers-supplies

Downloadable Infographic: Protect Yourself from an Opioid Overdose
This handy infographic from CPWR — The Center for Construction Research and Training is available for download in PDF and JPEG formats.
https://www.cpwr.com/research/opioid-resources/opioid-infographic

Wellness, like the most important things in our industry, isn’t about the work; it’s about the people.
Women in construction face many issues as related to personal protective equipment (PPE), but one of them should never be making a choice in color. PPE should be selected for function, fit and comfort when worn 8 or 10 hours a day.

As reported by NAWIC, the National Association of Women in Construction, and the Bureau of Labor Statistics, women make up about 10% of the construction industry. However, this statistic is misleading, because the women included in the numbers are not all field-oriented. They may be in a support position, or a supporting industry, and some rarely, if ever, use the PPE that is necessary to protect one’s self when working daily in a construction environment. Tradeswomen make up 2.5 to 3% of the industry, based on most current data, and that makes them statistically insignificant, so some manufacturers do not want to invest in the kind of research and development efforts it takes to produce a true line of women’s PPE.

They are improving, however, and consideration is being made for sizing, fit and color choices. Here are some points to consider:

Sizing: Anthropometrically, men and women have different body configurations. Variances include the width of our hands and the length of our fingers—proportionally, women have more slender hands and longer fingers than men. Our teeth and jaws are smaller, our hips are wider, our waists more defined. Physical differences in body mass and muscle vary as well. Manufacturers would do well to understand clearly these differences in developing PPE, especially gloves and boots.

Fit: Because of our size differences, we also have fit issues. High visibility safety vests should be closer fitted around the midsection and larger around the chest to accommodate for hip, waist and breast sizes. Safety glasses should be narrower and the bridge piece higher and narrower for most women. Length and quantities of fabric should also be adjusted to accommodate shorter leg length.

Color choice: For years, manufacturers seemed to embrace the notion “Shrink it and pink it” to make women’s PPE. Rather than adjusting for body shape and size, they just made the garment smaller and changed the colors from brown, blue and black to pink, orchid and baby blue. Women (and men) should be able to make a choice in colors of PPE (where possible), but their color choices should be wide and include the darker colors preferred by many because they are easier to hide soiling (and not so obviously feminine). Contractors, manufacturers and distributors need to understand that when working in the field, most women do not want to stand out because of their gender. Forcing them into pink or pastel PPE only segments them from the rest of the workers, and it can create an unwelcome atmosphere at work.

Now that manufacturers are beginning to get on board, and there are good choices for a lot of women’s PPE, project teams need to work with their suppliers and warehouses to assure availability of properly fitting PPE.

We cannot allow large men and small women to be excluded from safe work because they do not have the proper PPE. When ordering, the management team should consider if there will be women on the project. Make selections based on common gender sizing—if all that the project receives are extra-large and double-XL gloves, there will be many workers who have limited choices: take the ill-fitting glove to try to make it work; reject the glove, and request that the proper size be obtained; or don’t use a glove at all.

None of these solutions are ideal. Trying to wear an ill-fitting glove may lead to having extra fabric that can be pulled into moving equipment or machinery; it also does not allow for dexterous hand motions. Rejecting the PPE may lead to layoffs or retaliation. If this occurs, the company may be liable for a lawsuit. Layoffs must be conducted in accordance with company rules and state or federal requirements for equal or fair treatment. To lay off someone because the company chooses not to obtain the properly fitting PPE may lead the company into a lawsuit it is likely to lose.

If there is no properly fitting PPE, there could be legal action to require a company to pay a worker or find an equivalent paying position until the proper PPE can be obtained. If laid off, the worker may be eligible for full retroactive wages.
and restitution of position once the proper PPE is obtained. Retaliation can occur if the person awaiting the proper PPE is laid off, employment terminated or otherwise harassed because of the issue of ill-fitting PPE. Again, this could lead to legal action against the company. ...And not wearing a glove when it is designed for protection is a hazard as well.

What are the best options for companies?
• Get workers involved in selection of PPE.
• Assure that warehouses and distributors have the correct sizes for all workers.
• Manage the PPE program in accordance with your corporate rules, regulations and budgets.
• Use tools to identify manufacturers and distributors of PPE specifically designed for women in our industry. CPWR — The Center for Construction Research and Training offers one such guide online. Just search for “CPWR PPE female workforce” and it will be one of the first results. Another great resource can be found on the Laborers’ Health & Safety Fund of North America website. Again, just do a quick online search for “LHSFNA ill-fitting PPE” and it should pop right up.

In September, I chaired the TAUC LEO Committee meeting, held in conjunction with the second annual Industrial Grade Innovation Conference and Expo (IGI) in Cincinnati (see Page 18). We were surrounded by dozens of cutting-edge companies displaying their latest products and services to contractors, unions and owners-clients. Last year at IGI, I actually tried on an advanced “bionic” exoskeleton harness designed to help construction workers carry extremely heavy loads with very little effort. It was like something straight out of a science fiction movie — but at the same time very real (and coming soon to a jobsite near you). Given that experience, I wasn’t sure what to expect from IGI this time around!

As it turned out, my mind was blown again — but in a different way. At the first IGI, I was impressed by the sheer level of talent and innovation on display. For many contractors, it was their first time putting on a virtual reality (VR) helmet and “walking around” a simulated building environment. Others finally got a chance to test out next-generation power tools that they had only read about.

