

CONSTRUCTION TODAY

PUBLISHED BY THE GENERAL BUILDING CONTRACTORS ASSOCIATION

TAKING TECHNOLOGY TO NEW HEIGHTS

STAY AHEAD OF THE CURVE:
TRENDS AND PREDICTIONS FROM THE EXPERTS

plus

The STEM Education Effect

Commercial Real Estate Outlook



Leadership | Collaboration | Innovation



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LETTER

FROM THE PRESIDENT

As I'm writing this letter, Philadelphia is one of 20 cities throughout the country in the running for the second headquarters for Amazon. It speaks volumes that a tech giant recognizes the revolutionary spirit of this city and how our ideas and people could help shape the company. Whether or not Amazon chooses Philadelphia as its second hub, without a doubt, the pioneering spirit of Philadelphia companies is bar none. It seems that every day a new Philadelphia business is announcing plans for a center of innovation or a research and development institute. At the heart of bringing these innovations to life is the construction industry, the hardworking professionals within our association who work hand-in-hand with the region's leaders in healthcare, education, manufacturing, and other industries to continually strive for more.

We know that to remain competitive, we can't work the way we've always worked. It's for that reason in this edition of *Construction Today* we look into the new technology and skillsets evolving our industry, and in turn,

how experts in the field are helping drive building and business innovations forward, from drones and virtual reality to new estimating and modeling techniques.

Just as you ask your clients how you can best serve them and what can be changed for the better, at GBCA, we are constantly looking to innovate our offerings for you. From events to education and training courses, we want to ensure you and your workers are well-equipped to enter the coming years with the necessary knowledge and skills required to continue to transform the construction industry in Philadelphia. We always welcome your feedback and suggestions so that we can help bolster your knowledge and help you be the best you can be.

Benjamin J. Connors, Esq.

President
General Building Contractors Association



NOTES FROM THE PUBLISHER

From driving cars with backup cams and Bluetooth integrations, to firing up email and spell-checking those important client documents, technology is fully integrated into our everyday lives. And while technology use is blurred across generational lines, the millennial generation is leading the way in innovation and technology.

Millennials make up one-third of the U.S. workforce; GBCA member companies have a unique opportunity to tap into a highly plugged-in and innovative group. In fact, these tech-savvy individuals are already in our industry, helping many members drive their businesses forward. The members of the Construction Leadership Council (CLC) are a part of this group of technology power users.

But the CLC isn't just young people leading innovation in member companies. The CLC, which was established to cultivate the next generation of leaders in the construction industry, also gives back to the communities in which they live and work. On May 18, the CLC and students from Drexel University Construction Management gave back to the community by volunteering for Philabundance, and on June 22, CLC Steering Committee Members held an Alex's Lemonade Stand to raise nearly \$3,000 for the fight against childhood cancer. You can see pictures from these events and many more association activities on page 10.

The CLC is just one piece of our association pie, and GBCA could not do our work without our dedicated members. As you read about all the amazing technological innovations your fellow member companies are employing, keep in mind that the Construction Excellence Awards are just around the corner. See page 46 to learn more about submitting. You don't want to miss this opportunity to be recognized as a leader in the construction industry; once again reiterating the fact that our GBCA members are consistently setting the bar higher and setting new standards of excellence in building.

Lauren Tosti

Director, Marketing & Communications
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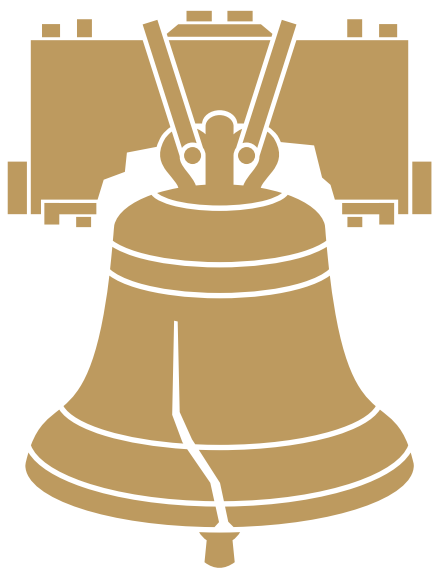
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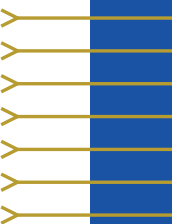


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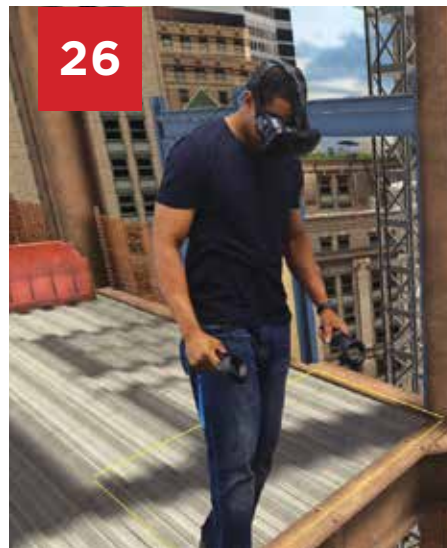
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EGGS WITH OSHA

On March 23, 2018, GBCA Director of Safety Services Frank Durso, Director of OSHA's Philadelphia Area Office Theresa Downs, and The Graham Company Assistant Vice President Jeff Spatz presented at the first GBCA Eggs with OSHA of 2018. This event was the first in a series of three Eggs with OSHA presentations focused on the Culture of Safety. On June 13, Jim Corrado and Hoyt Emmons of Med-Tex Services, Inc. gave a presentation on Understanding Safety Communications. The series explores the importance of leadership in the construction industry and its impact on worker safety and health.



REGION ON THE RISE

On March 29, the Chamber of Commerce of Greater Philadelphia hosted Region on the Rise, an event that examined trends and opportunities in Philadelphia's commercial real estate, as well as issues in building urban infrastructure. A panel of experts, moderated by GBCA President Ben Connors, spoke about commercial property development and the role of transportation infrastructure.



PAC FUNDRAISER

The GBCA PAC held its first event of the year on April 9 at Del Frisco's Double Eagle Steakhouse. Attendees networked and discussed industry topics with members of City Council and labor leaders. GBCA President Benjamin Connors, Carpenter's Joint Apprenticeship Committee Director Charles Brock, and Northeast Regional Council of Carpenters Council Representative Mike Hand provided opening remarks, highlighting the successes of workforce development programs in Philadelphia.



CHAD HARD HAT CLUB

On April 24, Clemens Construction Company hosted the Charter High School For Architecture and Design's (CHAD) Hard Hat Club. Students joined members of the Clemens team to tour 1199 Ludlow, a 24-story mixed use project in Market East. The Clemens team shared stories about how they started their careers in construction and spoke about challenges associated with this particular job, as well as the various trades involved in the project.



TORCON AT MEET THE DEVELOPERS

On April 25, Amy Novak, Project Executive for Torcon, Inc., spoke at Meet the Developers, hosted by the Center City Proprietors Association and sponsored in part by GBCA. The discussion was moderated by Philadelphia Inquirer real estate reporter Caitlin McCabe and highlighted current developments in Center City, rationale behind site selection, challenges to construction, and the anticipated impact of various projects on the city's overall economic growth and quality of life.