This year, however, what impressed me most was the sheer scope and range of technological innovation coming our way. We tend to think that high-tech advancements in our industry will mostly change the way craftworkers do their jobs or how engineers design blueprints on their computers. But at the LEO meeting, I was reminded once again of the total and all-encompassing nature of the coming tech revolution. Literally every aspect of the union construction and maintenance industry, no matter how small, will be transformed — which is why it’s so important for LEOS to get involved and get educated now, before it’s too late.

At our LEO Committee meeting, we were lucky to have Doug Donovan as one of our guest speakers. Doug is the CEO of Interplay Learning, a new company that specializes in virtual online learning and interactive training for the trades. Apprentices can use VR headsets, computers or just their ordinary mobile phones and tablets to learn new skills. With VR and 3D simulations, they can conduct repairs, take apart machinery or rewire a panel “virtually” in cyberspace — no physical hardware needed. This type of tool won’t completely replace hands-on training, but it will allow apprentices to learn more efficiently and effectively. Why? Because they can practice their skills anytime, anywhere — all they need is an internet connection. After Doug’s presentation, one of our LEO members mentioned that his organization had recently spent a large amount of money (high five figures) on decommissioned equipment from a nearby power facility. It will be used to help train apprentices to maintain and repair similar equipment out in the field and give them valuable “real world” experience. He asked Doug what it would take to create an online virtual version of the physical equipment. He (and everyone else in the room) was stunned to learn it would cost only a fraction of what they had paid for the actual machinery — and would only take a few weeks to complete!

Continued on next page
This was an “aha” moment for me and, I expect, many other LEOs, too. It drove home the point that when it comes to technology and innovation, there’s no going back.

Here’s a fun thought experiment. If you have access to your organization’s old financial records, go back and take a look at tech-related expenditures from ten, fifteen or even twenty years ago. How much did you spend on “cutting-edge” tech like fax machines compared with today? And how much did it cost to buy a new computer in 1995 with one-tenth of the processing power of your kid’s new iPhone? Now imagine going to your board of directors and arguing that it was a mistake to move away from such obsolete technology. They would look at you as if you were crazy.

The fact is, our industry is in a constant state of technological disruption. We can’t choose to simply do things the same old way and expect to remain competitive. If we don’t embrace these new tools — especially when it comes to training and recruiting the next generation of craftworkers — our competition will eat us for lunch.

If you’re a LEO whose members are facing these and similar challenges, I encourage you to make plans to attend our next meeting on Dec. 9 in Washington, DC. Go to www.tauc.org/STUC for more information. I hope to see you there!

Lastly, I’d like to end by paying tribute to Alec Rexroat, a longtime LEO Committee member who passed away on Oct. 6 at the age of 73. Alec was the former executive director of the Heat and Frost Insulators Labor-Management Cooperative Trust (LMCT) and a strong supporter of TAUC and NMAPC for many years. In addition to being an active member on our committee, he also served as an alternate on the NMAPC Management Committee. He was a kind, generous and thoughtful colleague, and I am grateful I had the chance to work alongside him. Our thoughts and prayers go out to his wife, Jeannie, their three daughters and nine grandchildren.
This past summer was a busy and eventful one for the TAUC Government Affairs Committee and our member contractors. This issue, I’d like to give you an update on where TAUC stands on one of the most contentious topics in the construction industry, what we’re doing to protect our members and what you can expect to happen next.

I’ll start off with a brief recap. In late June, the U.S. Department of Labor (DOL) issued a proposed rulemaking designed to encourage the creation of apprenticeship training programs across a wide variety of industry sectors. These programs are known as Industry-Recognized Apprenticeship Programs, or IRAPs.

We have no problem with other industries seeking to launch new programs, but our first priority is to protect the current privately funded registered apprenticeship system. As you know, each year, the building trades unions and their contractor partners collectively invest more than $1.6 billion in private funding to pay for more than 1,600 registered training facilities across the country. Unfortunately, unless serious changes are made, DOL’s IRAP proposal could do irreparable damage to this time-tested model and the lifelong skills they provide participants, lowering training and safety standards across the entire construction industry.

How? If DOL recognizes new IRAPs in the construction industry that don’t adhere to the same rigorous standards as the union apprenticeship system, it will undermine the robust registered apprenticeship system already in place in the construction industry. The market could be flooded with subpar training programs that result in a new generation of poorly trained construction workers. That’s not good for anyone, whether you’re a contractor, union member or client.

DOL stated in its proposal that it has no plans to approve any construction IRAPs “at least initially.” No one knows what “initially” means. One year? Two? Three? Obviously, we want the department to make this construction exemption permanent in its final rule, and state clearly that it will never approve any construction IRAPs for the reason stated above. It would be incredibly ironic if the DOL failed to include a clear and permanent exemption, thereby inadvertently weakening the very same joint labor-management apprenticeship system it held up as the “gold standard” by which all other training programs should be measured.