BRING YOUR CHILD TO WORK DAY

On April 26, members of GBCA, including Independence Steel, Inc., Med-Tex Services, Inc. and Skanska USA Building, Inc., celebrated Bring Your Child to Work Day and the upcoming Construction Safety Week (May 7-11). The Skanska project, Inspira Health Network, a new five-story, 466,000-square foot hospital in Mullica Hill, New Jersey, was visited by a group of children, and the men and women on site shared their knowledge of the construction industry with the kids and demonstrated their continued appreciation for safety.



EMILY BITTENBENDER HONORED AT GIRLS INC. BREAKFAST

On May 2, Girls Inc. of Greater Philadelphia and Southern New Jersey held its 16th Annual Strong, Smart and Bold Breakfast at the Union League of Philadelphia. GBCA Immediate Past Chairman Emily Bittenbender of Bittenbender Construction, LP was honored at the event with the Girls Inc. Impact Award.



NATIONAL SAFETY WEEK & OSHA'S NATIONAL SAFETY STAND-DOWN

May 7-11 was Construction Safety Week and OSHA's National Safety Stand-Down to Prevent Falls in Construction. Safety Week is an opportunity to promote safety awareness and injury-free jobsites. OSHA's Stand-Down encourages jobsite teams take a break to talk about fall hazards and the importance of preventing them.



TECHNOLOGY LUNCH AND LEARN: BIM

On May 17, Sam Arabia, Director of Engineering & BIM Services for Torcon, Inc., gave an introduction to the fundamental concepts of Building Information Modeling (BIM). His presentation also introduced practical applications, identified some of the necessary technological devices, and described how general contractors, such as Torcon, are using these new methods and technologies.



CLC VOLUNTEERS FOR PHILABUNDANCE

On May 18, members of GBCA's Construction Leadership Council and students from Drexel University Construction Management gave back to the community by volunteering for Philabundance. The volunteers selected and re-packed 5,160 pounds of produce that had not yet been purchased by restaurants or retailers.



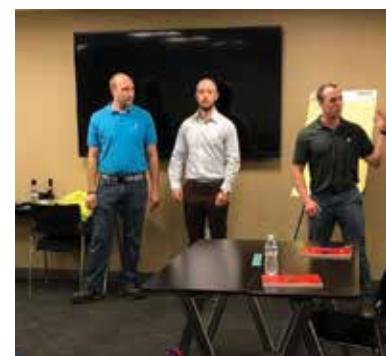
SAFETY DAY WITH LF DRISCOLL AND MED-TEX SERVICES

On May 24, LF Driscoll held a Safety Day event at the Philadelphia Art Museum. Med-Tex Services, Inc. gave two presentations: a toolbox talk on Fire Extinguisher Safety and a Fall Protection Drop-Test demonstration.



FUTURE READY PROGRAM

On June 6, GBCA was one of 22 organizations to host Future Ready: Career Paths for Middle School Students. This program, organized by the Chamber of Commerce for Greater Philadelphia, Wells Fargo, and the School District of Philadelphia, engages and enlightens Philadelphia middle school students about potential career paths and the future opportunities they reveal. In addition to meeting with and talking to GBCA staff, students participated in activities set up by GBCA members Torcon, Inc.; Skanska USA Building; Frank V. Radomski & Sons, Inc.; Revolution Recovery; Gilbane Building Company; and MacIntosh Engineering.



CLC HARD HAT TOUR

On June 7, INTECH Construction led members of GBCA's Construction Leadership Council on a Hard Hat Tour of Lincoln Square. The tour explored the apartments and Sprouts grocery store in different stages of fit-out, the outdoor space, and spectacular views of Philadelphia's skyline. Following the tour, the group enjoyed a networking Happy Hour.



AN OWNER'S PERSPECTIVE

On June 14, the AIA/GBCA Joint Committee, with the PA chapter of Construction Owners Association of America, hosted An Owner's Perspective, a panel discussion focusing on owner perspectives from design and construction leadership in both the healthcare and education sectors.



2018 GOLF OUTING

On June 18, GBCA hosted the annual Golf Outing at the Philadelphia Cricket Club. This year's Golf Outing was the biggest Golf Outing of the last three years and sold out for the third year in a row. Even in the 100-degree heat, our members stayed hydrated and played through all 18 holes of golf. We also raised more than \$2,300 towards Alex's Lemonade Stand.



GBCA ALEX'S LEMONADE STAND

On June 22, GBCA's Construction Leadership Council Steering Committee Members and GBCA staff held an Alex's Lemonade Stand, raising money and drawing attention to the fight against childhood cancer.



MYWIC CAMP 2018


MyWIC Camp is a free, six-day camp that introduces girls in seventh to 12th grades to construction. Held from June 25-29, the camp partnered with local trade unions and offered conversations with women working in the field, empowering girls to learn more about skills and career opportunities within the industry.



SILICA SAFETY PROGRAM EQUIPMENT TRAINING

On July 16, GBCA hosted two training sessions for its new Silica Safety Program. GBCA members learned how to use the silica monitoring equipment from Bill Walsh of Galson Labs. The training sessions included a brief review of OSHA's silica regulation, hands-on demonstrations of the monitoring equipment, and Q&A about using the equipment in the field.





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REMEMBERING

GEORGE S. YOUNG

1955-2018



George Young did all the heavy lifting. As the fourth-generation owner of his eponymous company, George Young Company, one of the oldest hauling and rigging companies in the U.S., Young orchestrated the moves of some of Philadelphia's most beloved icons.

Working with his father in 1976, Young moved the Liberty Bell from Independence Hall to the Liberty Bell Pavilion for the United States Bicentennial. Twenty-seven years later, he moved the fragile bell from the pavilion to the Liberty Bell Center. Most recently, his company captured our hearts for removing and replacing Robert Indiana's 1967 "Love" sculpture.

Young graduated from the Haverford School and attended Lehigh University. He was a beloved leader in his professional organization, the Specialized Carriers & Rigging Association, where he served in many capacities, including chairman of the board.

His business was about time: uptime, turnaround time and time to market. Unfortunately, George's time on Earth ended too soon. He died suddenly, leaving behind the memory of a generous person who could be relied on for a perceptive observation, creative idea, or positive comment delivered in his inimitable manner.

The staff and board of directors of the General Building Contractors Association fondly remembers and honors George Young for his dedication to and impact on the construction industry. He was significantly active in numerous committees for the GBCA. He will truly be missed not only for his unique contributions to the industry but also his kind and generous character. ■



THE MODERN-DAY PIONEERS

HOW CUTTING-EDGE TECHNOLOGIES ARE HELPING TO STREAMLINE CONSTRUCTION PROJECTS, IMPROVE OPERATIONS, AND MAKE JOBSITES SAFER

Fax machines and flip phones. Cassette tapes and dial-up internet. Gone are the days of using technology that was the norm 20, 10 or even five years ago. Why should the construction industry be any different?

Here in the Greater Philadelphia region, commercial construction companies, building owners, and architects are not only embracing new technology — they're leading the way in developing systems and methods that are shaping the future of our industry. Let's take a look at some of the top technologies that are quickly becoming the new standard of construction estimation, design, and implementation.