Opponents of DOL’s proposed construction exemption claim that the existing apprenticeship regulations undermine the ability to create new apprenticeships in the construction industry because the regulations are overly burdensome. TAUC called on DOL to reject this argument since it is not supported by the reality in the construction industry and is an argument advanced by industry participants that have not made the same investment of time and resources as TAUC’s member contractors to develop and finance world-class training programs. We believe that DOL should focus on the expansion of apprenticeship opportunities in sectors where registered programs are not currently flourishing, not undermining the programs that produce the highest quality craft personnel in the construction industry at no cost to the taxpayer.

We also want DOL to make clear that its definition of “construction” includes industrial maintenance, so that when and if it (hopefully) creates a permanent exemption, it will apply to the entire range of activities in which our craftworkers and contractors engage, not a narrowly defined set of criteria. Industrial maintenance professionals face the same inherent dangers on the job as other construction workers, and apprentices in industrial maintenance already receive rigorous training to ensure their competence and safety through effective, privately funded joint labor-management registered programs.

The department set a deadline of Aug. 26 to receive comments on its proposed rule. With no time to waste, TAUC, along with other labor and management stakeholders, is preparing a robust response to the DOL’s proposal.

Continued on next page
with our fellow trade association members in the Construction Employers of America, quickly created an online portal to help our contractors quickly and easily submit their comments. This state-of-the-art tool assisted thousands of men and women in making their voices heard. And of course, we also submitted our own detailed comments to DOL; you can read them online at www.tauc.org/IRAP.

Now comes the most difficult part of the process: waiting for DOL to assess the hundreds of thousands of comments it received and eventually release its final rule. More information will be forthcoming by the end of the year, and TAUC will update our members and work with our allies to ensure the final rule does not have a negative effect on our industry. Based on the high level of participation in submitting comments on the proposed rule from the union construction industry, we are cautiously optimistic that the department will see the wisdom in our arguments and permanently bar construction training programs from being approved through the IRAP system.

TAUC will, of course, keep our members updated on any developments related to DOL’s proposed rule. And please bookmark our IRAP resource page at www.tauc.org/IRAP, where you’ll be able to find the latest news.

OSHA Considering Changes to Crystalline Silica Standard for Construction

In the Aug. 15 Federal Register, the Occupational Safety and Health Administration (“OSHA”) issued a Request for Information regarding changes to the silica dust standard (the “Request for Information”). Specifically, OSHA is looking at revising and broadening Table 1 Specified Exposure Control Methods When Working with Materials Containing Crystalline Silica (“Table 1”), which sets forth work practice control methods and respiratory protection requirements for specific construction worksite tasks involving respirable crystalline silica (“RCS”).

This is good news for construction employers. If OSHA decides to move forward with revising and expanding Table 1, it may give the construction industry much-needed clarification and guidance on how to address RCS exposure on construction worksites.

Background

Silica is a basic component of soil, sand, granite and many other minerals. Small, airborne particles of silica, commonly known as respirable crystalline silica (“RCS”), are created when workers chip, cut or drill objects that contain silica. RCS can penetrate the lungs and result in an increased risk of multiple diseases, including silicosis, lung cancer and kidney disease. RCS is most dangerous when dust is generated, becomes airborne and then is inhaled by workers. Because of these health concerns, OSHA has established a Permissible Exposure Limit (“PEL”), which is the maximum amount of RCS to which workers may be exposed during an eight-hour work shift.

On March 25, 2016, OSHA published the final rule, “Occupational Exposure to Respirable Crystalline Silica.” It was the first time OSHA’s silica rule had been updated since 1971. The rule reduced the PEL for RCS from 250 micrograms per cubic meter to 50 micrograms per cubic meter of air, averaged over an eight-hour shift. OSHA’s final rule was composed of two different RCS standards—one for the construction industry (29 CFR 1926.1153) (the “Construction Silica Standard”) and one for general industry and maritime. The Construction Silica Standard went into effect on Sept. 23, 2017.

The Construction Silica Standard includes Table 1, which lists 18 common construction tasks and sets forth each task’s corresponding work practice control methods and respiratory protection requirements.

The Construction Silica Standard provides construction employers with two ways to limit worker exposure to RCS: (i) They can fully implement the safety requirements set forth in Table 1 or (ii) they can assess employee exposures to RCS and implement control measures that limit such exposures to the PEL. Construction employers who fully comply with Table 1 are not required to monitor employee exposure to silica and are not subject to the PEL.

Implementing the control methods in Table 1 is usually the easiest way to comply with the Construction Silica Standard. However, Table 1 does not address many types of construction-related tasks that involve RCS. In those cases, employers are forced to properly assess exposure of RCS and implement appropriate control measures.

The Request for Information

In the Request for Information, OSHA is seeking information on the effectiveness of engineering and work practice control
methods for the tasks not currently listed on Table 1. It is also requesting information about tasks and equipment involving exposure to RCS that are not currently listed on Table 1 and the effectiveness of engineering and work practice control methods in limiting worker exposure to RCS when performing these tasks.

If OSHA expands the tasks covered by Table 1, construction employers will no longer have to assess employee exposures for these tasks. Moreover, if additional control methods are added to Table 1, construction employers may be given greater flexibility on how to address RCS on the construction site.

Enforcement

It is important to note that even though OSHA is seeking to revise and expand Table 1, it is still actively enforcing the current Construction Silica Standard. OSHA issued 116 citations regarding silica exposure during just the first six months after the Construction Silica Standard went into effect. Of those 116 citations, the largest penalty OSHA issued was $9,239.00. However, some state penalties for violations of the Construction Silica Standard have been staggering.