Laser Scanning

Data collection is at the heart of laser scanning, a method that offers a “cost-effective and accurate alternative to the costly, labor-intensive manual field measure,” says Sam Arabia, CM-BIM, director of engineering and BIM services, Torcon, Inc. Typical applications tend to be for validation of as-builts and the documentation of historic architectural features.

Laser scanning has been adopted over the past several years and is now a well-established method of achieving many field measurement goals. What's holding some teams back from taking advantage of laser scanning is simply perception, says Arabia.

“People perceive the cost of a laser scan as higher than the cost of a manual field measure,” he says. “But the laser scan is an upfront cost — a known variable — with a definite timeframe for conclusion and a defined tolerance. When you finally tally the hours and apply an hourly rate for manual field measure, the cost difference is staggering.”

Additionally, as laser scanning becomes the industry norm, the equipment itself has reduced in size and price. Yet laser scanning is one important example of how technology is only as valuable as the professional who operates it and can maximize its purpose and benefits. “The skill of scan placement and post-scan processing has not changed much at all,” Arabia says. “It still takes a trained and skilled technician.”

Deploying Drones

Unmanned aerial systems (UASs), or drones, are hardly just the latest buzzword in the construction industry. More and more companies are taking advantage of this technology. “Drone technology is more accessible than ever,” says Oliver D. Smith, Assoc. AIA, LEED AP BD+C, Virtual Design and Construction (VDC) Director, Skanska USA Building. “Early adoption was challenging because of changing government rules and regulations. More progressive rules and understanding from the government and the Federal Aviation Administration [FAA] have allowed commercial drone users, such as Skanska, greater flexibility to receive licensing.”

Construction companies pilot drones during various phases of a construction project. “In pursuits and project planning, it is challenging to obtain accurate information for the site and its surroundings. We can use drones to capture aerial photos and video to improve safety and logistics plans for vehicles and pedestrians, and to minimize disruption near the project site,” Smith says.

“During operations, drones provide real-time information for team members to track, monitor, and evaluate the site's changing environment. Coordination and quality efforts are also enhanced through progress tracking and model or image analysis,” he adds. Skanska uses drones to create 360-degree photos and video, point clouds,

and 3D models. Paired with virtual reality, stakeholders and team members can view the materials in an immersive environment.

Drones also play a role in improving overall safety on a jobsite. Field personnel can complete inspections and reviews from the ground, eliminating the need for lifts and ladders for that purpose. Leak inspections for façades that require scissor lifts or scaffolding can be replaced with drones, reducing the time it takes to complete the inspection.

Some common misconceptions surrounding drone usage are time and regulation. “A year ago, the process of flying a drone and creating deliverables required one to two weeks from planning, through execution and delivery. Today, the process is reduced to less than 24 hours,” Smith says. “Sometimes we hear from our clients and projects, ‘I can't fly a drone here because I'm near a city, an airport, a building.’ Truth is, most sites can be flown with the proper planning. This means using the right tools to ensure you are in the correct airspace, abiding by FAA and local regulations, and ensuring safety for all.”

As regulations continue to advance — for example, the FAA and NASA are discussing ways to implement an Air Traffic Control system to support the increase of drone usage in the U.S. — and the technology becomes more autonomous, Smith predicts that drone technology will continue to take off ... literally.

Prefabricating Projects

A construction project can be summed up in two words: Manpower and material. For Michael Jackson, vice president of field operations for Philadelphia D&M, “prefabrication can be rationalized as the byproduct of implementing modern technology, along with properly preparing for a scope of work, before material and manpower are required onsite.” The result? “Greater adherence and gains to schedule, increased productivity, increased quality, and reduction of incident and injury,” he says.

“Off-site fabrication allows for the most important LEAN principle of minimizing and eliminating waste to be properly implemented on a construction project,” Jackson explains. “Since the item is manufactured off-site in a controlled environment, the project will experience reduced defects and rework. Also, the project experiences reduced dilution of resources since task durations are easier to predict, and workers can maintain focus on a task that can be mastered, leading to an increase in productivity and less of a learning curve.”

In addition to maximizing resources and reducing costs — all factors which have led to the rise of prefabrication during the post-Recession specifically — prefabrication plays a role in safety by eliminating the risk of injury. It is “prevention by design” in action. Jackson shares the example of preassembling a 15-piece top track unit for a bathroom in a condo building. When developed off-site, only two employees will need to make one trip up and down, compared to 15 if built conventionally. Multiply that by the number of units in the building, and you eliminate a significant number of fall hazards.

Building Smarter

Today's homes are getting “smarter” with the implementation of automated technologies, and commercial buildings are following suit. The use of automated building intelligence makes systems, operations, and data analytics smarter through centralized operations.

"Earlier in my career, systems tended to be designed in silos — meaning the mechanical designers are specifying the building automation system [BAS] for the HVAC, the lighting designers are specifying the control/automation system for lighting, network architects are specifying for the information technology networks, and so on for fire safety, security, audio/visual, domestic water, and more," says Ellis Guiles, building performance advisor, Graboyes Smart Buildings. "Real benefits, starting with lower first costs and ultimately resulting in improved performance and operation of buildings, are realized when these systems finally are converged and integrated from the very start of the design process."

Automating a building offers substantial benefits from the perspective of labor and time savings. With the real estate industry already at the cusp of an increasing shortage of building managers and operators, a significant increase in productivity will be required to meet the demand, notes Robert Debski, president, Graboyes Smart Buildings. "Converged building systems and data analytics are truly a labor force multiplier," he says. "For instance, the most common and time-consuming tenant complaints in commercial office buildings are being too hot or too cold. The technology already exists today that integrates tenant portals, BAS, and maintenance management systems. Significant labor efficiencies can be gained when everything from the logging of the hot-cold call, to HVAC troubleshooting and generating work orders, can be automated."

Beyond these efficiencies, today's BAS are integrated with machine-to-machine platform (M2M) technology that allow for advanced data acquisition and analysis like never before. "Until M2M technology arrived, it wasn't possible to add these capabilities without having to completely redesign and install an entire network infrastructure," says Guiles. "Now, with M2M technology, in existing buildings we can cost effectively add data acquisition and analysis without negatively impacting the operating performance." A converged network can be created to support all the operating systems in a building, then integrated with IT systems that support the business functions in the building. The result is installation cost savings and achieving an "optimized, truly high-performance building," Guiles says.

The technology and systems can be used to enhance the experience of the occupants, too. Features like smart glass, circadian lighting, and green walls are all supported by BAS. In healthcare settings, some features can even positively impact organizational goals, such as creating a healthier environment and reducing patient recovery times.

As rapid as technology is evolving in the construction industry — and with what was once considered revolutionary now commonplace on many jobsites and end-projects — it's hard to predict what the future holds. What's certain is that Philadelphia's construction community is ready to take the ride, to discover what's next on the horizon and move our industry forward. ■



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IS YOUR ORGANIZATION

READY FOR
DRONES?



by Kenneth S. Sands II, Ph.D., Assistant Teaching Professor, Construction Management, Drexel University

Unmanned aerial vehicles (UAVs), more commonly referred to as drones, is an emerging technology that has become a buzzword in the construction sector over the past few years, and there is no sign that interest in the adoption and use of this innovation will dissipate anytime soon. According to JBKnowledge's 2017 Construction Technology Report, which surveyed over 2,600 construction professionals regarding the use of technology in the construction industry, the use of drones has been identified as the technology that a significant percent of construction companies are currently using or are testing out for future use. Considering the significant impact this adoption is having on the construction industry, there is value in at least understanding the technology and how it may impact your future in the industry.

The use of drones in the construction industry can vary based on scope of work, repeatable workflows, and an organization's ability and desire to innovate. The typical use of drones for various construction types involves capturing aerial progress photos, providing significant value for this workflow; however, photogrammetry, surveying, surveillance, high-risk inspections, asset management, big data accumulation, and other functions that may be tied to possible cost savings, safety, and marketing efforts, may be worth exploration. The internet is littered with information on potential uses of drones for various sectors of the construction industry, but first, as an organization yet to consider or adopt, certain implications of use should be known.

Implications for your organization

Once you've done a thorough internal assessment of your organization to understand how drone operations may be able to improve any of your organizational workflows or add value in some way, you should then consider the investment that will be undertaken. For our purposes, we will consider that drone operations will be done in-house and that your organization has very low experience with commercial drone operations.

Commercial operations of a drone require that an individual in your organization be

commercially certified as a drone pilot (\$150 for the aeronautical knowledge exam) and they must recertify every two years (\$150). Also, considering that the aeronautical knowledge exam for this certification is specific to areas such as airspace classifications, weather, small unmanned aircraft loading, radio communication, aeronautical decision-making and judgment, airport operations, and other topics, a training program is highly advised (approximately \$299 for an online training course) and there needs to be study hours dedicated to this material to successfully pass the first time around (variable salary cost).

Concurrently or thereafter, a decision needs to be made about the system to employ. As stated by JBKnowledge's construction technology report, DJI is the brand of choice for drone operations in construction; therefore, they will serve as the exemplar provider for this article.

There are various components that make up the unmanned aerial system (UAS) which, for this definition, includes everything necessary to perform successful flight operations again and again. The core of this UAS will include the UAV (drone), remote-control device, and a basic camera with gimbal (\$1,500 to \$4,000 for typical construction drone operations). You will need a dedicated tablet for the system, preferably with cellular data connectivity (approximately \$500 for iPad mini plus monthly data plan cost, which is variable by carrier) and software for flight operations, mapping, and processing of data captured (approximately \$250 per month). You must protect your equipment with protective gear (\$50 to \$200), ensure proper data storage (approximately \$35 to \$750, depending on device type), and have replacement propellers on hand and other spare parts to avoid interruption of operations (\$10 to \$20 per part). Considering that flight operations per drone last roughly 20 to 30 minutes on a single charge, you will need extra batteries (approximately \$160 per battery) to avoid interruption. The basic system can be enhanced with a variety of additional cameras and sensors such as forward looking infrared (FLIR) (approximately \$1,000 to \$3,200).

The dedicated remote pilot-in-command (PIC) will need actual experience with piloting the drone possibly requiring in-person, hands-on training (approximately \$600) in addition to the hours necessary for out-of-training practice (variable salary cost) and possible coordination/training of and visual observers (VO) working with the PIC. Risk aversion is essential to construction operations, and an organization must employ a risk control technique that ensures protection in the event of an incident due to drone operations, which may include losses to the drone, project assets, or even injury to personnel. Therefore, liability insurance (damage and claims to third parties) and drone hull insurance (damage related to the UAV) is necessary and can cost as little as \$500 to \$800 a year per drone, depending on volume, experience, etc.

The future of drone use

With a generation of digital natives who can be considered technocrats, the adoption of drone technology will only improve as younger generations become more technocentric. Companies can leverage this understanding coupled with the use of technology, such as drones, to recruit top prospects who are more willing to adopt innovation as new competencies for field personnel and superintendents advance.

With a 10 percent increase in drone use from the previous year noted by participants of JBKnowledge's 2017 Construction Technology report, adoption of drone technology will increase for years to come. As advancements are made in multi-dimensional imaging, automation, asset management/tracking technology, and increased payload capacity, the industry may be forced into broad adoption to remain competitive. This article should not serve as a deterrent to drone adoption, it should serve to prepare you for future expectations. ■

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VIRTUAL RISKS, REAL REWARDS:

ENHANCING CONSTRUCTION SAFETY WITH VIRTUAL REALITY

by Bryan Turo, Ph.D., Senior Operations Manager, NextWave Safety Solutions, Inc. for The Safety Group Ltd.

The Safety Training Landscape

Costs equivalent to four percent of global GDP and 337,000 fatalities annually, that's the best current training processes and normative standards have been able to achieve. For the construction industry, where one in five workplace fatalities happen, maintaining the status quo means 19 workers every week go to work and don't come home. Unfortunately, the safety industry has been slow to adopt new solutions that could help reduce workplace incidents despite the

waves technological innovation has made in many other sectors. Emerging technologies like virtual reality (VR) and augmented reality (AR) are seriously improving the training landscape by adding needed enhancement to a safety curriculum that is chock-full of essential content, but that lacks either an active, engaged presentation style or the on-site experience where the skills are practiced (or not) on a daily basis.

Enhancing traditional construction safety training, such as OSHA-required courses,

with immersive VR/AR experiences leads to increased student engagement, higher pass rates and better retention. Generations growing up playing video games and interacting with visual technology especially succeed as they learn by doing — a universal language — in a controlled environment that puts them in “virtual danger” before they are in any actual danger on a jobsite. Frank Marascia, a Certified Instructor for the United Safety Academy explained, “At a time when classroom training is mandatory in a predominately hands-on industry, VR

allows our students to better visualize what they're learning and directly apply it without leaving the classroom. Why try to explain by words alone what we all have to go out and actually do, with all of the very real hazards and risks?"

Letting Experience Lead the Way

It shouldn't be that the first-time workers practice skills like driving a fork lift or operating a crane is on-site. Inexperience does not lead to the best outcomes. Printouts and lectures in English (a second language for many) are not adequately preparing them. As Marascia put it, "In the construction industry we learn by doing. Why wouldn't we do the same with our safety training that's required for all workers? VR makes that possible." To prevent incident and injury, workers must be trained to think on their feet in nuanced situations requiring prior knowledge of potential complications and experience-driven training.

Award-winning educators apply learning styles that feature interactivity and student participation. The best safety trainers know this too — they go the extra mile to expose their trainees to the realities of the jobsite, including when safety precautions and best practices are not followed, for whatever reason, the results can be painful, costly, and even fatal. Instructional tools must follow suit to increase engagement with real-life construction scenarios where workers have multiple opportunities to get it right without risk to themselves or their coworkers. By training for the job, not on the job, companies are able to save time and money and avoid potential injuries that may occur while employees are still getting their bearings with new equipment or processes.

For Michael Ivancich, the director of training at Safety Group, LTD, VR-enhanced safety training presents a simple extension of methods he already champions. "When I go out to teach my crew how to safely erect a scaffold, I bring a scaled-down version of the real thing," he said. "Why? Because interaction and experience are the best teachers. But, I couldn't reasonably have my trainees risk life-threatening electrocution while reviewing lockout-tagout procedures. For those situations VR lets them go through the steps of the training over and over, but without any actual danger or additional costs. The kicker is that the students have a bit of fun while using the VR, which contributes to their usage and retention."