On Aug. 8, 2018, the Virginia Occupational Safety and Health Compliance Division (VOSH) issued a Citation and Notification of Penalty to a highway contractor for multiple serious and willful serious violations of the Construction Silica Standard. VOSH found that the employer did not: (i) ensure that each employee wore appropriate eye or face protection while operating and observing jackhammers; (ii) provide proper training to employees regarding silica hazards; (iii) properly implement required engineering controls, work practices and respiratory protection as required by Table 1; (iv) assess the exposure of employees who were exposed to RCS; or (v) provide adequate respiratory protection, medical evaluations and proper respirator use when required under Table 1. The penalties for these violations totaled more than $300,000.

Even small construction employers have been subject to large OSHA fines. This year, OSHA fined the Buffalo Zoo more than $45,000 for putting 20 employees at risk of lead and RCS exposure during demolition of its reptile house.

Therefore, we strongly recommend that all construction employers educate themselves on the Construction Silica Standard and properly enforce those rules on the worksite.

Katharine Meyer is a Principal at GKG Law, P.C. in Washington, DC. For the past 19 years, Katie has been a member of the firm’s Association Practice Group, which provides legal advice to nonprofit organizations throughout the United States.
TAUC held its second annual Industrial Grade Innovation Conference & Expo (IGI) in Cincinnati, Ohio, on Sept. 10-12. The event smashed last year’s attendance records and tradeshow exhibitor participation, but one thing didn’t change: Once again, IGI brought together cutting-edge technology firms with senior executives in the industrial construction space — contractors, unions and owner-clients alike — in order to network, learn more about one another’s businesses and, most important, find new ways to move the union construction and maintenance industry forward.

TAUC contractors were able to experience the latest in construction innovation and learn how to better meet their customers’ needs. Through hands-on demonstrations of the latest disruptive technology, our members discovered how to integrate that technology into their workflows and deliver breakthrough results on their projects.

Our keynote speakers — industrial AI pioneer Brad Keywell, entrepreneur and consultant Diana Kander, and Stanley Black & Decker CTO Mark Maybury — gave attendees a triple dose of expertise and inspiration. Practical, down-to-earth tactics were paired with high-level overviews of the construction industry. Whether you were looking for the “big picture” or granular-level, nitty-gritty advice on how to take your business to the next level, IGI 2019 had you covered.

In the following pages, you’ll get a glimpse of what our attendees experienced in Cincinnati. And if you weren’t able to make it, guess what? We’re doing it again next year! Mark your calendars now to attend the third annual IGI Conference and Expo in St. Louis, Sept. 9-11, 2020.
BRAD KEYWELL, CEO OF UPTAKE TECHNOLOGIES, ON THE POWER OF HARNESING INDUSTRIAL DATA:

“We are obsessed with what can be known based upon all that has happened. We are interested, highly, in the precision that’s available from every possible inquiry so that you can take action based upon what you know. And what you know can be captured, recorded, understood, organized, even before a human being is being called on to act.”
The other day my daughter asked me, “If you could live during any time in history, when would it be?” Through the years, my answers to this question have changed—when the first settlers landed on Plymouth Rock, when our Founding Fathers created the great experiment called democracy, when pioneer families first trekked westward—but my reasoning remained consistent: I always wanted to be around when something big was happening. So this time, I answered, “Right here, right now, doing what I do.”

Why? Because I had just returned from attending TAUC’s second annual Industrial Grade Innovation Conference and Expo in Cincinnati. Like many of the other attendees, I left feeling inspired and energized. I sincerely believe we live and work in one of the most defining times ever, not too dissimilar from other crucial eras in history. We are the lucky ones, the pioneers that get to shape the future of one of the most important industries on earth … construction and maintenance.

One of this year’s IGI keynote speakers was Brad Keywell, CEO of Uptake and the co-founder of Groupon. Brad was recently recognized as Ernst and Young’s 2019 World Entrepreneur of the Year. During his speech, he outlined a provoking thought: The most consequential construction tools of the future are already here right now but, for the most part, remain untapped. What are these new tools? Data and analytics made possible from artificial intelligence (AI). Data and AI analytics will soon be force multipliers in the construction and maintenance space. If we thought the invention of concrete, battery technology, and 3D modeling redefined how we build and maintain things, wait until we unlock the potential of the data we already generate and tap into the abundance of future data that will soon be available from our connected environment and workers.

Man alive, I wish I could have been there when Edison unveiled the light bulb, the first steel skyscrapers were erected or the first jumbo jetliners lifted off the ground. But I’m relieved to know that I get a chance, right now, to experience yet another industrial revolution!

The 2019 IGI Conference was chock-full of innovation and tech that will inspire a new age of construction. Neil Ross, a subject matter expert in digital twins, outlined in his breakout session how we can build and operate buildings that can increase the return on a single square foot by a factor of 300. To put this into perspective, current energy-savings technology has an average return on a single square foot of a factor of only three.