Plugging the Construction Skills Gap

The gamification of learning in highly realistic virtual environments has the added benefit of attracting new talent to the construction industry, which is currently facing a qualified labor shortage. As the construction industry continues to see growth, so do the costs, with rising labor rates stemming in large part from an industry-wide supply gap for skilled, certified labor. With almost 200,000 unfilled openings and over 20 percent of the construction workforce facing retirement in the next 10 years, the industry needs to attract and properly train a new generation of workers. Due to its innovative approach behind an experience-driven curriculum, VR training proves to greatly enhance classroom training, driving engagement for an otherwise compliance heavy landscape that's off-putting to younger generations.

Jermaine Hunter, Ph.D., a veteran safety professional and instructor from Maryland, noted, "With over 23 years working as a safety trainer, I've seen first-hand how the newer generation are attracted to the VR training. They get into it like a game and it gives them instant feedback to see the results of their decision making."

Instructors and companies benefit as well from the automated performance records and reports, which allow for greater transparency as to what has and has not been learned. Safety managers, trainers, and HR departments then have more actionable data about their workers' safety training and performance. Hunter added, "The thing that I found that makes it most effective is that it puts people in real-world situations. When coupled with a great curriculum it really connects the dots for the users. Then, when

they're back in the real world the actions are stored in their memory so that when they encounter a situation they know how to act."

VR Best Practices

VR-based safety content is especially useful for aptitude tests, situational screening, and behavioral conditioning. "Anything that's too boring, too risky, or too costly to do in real life," adds Daniel Stein, VR Product Manager for NextWave Safety Solutions, a New York-based safety services and training provider that generates VR content for its clients and courses. Virtual scenarios can lead trainees through site safety investigations, through the operation of heavy machinery, or step by step through standard operating procedures and the dangerous reality of what happens when through impatience, negligence, or ignorance, the protocols are not followed. For these virtual trainings to hit their mark, however, industry veterans and safety professionals need be part of the design process. Providers should work hand in hand with HSE professionals, union halls, vocational/technical schools, and even their regional OSHA offices to ensure this new, powerful training platform enhances the skills required to allow a new generation of workers to create safer construction sites than ever before.

NextWave is an integrated safety solutions company innovating risk mitigation, workforce training and analytics through technology. Our core foundation in professional safety services saves lives and generates material cost savings for our clients. For more information, find us at www.NextWaveWorks.com. ■



CREATING A DIGITAL FOOTPRINT

IN THE CONSTRUCTION INDUSTRY

by Angelique Hunter,
Marketing Director, Smith Flooring Inc.

Let's be honest, the construction industry has not always been on the forefront of the digital age. It's a word-of-mouth, quality work, reputation-based business — for the most part. Many companies that have been around for a long time, have developed valuable and long-lasting relationships which turned into loyal customers year after year. It's still fair to say most of us remain in business based on extensive amounts of account managers, sales reps and ongoing relationships.

It's 2018, and while our values and services may not have changed dramatically, the way people plan and research their upcoming construction projects and purchases certainly has. There's 3.010 billion internet users in this world and over 2 billion people have active social media accounts. 87 percent of Americans are online. What are we all doing online? On average, the adult American has dedicated 37 minutes a day to social networks, 23 minutes to online searches, 29 minutes to emails, 23 minutes to videos and 19 minutes for games. If anything, we can expect those activities to take up even more time today. Today more time is spent on smartphones than internet PCs. You can trust that with all this technology around us, the internet is about to (if it hasn't already) surpass our traditional resources, such as print directories like Yellow Pages and other phone books, big time. 90 percent of a purchase decision is made before customers ever talk to suppliers (yes, that includes B2B, ladies and gentlemen). Word-of-mouth is still alive and well, but has shifted from just talking to your friends and neighbors, to online research and consulting your very own digital (social) network. The average US adult has 338 friends on Facebook. We get our referrals, recommendations and product reviews online. We trust recommendations and opinions of our friends more than we trust company ads.

It's a fact that over 80 percent of purchase cycles start with web search. Is your company ready? Fact: 85 percent of B2B buyers want companies to present information via social networks. Is that a priority for you yet? Look at some of your partners' and competitors' web presence. Are the websites updated or, more importantly, mobile friendly? Websites are irrelevant to search engines if they lack quality content and keywords. Some companies still have zero (or a poorly managed) social media presence. Locations and contact details are not correct or updated in directories. How much longer can you count on your existing customers without acquiring new ones?

On the internet, your competition is just a click away. Isn't it time for you to get some quality traffic and leads online?

Here's what you need to do to stay in the digital game and create a strong digital footprint:

- Evaluate your web presence. Think of your website as every new customer's first impression of you. How does your page look on mobile devices? Does it represent your organization well? If your website looks unprofessional and cheap, what may that do to your brand perception? 46 percent of people say website design is their number one criterion for judging the credibility of a company. Show off what your specialties or benefits are.
- Are your customers online? Are they on social media? Are they talking about you? If the answer is yes, consider joining, leading or managing the conversation. Like it or not, social media is not going away any time soon (and no, it's not just for millennials). Despite what you heard or how some of your friends use it, it is also becoming a sales channel. However, don't overwhelm your audience with a ton of sales-based content. Instead, offer them solutions to their problems and establish yourself as an expert in your field through quality content.
- Do research on search engine optimization (SEO), including geo-targeting/marketing. There are a lot of things you can do without spending money on agencies and "experts." Claim or manage local online directories to ensure your contact details, opening hours and categories are correct and complete. Google hates inconsistency and will punish your search rank if details don't add up across different platforms. Create free listings first. Talk to your customers about what resources they use and focus on them first. Fix your Google Maps location(s), fix Apple Maps, Yelp, Foursquare, etc. Those are the sources Google and other search engines often use to compile and display your organization in their search results.
- Ask for recommendations, testimonials and reviews. Your customers (hopefully) tell you when your team has done a great job. They may tell the world, too. Facebook and Google reviews are quick and easy, some of them are just one click. References from across the World Wide Web help your organization become more relevant. And don't be afraid of negative feedback. They will talk about you anyway, but if you are aware of it, you can fix the issue and address it appropriately, timely and often publicly.
- Include calls-to-action on your web page and keep it functional and intuitive. Our attention span is ever decreasing in this world of information overload. Make it easy for your website visitors to find you, call you, request a quote or order from you. That type of information should never be hidden (as in more than one click away from your landing page). Use Google Analytics to review visitor behavior flow and identify user experience improvement opportunities.

If you want to go the extra mile, here are some additional actions you could take:

- Have a proper LinkedIn presence and offer free advice
- Run a blog that's adding value to your industry (and your digital footprint)
- Publish behind-the-scenes stories and pictures to make your brand more personal and trustworthy

- Use new media as a channel for customer service

The opportunities are endless and the actual cost low, when you can keep it in-house. There are plenty of free tools that can help you manage your social media channels and evaluate your website.

It's a brave new world out there, decide for yourself if you can afford to ignore it or if you choose to embrace and take advantage of it. Either way, your customers are waiting!

Sources for stats used in this article: Mashable, WeAreSocial, Business Insider, Marketo, Social Media Today, Hootsuite and Facebook Insights. Feedback and questions welcome at ahunter@smithflooringinc.com. ■

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A man wearing a white hard hat, a white dress shirt, and a brown tie is looking down at a tablet computer he is holding with both hands. He is standing on a construction site, with several large cranes and building structures visible in the background. The scene is lit with a warm, orange glow, suggesting either sunrise or sunset. The text "EMBRACE TECHNOLOGY OR CHASE THE COMPETITION" is overlaid on the right side of the image in white, bold, sans-serif capital letters, with each word or phrase on a separate black rectangular background.

**EMBRACE
TECHNOLOGY
OR CHASE
THE COMPETITION**

A 2017 survey found among construction contractors for whom technology plays a part in their business, less than half had a clear strategy in place to integrate those advancements

by Jessica Lombardo, Editor, *Asphalt Contractor Magazine*

With innovations like telematics, robotics, automation and drones, along with data to improve design and project management, the construction industry would seem to be a perfect stage for propelling the technological revolution forward.

However, a 2017 survey conducted by KPMG found that while 72 percent of the engineering and construction executives surveyed stated technological innovation played a role in their company vision, less than half had a clear strategy in place to integrate those advancements.

In addition to a lack of vision, only five percent of respondents considered themselves on the forefront of embracing these advancements with the majority of people indicating they were industry followers instead of leaders.

Throughout the past few years, we've covered technology advancements in the industry and are always looking to show contractors how embracing this technology can help them improve their business and their bottom line. Still respondents of that same survey indicated the construction industry will need more than five years to fully embrace technology. Why the continual resistance to change?

Just last month we covered variable depth paving and how embracing this technology saves both time and money. We even had the data to prove it, referencing a company that was going to incur liquidated damage costs of \$240,000 for every day they went over on an airport project. Had they not used 3D, they would have missed the deadline by a minimum of 10 days, costing them over \$2.4 million. Ouch.

With the technology, they were actually able to finish three days early, and since they knew exactly the amount of material they were going to be placing, they used 1,000 tons less material than they intended and were able to put all those production and material costs right back in their pocket.

"The right construction technology can centralize information and communication, improve safety and reduce the amount of time spent on non-value-added tasks," says Chad Hollingsworth, cofounder and president of Triax Technologies. "It is something that (workers) can use to develop their skills, streamline daily tasks and ultimately become better at their jobs."

Millennial Mindset

Along with helping to save you money and improve your business, embracing technology has been a proven way to attract the younger generation of workers to the industry.

They have grown up with apps and solutions to solve just about any system problem that arises. As the industry evolves, it will have to embrace more innovation in order to entice and appeal to millennials — and those even younger.

The attitude and outlook that millennials have towards their life and job can also help entice them to work in the construction field.

"Millennials want to add value, make an impact and find meaning

in what they're doing. This carries over to their professional lives," Hollingsworth says.

What can be more rewarding than turning piles of dirt into buildings, roads, bridges and other construction?

Some of the emerging technologies that millennials appear to be comfortable with that you might consider implementing on the jobsite include:

- Artificial Intelligence
- Augmented Reality/Virtual Reality
- Smartphone Apps
- Tablets
- Wearables

Don't fall behind your competition. Embrace the change now or risk losing your next bid to a company that can guarantee job completion on time and on budget with their tried and true technology.

This article was originally published in Asphalt Contractor Magazine in June 2018 and is reprinted with permission. ■



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BUILDING UPDATE

ROWAN UNIVERSITY ENGINEERING HALL



Exterior View Facing North



Bio-Medical Laboratory



Exterior View Facing North West



Main Lobby

The Henry M. Rowan College of Engineering had a good problem to have — it had many qualified applicants, but not enough space to house as many students as it wished to admit. In order to accept additional students and expand educational programs, the college embarked on a building expansion project. The new Engineering Hall opened on Rowan's main campus in January of 2017 and expanded the college's footprint by 88,000 square feet, accommodating an additional 500 students and growing programming.

TN Ward constructed the three-story building expansion that connects to the original Rowan Hall via an elevated pedestrian bridge and serves as a gateway to the University's campus in Glassboro. The innovative facility includes four classrooms, 19 research and teaching laboratories, 14 collaboration rooms, six conference rooms, four administrative suites, 33 faculty and 28 graduate offices, a two-story dining facility, and support spaces for science, technology, engineering, and mathematics (STEM)-related academic programs. The facility features first-floor project labs that open to the outdoors, extending workspace for projects including automotive engineering, solar arrays and drone technologies, and a dedicated wing for the Center for Sustainability for alternative energy studies. The space also features dedicated lab space for specific departments including freshman and sophomore engineering clinics, biomedical engineering labs, space for STEM outreach initiatives, and water and hydrology, cell culture, and wireless communication labs.

Exterior features include a green roof featuring drought-resistant plants, an example of environmental engineering principles that was blended into the building design, and a bridge terrace on the third floor providing a spacious outdoor environment for gatherings. Engineering Hall also features two commission pieces of public art inspired by engineering: "Vector Space" by Carolyn Braaksma and Brad Kaspari and "Opticks" by Beth Nybeck. TN Ward was also responsible for functional and logistics areas of the project including new landscaping, surface parking, roadway access improvement, and a traffic signal. ■

ON THE PROJECT

General Contractor: TN Ward Company

Construction Management: Stantec Consulting Services, Inc. | LF Driscoll Company

Architects: Ellenzweig Architects | Clarke Caton Hintz

Subcontractors/Suppliers: Surety Mechanical Inc. | Kisby Shore |

Philadelphia D&M | Roman Mosaic & Tile Company |

D.M. Sabia Company | Metal Structures | Calvi Electric |

E.J. DeSeta Company | Scientifix | LabRepCo | Wyndham Construction | Johnson Controls | Advanced AV | Linecomm

Engineers: Vanderweil Engineers | Pennoni

Submit Your Building Projects

The new Building Update column shares the latest and greatest construction projects from our members. Have a project to share? Send a description and hi-res photos to ltosti@gbca.com to be considered for our next issue!



EXPAND YOUR KNOWLEDGE WITH THE EDUCATION COMMITTEE

by Angela Hendrix, Director of Education & Professional Development, GBCA

The GBCA Education Committee is comprised of members of the association who work together to provide timely and pertinent educational trainings, seminars and courses, topics of interest, and workshops to help guide GBCA member firms on their path of continuous learning. Training is a cornerstone to building a successful career in construction. Since 1961, GBCA has endeavored to conduct comprehensive training programs to ensure a highly-skilled, productive and motivated workforce.

To stay ahead of the changing needs of the industry, members turn to GBCA for workforce development and educational programs. Conducted at various venues, including some of country's most respected learning institutions, these courses are tailored to enhance the skills and knowledge of office and field personnel.

Committee Members

Charles W. Cook, Ph.D., R.S. Cook & Associates, Inc., Drexel University*

Arthur P. Cobb, Haverstick-Borthwick Company

William A. Denmark, Esq., Charlson Braber McCabe & Denmark

Edward H. Keeter, Ph.D., Jefferson University

David La Rosa, CBIZ MHM, LLC

Jonathan Martin, Frank V. Radomski & Sons, Inc.

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Dina Miller, Skanska USA Building, Inc.

Danitrov Ortes, TN Ward Company

Mary Kate Radomski, Frank V. Radomski & Sons, Inc.

Edward Seglias, Cohen Seglias Pallas Greenhall & Furman PC

Jim Smith, Armor Masonry Restoration, Inc.