Then I visited with Jordan Lawver, the person leading Trimble’s mixed reality initiative, and his good friend D’Arcy Salzmann, Microsoft’s Senior Director for Computer Vision and AI. You need to look up the Trimble XR10. It’s the latest jobsite-ready version of Microsoft’s Hololens 2, an advanced virtual reality headset that allows you to “see” a construction project before the job has even started. Along with the enormous impact it can have on what and how we build, one of the simple things I took away from using the XR10 was how augmented reality devices can virtually eliminate the need for tape measures and laser distance finders. The majority of measurements can be captured via these devices and sent anywhere you want—perhaps right to the automatically adjusting fence on your cutting station that happens to be a quarter mile away from where you are working.

Then there was the keynote from Mark Maybury, chief technology officer for global powerhouse Stanley Black & Decker. He spoke about cobotics, when human and robots collaborate, and how cobots can significantly increase
Procore paid for itself in the first three months—just through purchase orders alone.

The executive team realized how much money it was saving us. Procore gives us great information and really gets everybody excited about what it can do for us.

WES SIMPSON
GREEN MECHANICAL

Connecting everyone who builds to everything they need.

Whether you’re a family-run GC or an ENR 400 firm, Procore is designed for your success because we’re built for construction.
safety and productivity. (Note: It’s really cool that my computer spell check and Grammarly account did not recognize the terms “cobotics” or “cobots”—we really are on the cutting edge!)

One of my favorite sessions from IGI 2019 was the construction venture capital panel moderated by Paul Lyandres, CFO of Procore. There were 11 venture capital firms represented at IGI 2019. With more investment fueling more entrepreneurs and startups improving safety and productivity, I wholeheartedly believe that younger generations will look to a career in the trades as their first choice. Technology will make construction sexy again.

P.S. Here are some other things you missed if you didn’t attend IGI 2019:

**Diana Kander:** She gave one of the best keynote presentations I have heard in the past few years. If you are looking for a keynote on innovation and disruption, go to www.dianakander.com and read her interview on Page 24. Her audience evaluations were off-the-chart great.

**Networking:** Just showing up is no longer good enough. Showing up and connecting with others — expanding your network — is the secret to success and the catalyst for your next breakthrough. The IGI participants are a collection of some of the greatest connections waiting to happen in the industrial construction and maintenance industry. .... And so far, I don’t know of any other event that assembles this many top industrial construction and maintenance decision makers under one roof.

**IGI Accelerator:** This is the construction and maintenance version of the hit TV show Shark Tank. This year, with the support of Barton Malow and the NMPC, the winner took home $20,000 in cash. Congratulations to Britton Langdon, founder of MSuite! He battled the other five startups to claim the prize (see story, Page 26). If you are a startup and want to participate in next year’s IGI Accelerator competition, just send me a text (see my contact info at the end of the article). If you are selected to compete, you get a free 5’x5’ tradeshow booth and registration for two.

**Save the Date:** We are bringing the Industrial Grade Innovation Conference and Expo to St. Louis on September 9-11, 2020. It will be our third year. If you participate in industrial construction and maintenance or if you have some people in your company that need to get out of the office and expand their connections in the world of construction tech, mark your calendars now, and go to www.igiexpo.com to learn more!

**Tim Speno** is CEO & President of E2E Summit and a connector of connectors for the trades and innovators. He also co-produces the Industrial Grade Innovation Conference and Expo with TAUC. Contact him at timspeno@e2esummit.com or (785) 200-3936.
Diana Kander on Innovation, Blind Spots & Embracing Failure

“That speech was worth the price of the entire conference.”

TAUC has held many, many events over the years, but it’s extremely rare to hear an attendee make a statement like that. And yet we heard similar sentiments from not just one, but multiple guests after this year’s Industrial Grade Innovation Conference and Expo (IGI) in Cincinnati. And who were they talking about? Which keynote speaker gave them so much value in just 45 minutes?

Diana Kander—a serial entrepreneur, New York Times best-selling author (All-In Startup, The Curiosity Muscle) and sought-after consultant specializing in helping businesses become more innovative and embrace new technology.
Diana’s family escaped from the Soviet Union when she was just eight years old. By the time she was an American citizen, she had perfected her skills as a capitalist—selling flea market goods to grade school classmates at a markup. Today, having founded and sold a number of ventures, Diana is a Professor of Entrepreneurship at the University of Missouri and a Senior Fellow at the Ewing Marion Kauffman Foundation, the largest nonprofit in the world dedicated to entrepreneurship and education.

A Georgetown-educated attorney who left a successful practice to launch her first company, Diana draws on her experience as a founder, investor and academic to train companies and nonprofits on how to be more innovative and how to get their employees to think like entrepreneurs.

In this Q&A, Diana shares a few of the nuggets of wisdom and strategy she presented at IGI 2019. To learn more, go to www.dianakander.com.

**THE CONSTRUCTION USER: You advise your clients to look for “blind spots” in their businesses — invisible weaknesses that can quickly tear a company apart. Can you give a few examples of blind spots — especially as they relate to technology and innovation?**

**DIANA KANDER:** Blind spots come in two categories. One—things you don’t see as actual threats. Perhaps you think new startups are too small to cause a threat. Or perhaps you don’t think the technology is going to catch on. Anytime you find yourself overconfident about possible threats rather than curious about what they are doing and why it’s working, you are setting yourself up for pain later. And two—changing circumstances that you fail to notice. That means overrelying on your existing customer relationships without trying to really understand their frustrations and complaints. It means being satisfied with your current processes without pressure testing them or looking for ways to make them better.