*Committee Chairman

Technology Subcommittee

A subset of the Education Committee, co-chaired by David Maser, CM-BIM, Gilbane Building Company, and Kenneth Sands, Ph.D., Drexel University, the GBCA Technology Subcommittee was created to bring member firms up to speed on current technologies and to launch the association into the future of building.

To join the Technology Subcommittee, contact Angela Hendrix at ahendrix@gbca.com.

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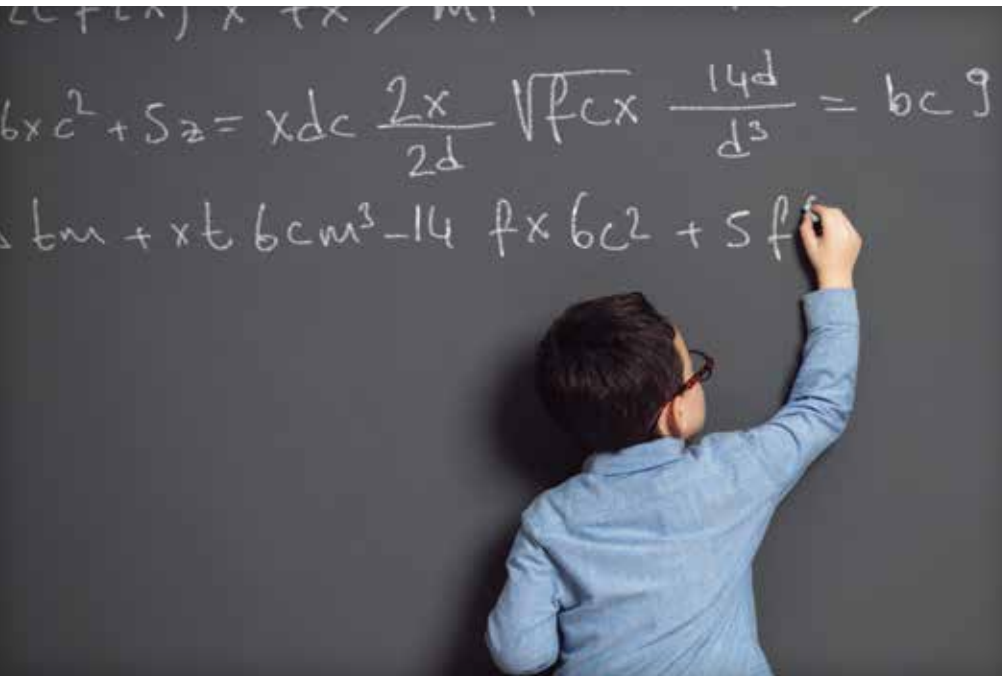
“ In an industry as challenging and complex as construction, we need constant attention to the industry demands to improve delivery for our clients while maintaining successful contract administration for our constructors. GBCA has been a leader in providing education and training that does that and more for our members. ”

— Charlie Cook,
Education Committee Chairman

2018 EDUCATION COMMITTEE CALENDAR OF EVENTS

DATE	EVENT	LOCATION
September 11, 13, 18, 20	Microsoft Project: The Basics	ONLINE
September 18	Technology Lunch & Learn	GBCA
October 2, 9, 16, 23	CM-BIM Series	GBCA
October 30	CM-BIM Exam	GBCA
November 2	Technology EXPO	Drexel University
December	Technology Lunch & Learn	GBCA

STEM EDUCATION



“ With the way most fields are changing, even the construction field, we can’t always rely on tried-and-true solutions to problems that arise. ”

HOW IT CAN HELP YOU SUCCEED IN THE CONSTRUCTION INDUSTRY

by Megan Wild, Author, *Your Wild Home*

STEM occupations, or more specifically those that focus on science, technology, engineering and mathematics, are growing exponentially. Kids in elementary school are being told they need to focus on their science and math skills because having a STEM degree is what they need to succeed in the modern world.

What they're not being told is that focusing on STEM can serve you in more than just a science- or math-related field — the skills you learn can help you succeed in nearly any field. Let's take a closer look at how a STEM education can help you succeed in the construction industry.

It Creates Problem Solvers

At its core, STEM is all about solving problems, as well as training the next generation of problem solvers and critical thinkers. With the

way most fields are changing, even the construction field, we can't always rely on tried-and-true solutions to problems that arise. Those solutions don't always work anymore.

Current education is focused so heavily on rote learning and teaching to the test that students aren't learning how to solve even the simplest problem that might cross their path. Their focus is strictly on memorization and how to follow instructions — which serves you well right up until you graduate from high school and move on into the real world.

A STEM education turns you into a problem solver. It gives you the ability to see problems as something that can be solved rather than something to blame on someone else or shove off into the corner until someone else has the time to deal with it.

It Improves Advancement Opportunities

As with most entry-level jobs, you don't need a whole lot of experience or education to break into the construction field — as long as you're happy working long hours as a laborer with little to no opportunity for advancement. If you love working with your hands, more power to you — there's nothing wrong with being a skilled construction worker. We will always need more of them.

If you want to advance, a STEM education can help you do that — or make your way into the industry by bypassing the typical entry-level rigmarole. The E in STEM stands for engineering, after all, and there's a lot of engineering that goes into construction. You can work as a civil engineer, an architect or a blueprint maker as a graduate with a STEM degree.

These construction jobs are prime for job growth, too. Career opportunities in the civil engineering field are projected to grow by up to 8 percent in the next few years, according to the BLS.

It Enables You to Help Build the Future

Input the words "STEM construction" in any search engine and you will find a great number of articles about new STEM-based construction projects around the country. The construction industry is being tapped to build the STEM facilities of the future — academies, labs and other

learning environments where the next generation can learn everything they need to earn a STEM degree.

This also enables you to be a good example for the next generation. All you have to do is step into a classroom to show the importance of a STEM education and that you don't have to go into the sciences if you study STEM. These educational programs are, quite literally, building the future. A STEM education, even if you don't continue into college, gives you skills like creative thinking, problem-solving and so many others that will carry you through your adult life.

STEM isn't just about science and mathematics. It's about learning how to shape the world as it continues to grow and change. Those who can't or won't work toward that goal will be left behind — it's as simple as that. A STEM education will help you succeed in whatever field you choose, because it gives you the tools to build over any walls that might be standing in your way, whether those walls are literal or figurative.

We can always use more rocket scientists, but you don't have to be a NASA engineer to benefit from a good STEM education.

This blog was originally published on Breaking Ground: The NCCER Blog at www.nccer.org in April 2018 and is reprinted with permission. NCCER is the a not-for-profit 501(c)(3) education foundation created in 1996 as The National Center for Construction Education and Research. ■

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PROJECTING

THE STATE OF COMMERCIAL REAL ESTATE

IN 2025

by Joseph F. Kessler, Esq., Partner, Dilworth Paxson, LLP

Projections are made daily in the commercial real estate industry and the everyday world. Projections, not to be confused with predictions, are statements that something will happen in the future if certain conditions develop. Whereas, a prediction generally assumes that future changes in related conditions will not have a significant influence on the statement from becoming reality. The industry of commercial real estate involves predictions, projections and forecasts for which hundreds of billions of dollars of capital are involved.