**TCU:** How can contractors go about finding these elusive blind spots in their own businesses, when, by definition, they’re very difficult to see?

**KANDER:** You have to develop a growth mindset and understand that no matter how well things are going, they can always be improved. If you encourage lots of tiny improvements throughout your organization, they can help you create a competitive advantage and are much harder to copy than one big change. If you don’t try and fail with new ideas, then you aren’t trying enough improvements. The first thing that I do when an organization asks me to rate their level of innovation is ask them to show me all of the initiatives that didn’t work, or that they decided weren’t good enough for their organization. This “reverse resume” is the greatest indication of the quality of the ideas that are actually implemented. And if you haven’t heard feedback from customers that you’ve found surprising in the last 12 months, then you very likely have blind spots about existing delivery.

**TCU:** You also counsel business leaders to adopt a radically different attitude to the concept of failure. As you noted in your presentation, “We create success metrics, but never failure metrics.” Why is it important to get a handle on failure, and how can contractors change their approach?

**KANDER:** Most organizations stagnate because they reinforce failure. They unknowingly assume that no news is good news on projects. If your customers aren’t calling you to complain, that doesn’t mean they are happy. If there aren’t obvious flaws with your hiring process, that doesn’t mean it couldn’t be significantly better. Most organizations reinforce failure because they never ask, “How would we know if this wasn’t working and when would we know it?” We’re all human. We make bad decisions. And sometimes we make good decisions that just don’t work out. Our goal should be to uncover those unproductive decisions as quickly as possible and use our resources for something more valuable.

**TCU:** Everyone knows about the importance of mentors and coaches. But you say there’s a third type of advisor who can help businesses achieve more than they ever thought possible — the “provocateur.” What is a provocateur, why are they important and how do business leaders find their own?

**KANDER:** A coach holds you accountable to goals you set for yourself. A mentor helps you answer the questions you’re struggling with based on their past experience and knowledge. A provocateur is an individual who challenges you by asking questions you had never considered. A provocateur helped me grow my company by 1000% in just one year, all by asking me one question. This kind of growth is only possible when a proven value creator comes into your organization and is allowed to ask “stupid questions.” They will challenge business as usual and can help you unlock exponential results.

Learn more at www.dianakander.com.
A new technology company specializing in cloud-based construction software wowed venture capitalists and took home a five-figure check at last month’s Industrial Grade Innovation Conference and Expo (IGI) in Cincinnati, Ohio. Based in Cedar Rapids, Iowa, MSuite (www.msuite.tech) beat out two other finalists to win IGI’s second annual Industrial Grade Accelerator—and a $20,000 grand prize check, courtesy of top IGI sponsors Barton Malow and the National Maintenance Agreements Policy Committee, Inc. (NMAPC).

The Accelerator is a fast-paced, energetic “Startup Battle” in which founders of new construction tech firms pitch their products to a group of seasoned venture capitalists, similar to the hit TV show Shark Tank. The entrepreneurs must answer tough questions from the VCs and explain why their product is the best on the market—all in under five minutes. In the preliminary rounds, the audience also gets to vote via text message and influence which firms get to move on to the final showdown.

MSuite offers a cloud-based suite of management software for construction contractors, including BIMPro, a plug-in for Autodesk® Revit® that automates spooling selection and sheet creation up to 90 times faster than its competitors, and FabPro, a real-time shop production management tool that focuses on accurate productivity and status tracking.

“The Startup Battle was a great opportunity for a small company like ours to get in front of hundreds of potential buyers and investors,” said MSuite President Britton Langdon. “I’ve gotten emails and phone calls from interested parties nearly daily since the conference. We expect the exposure that the IGI conference gave us will lead to big things in the near future!”

Langdon added, “The IGI conference is the only one of its kind where nearly all union trades gather to engage in discussions about the future of construction technology. It was an engaging environment, and I love learning more about the needs of the union laborers. I look forward to continuing to strengthen our relationship with TAUC and the individual trades!”
THANK YOU TO ALL OUR 2019 SPONSORS

DIAMOND

[Logos of sponsors]

PLATINUM

[Logos of sponsors]

GOLD

[Logos of sponsors]

SILVER

[Logos of sponsors]

BRONZE

[Logos of sponsors]
A Payroll Service
Just for Construction

THE OTHER GUYS

- Check Printing
- Direct Deposit
- W-2s
- Tax Filing
- Multi-State Processing

payroll4construction.com

- Check Printing
- Direct Deposit
- W-2s
- Tax Filing
- Multi-State Processing
- Multiple Rates and Trades
- Job Cost Reports
- Certified Payroll (Electronic and Print)
- Union Reporting
- Fringe Benefit Tracking
- And So Much More!

Get Your Free Quote
payroll4construction.com | (800) 949-9620
What does it mean for a jobsite to be safe? For many companies in the architecture, engineering, and construction industry, it’s a delicate balance of culture and equipment. But the future of jobsite safety is beginning to borrow the bold tone of technology firms in Silicon Valley. Truly innovative resources are permeating throughout the industry, and many of them are centered on making jobsites safer and more efficient.

As a company with an ear always to the ground for new technology, we at Barton Malow — a Michigan-based general contractor — are investing heavily in innovative solutions such as Smartvid.io, an artificial intelligence (AI) tool that uses machine learning to spot and predict future safety risks.
Taking Leaps, Not Steps

“For over a century, the construction industry had not shifted much in terms of how it builds,” says our own Matt Hedke, senior virtual design & construction manager. “But the past decade has opened a wide array of new doors for us. With the incorporation of technology like AI, we are reimagining the industry from the ground up.” At Barton Malow, innovation is becoming the backbone of how we do things from robotics to reporting programs, and the approach to a project’s life cycle is as different as it’s ever been.

“Artificial intelligence” is one of the hottest buzzwords in construction innovation. As builders, we are also always looking to make things easier for team members so that they can focus on the task at hand. AI allows us to collate data to analyze and understand what we’re doing right and where we need to improve, whether it’s risk mitigation, pre-construction planning, preventing budget excesses or keeping team members safe.

The role of AI and innovation at-large for general contractors like Barton Malow is multipurpose. There’s the obvious benefit to our clients by allowing us to give them the best and most efficient service. More important, however, it allows us to give our team members the tools they need to be successful and safe.

Hedke, who recently presented about Barton Malow’s tech use at The Association of Union Constructors’ (TAUC) annual Industrial Grade Innovation Conference and Expo, believes the industry needs to begin leaning into technology like AI. “What we’re seeing with AI is unprecedented; it really does have the potential to transform how we build,” he said. “If we have a program that’s telling us, ‘Hey, you’re going to overrun costs if you do XYZ,’ or, ‘A safety incident is imminent,’ it’ll give us the ability to stop it ahead of time.”

That’s exactly why Barton Malow is embracing technologies that better address how we construct. Smartvid.io is one of those tools. With people, vehicles, materials and more all making their way throughout a jobsite, it’s easy for safety hazards to slip through the cracks. That makes any investment in safety technology worthwhile. Smartvid.io is an incredible resource for our team since it only gets “smarter” with time. As with all things machine learning, the goal is to feed it as much data as possible to ensure Smartvid.io can accurately spot safety risks.

An Image Is Worth a Thousand KPIs

How does it work? Smartvid.io, which features a number of modules, is driven by Vinnie, the platform’s engine. According to Smartvid.io, “Vinnie is trained on millions of examples of construction-specific photos, video and other data. [It’s] always learning to find new indicators of risk with new capabilities being released continually.”

Though Barton Malow’s commitment to safety means it already has a dedicated force of safety professionals deployed to jobsites, it’s vital that these pros also have access to new instruments that make projects even safer. It begins with safety observations and existing project images located on servers and other imaging tools. Project teams capture large volumes of photos (using their mobile device)—and not just safety-related ones, either. Smartvid.io analyzes all imagery. The tool catches slip, trip and fall hazards; workers and their personal protective equipment (PPE); and phase of work materials and equipment. It then creates a dashboard of data, scores and key performance indicators for project and safety leaders to comb over as they note when, where and why potential hazards exist so that they can address them properly.

The Future of Safety

Smartvid.io is currently deployed on several Barton Malow projects, and its machine learning works on all our visual project data, including photos from our existing database. Through its use, we’ve been able to highlight our highest risk projects in order to address them. The benefits of using this tool are far-reaching. It allows Barton Malow to be proactive when it comes to safety.

“We’re not just reacting to things. We are taking action to predict and prevent the next incident,” said Scott Wagner, Barton Malow’s Senior Safety Director. “As we look toward the future of safety, the industry needs to embrace and utilize the power that tools like Smartvid.io offer. We’re in the midst of a safety revolution, and we at Barton Malow are aiming to lead it.”

As Vice President of Systems at Barton Malow Company, Lindsey provides leadership for the continued development of an innovative, robust and secure information technology environment throughout the firm. She also leads the Virtual Design and Construction (VDC) team.

The role of AI and innovation at-large for general contractors like Barton Malow is multipurpose. There’s the obvious benefit to our clients by allowing us to give them the best and most efficient service. More important, however, it allows us to give our team members the tools they need to be successful and safe.
You don’t have to be in this industry long to gain firsthand experience of what ails it. Since the 1960s, we’ve seen a doubling or better of labor productivity in almost every sector, but not construction. It has remained largely flat or even fallen over the past 50 years. Billions of dollars are lost as 70% of building projects come in over budget and/or fail to meet schedule. The frustration of trying to be a productive contributor in a broken industry takes a real toll on the workforce as well, with substantial numbers of skilled workers opting out well before their standard retirement age. McKinsey & Company has termed this the “construction productivity imperative.”

Thankfully, there’s a growing chorus of voices offering innovative solutions. Most would agree that technological innovations, such as virtual reality and Building Information Modeling (BIM), have a role to play. But whatever tactical paths we take to enhance productivity, our strategy has to be grounded in a culture of continuous improvement that minimizes waste, delivers enhanced owner value and focuses on making work processes flow. Above all, it should be centered on respect for the people who make this industry run. Only the broad-scale adoption of Lean thinking and practices will help realize all these goals.

As executive director of the Lean Construction Institute, I’ve seen firsthand through our national membership how transformative this approach can be for projects, individuals, and companies alike.

So what is Lean Design and Construction, and where did it come from? Many point to its roots in the Toyota Way. But construction doesn’t much resemble car manufacturing, does it? It took the pioneering efforts of a couple of industry insiders, Glenn Ballard and Greg Howell, to figure out a role for Lean in construction. Their genius was to take manufacturing-based Lean and give it a construction twist. They started with the basic notion of respect for people: really listening to those at the workface who know the most about the job and how to improve performance. They took a structured approach to learning what is crushing productivity, based on regular team retrospectives. They also discussed what causes crews to inadvertently hold one another up and introduced the novel concept of “reliable promising”: Really getting the job done on time and with high quality when you’ve given your word to the team that you will do so.

Continued on next page
The Join the Salute campaign is an effort to highlight the organizations, both large and small, that honor heroes and support troops. DeWALT shares in the mission of both Flags Of Valor™ and Wounded Warrior Project™ to transition veterans to civilian life and provide opportunities for their future. In tandem with these esteemed veteran-owned and operated organizations, and highlighted by the Join the Salute campaign, DeWALT remains committed to hiring veterans, coordinating employee volunteers, providing tool donations, and making charitable contributions. We invite you to join us in support of veterans.

GET INVOLVED AT JOINTHESALUTE.COM

Copyright ©2018 DeWALT.
Lean is much more than an approach to de-conflicting on-site activities. It’s a comprehensive system that focuses on improving the building process from its earliest planning stages right through final delivery.

But Lean is much more than an approach to de-conflicting on-site activities. It’s a comprehensive system that focuses on improving the building process from its earliest planning stages right through final delivery. Teams usually embark on the Lean journey by implementing Last Planner System® (LPS), which includes both milestone planning and the use of “pull planning,” a process that gets every organization with a role on the project engaged at the outset in planning backward from each milestone. Basically, every individual project task and handoff is captured on a sticky tag and affixed in reverse chronological order on a wall. This fosters some pretty dynamic planning sessions, with everyone from the designer to the GC to the trades negotiating with one another to identify timing and process improvements that will expedite work flow. The result is a road map for project performance that everyone consults regularly to guide ongoing execution. It also is highly flexible, forming the basis for dealing with inevitable delays as they occur, and working as a team to keep things on schedule when changes happen.

Lean thinking doesn’t stop there, however. The LPS also prescribes look-ahead planning, in which teams review and make work ready looking out 4 to 6 weeks, and weekly work planning, in which they make promises to one another that generate the metrics that are monitored and measured to derive the percent of planned tasks completed (PPC) based on the weekly plans. Finally, Last Planner promotes a continuing process of learning and improving by analyzing PPC variances and developing specific countermeasures that boost productivity by taking constraints out of everyone’s way.

At its core, Lean serves to directly counteract the unique organizational and cultural barriers that plague construction productivity. It eliminates information “silos” right from the start, bringing together members of each trade in the early stages of a project and encouraging them to collaborate — really collaborate. This leads to sounder design decisions and better information flow from the designers to the constructors all down the line. For instance, if project teams talk and agree early concerning key equipment needs based on the best current solutions, it allows procurement efforts to start much earlier in the process. There are a host of similar examples of better project outcomes that flow from a structured approach to encouraging this kind of collaborative behavior.

In practical terms, what does all this mean for the craft trades? Major gains come from observing and planning each trade’s work using Lean tools and thinking. Project team members learn to see waste: to make direct observations that help identify impediments to productivity. These could be things such as supplies piled in the way, materials too far from the install area or inefficient delivery practices. All team members are encouraged to suggest approaches to remove the obstacles. When this is done across every significant project task, you begin to see huge gains in enhanced work flow and quality. For the trades, Lean processes properly applied can lead to better outcomes in every phase: greatly enhanced safety and job satisfaction, and the elimination of downtime that stems from waiting for a previous crew to finish up before yours can get to work.

Ultimately, Lean harnesses the innate desire of all people to feel proud of contributing to a job well done and winning as a team. Better planning, open communication, and systematic elimination of inefficiencies all add up to a smooth-flowing, less contentious performance process. Many teams begin to experience a brand-new F-word on projects: Fun! For owners and superintendents alike, this means they can move projects forward without spending their days firefighting problems created by failing to think things through as a team. Of course, the real end goal is a much more highly productive design and construction industry in which each of us can take enormous pride.

Dan Heinemeier is executive director of the Lean Construction Institute, a nonprofit organization that operates as a catalyst to transform the industry through lean project delivery.
SUDDENLY, YOU WANT EMPLOYEES ON THEIR PHONES.

Connect them to America’s #1 Construction Accounting Software.

- Geotagged time punches
- Timecard signatures
- Field log and job notes
- Daily log reports
- Remote sync to FOUNDATION®

FOUNDATION software
Job Cost Accounting | Project Management | Mobile

foundationsoft.com/tauc | (800) 246-0800

SUDDENLY,
YOU WANT
EMPLOYEES
ON THEIR
PHONES.

Timecards
ADD TIMECARD
VIEW
12:30
OPTIONS
Single Timecard
Employee *
204 - James Workman
Job *
1 - Hillcrest Hospital
Cost Code *
1000 - General
Earn Code *
Date *
01/10/2019
Hours *
8.52
Description *

03/30/2019 - 03/31/2019
020 - LV-426 Chesterland Renovation
A rich history of strong labor relationships enables us to deliver safety and quality on even your most complex projects.

Proud to be the top contractor under the National Maintenance Agreement.

enerfab.com