Certain seeds that will grow into the world of commercial real estate in 2025 have already been planted; others have not yet been developed. The question remains, what will germinate?

On June 25, 1963, President John F. Kennedy addressed German leaders in the Assembly Hall at the Paulskirche in Frankfurt. With World War II in the rearview mirror and the Cuban Missile Crisis still fresh in mind, Kennedy used this opportunity to applaud the new German Constitution and for the United States and the European community to work together as "partners in peace." Kennedy stated, "for time and the world do not stand still. Change is the law of life. And those who look only to the past or the present are certain to miss the future." Those companies who view the commercial real estate world through that lens most likely will be the ones whose business succeeds.

Think Globally

Emerging markets are not only a local or regional demographic. Technology has shrunk the globe and expansion and growth will be based upon resources and a growing population that will serve institutional-grade real estate wherever located. Economies of scale through consolidation will continue to grow the size of today's national players into global mega-managers. Think capital. Caution as a global network will not succeed without the strength of the knowledge of the local real estate environment. Joint ventures, strategic alliances, mergers and acquisitions will position and maintain these players on the world-stage. Risk and return will be measured on different scales than the past decade.

President Kennedy focused in his speech that “economic cooperation is needed throughout the entire free world. By opening our markets to the developing countries of Africa, Asia and Latin America, by contributing our capital and skills, by stabilizing basic prices, we can assure them of a favorable climate for freedom and growth.” While an uncertain political world will continue to exist, the vision from 1963 for global markets still holds true for strategic real estate development in 2025 as emerging economies in Africa, China, India, Eastern Europe and the Middle East will be significant targets for growth and construction. Differentiation will be determined by those companies which have chosen “location” wisely and avoided political risk. Construction will follow capital to new destinations.

Think Workforce

The majority of today's real estate icons will have passed the baton to the next generation of entrepreneurial leaders supported by capital. Rules and responsibilities within the industry and each company will be different. An emphasis will be placed on skills in talent management, brand recognition and cybersecurity. Virtual space (holography) will solidify these global networks. Educated either on-line or in a cyber-filled brick and mortar campus, the talent pool will be undergraduates who are bilingual, with multiple degrees (STEM) and commonly post-graduate degrees who can demand “flexible” schedules in a “flexible” work environment. Attracting, developing and retaining talent will require competitive incentives and will determine which players will succeed. Return on talent and talent profitability will be the measuring sticks; social media will be the common denominator and marketing driver.

There has been an entirely new development of secondary tech cities in transit hubs in the United States creating a residential construction surge. Workers will leave their smart, zero-energy residences connected with electronic medical records in a mixed-use community and either walk a short distance or take their pay-per-use or self-driving cars to their smart office building built on WELL standards. Human happiness increases productivity and reduces work-place stress; social consciousness and ethics permeate corporate cultures. Since recruitment is global, workforces will be diverse and inclusive, thereby increasing creativity. Teams will meet regularly through virtual meetings, and discernment, as well as people-skills, will be valued. Robotics and

artificial intelligence will be commonplace. But do not forget that the global population will age rapidly, impacting real estate through the cost of senior housing and the delivery of healthcare.

Think Energy

Sustainability's impact since 2000 has already reshaped the real estate community and properties will not be considered institutional-grade real estate without sustainable systems. So as cities grow in the global market so will greenhouse gases that impact climate change. The science of sustainability is necessary to offset not only the past performance but to compensate for continued product growth. Zero waste, zero carbon emissions and renewable energy sources are the standard. While retrofitting remains expensive, those who have not will face serious discounts in value which again will tip the scales in favor of the economically healed megafirms who can reposition the assets by acquiring them at discounts after debt-related events.

The conundrum of how a building owner can afford to make an investment in sustainable and energy-efficient retrofits while the savings of energy bills flow to the occupiers has been solved without undermining the economics of the utility industry. The Metered Energy Efficiency Transaction Structure (MEETS) has been tested and been modestly successful but will dominate the market place starting in 2025 as it satisfies the goals of the four major constituents: building owners, third party developers or investors, utilities and tenants. The steps may vary but will involve the creation of an “Energy Tenant” who is responsible for installing and maintaining the sustainable energy efficient improvements; an investor who provides capital to the Energy Tenant; a building owner who may own a part of the Energy Tenant and has a long-term agreement with the Energy Tenant; an Energy Tenant and utility who have entered into a long-term power purchase agreement; and a tenant who has entered into a long-term lease and pays energy costs at “normal rates” but receives “benefits” of a better building; and the metered energy efficiency pays the Energy Tenant's investors a rate of return.

Think Innovation

Innovation is not just all of the technology changes such as virtual and augmented reality that have occurred in the decade before 2025, but also innovation in business models, including “corporate” incubator space

focused on a particular market segment. Mega-real estate companies have become venture capitalists. Fortune 500's sharing space with startups to foster innovation in products and operational efficiencies all located in one space using the new generation of workforce to ensure that their business continues to grow and expand while sharing the economic benefits with the property owner in the form of incentive rent, if successful. It is We Work in hyperdrive. Online transactions have eclipsed traditional brokerage roles and those who did not adapt cannot compete for their core business.

But, innovation and technology should support human contact, not eliminate it. With retail industry and consumer banking services now 75 percent online, logistics/warehousing has grown significantly to provide the “last mile” one-day required turnaround. Retail space is now a showroom linked to some other experiential entertainment event or a micro hospital. What was once known as a movie theatre, now resides as a digital virtual consumer display wall in each residence. Cyber security has surpassed defaulting tenants as the number one risk in the industry. A robust security infrastructure is costly but also a competitive advantage. The commercialization of farming by REITs has transformed the industry with indoor vertical, bright and aero farming filling vacant retail and big-box locations.

President Kennedy said in 1963 that “the mission is to create a new social order, grounded on liberty and justice, in which men are the masters of their fate, in which states are the servants of their citizens, and in which all men and women can share a better life for themselves and their children.” If all of the conditions develop as laid out herein, will the projection for 2025 be that better life for the world and the commercial real estate industry? Would President Kennedy have envisioned the world of 2025? Maybe, maybe not, but welcome to 2025. ■



WHEN CONSTRUCTION WASTE RECYCLING **BECOMES ART**





by Lucia Thome, Director of Special Projects, Revolution Recovery

Revolution Recovery is a dumpster and recycling facility located in Philadelphia, with two other plants in New Castle, Delaware and Allentown, Pennsylvania. Not only is Revolution Recovery leading the way in construction waste recycling and material handling, but it has an innovative art program geared towards sustainability awareness and the reuse of construction waste.

Recycled Artists in Residency (RAIR) was founded in 2010 by Revolution Recovery's Fern Gookin and local artist, Billy DuFala. RAIR's mission is to challenge the perception of waste culture by providing a unique platform for artists at the intersection of art and industry. Situated at Revolution Recovery's plant in Philadelphia, RAIR offers artists studio space and access to more than 500 tons of materials per day. Selected by a review panel of arts professionals, five artists in residence per year receive attentive support from RAIR's staff who, acting as liaisons between artists and waste workers, ensure that residents can work safely

and effectively within the parameters of a busy operational facility.

RAIR's flagship Residency Program has established itself as a unique opportunity for emerging, mid-career, and established artists. By facilitating artists' direct engagement with the waste stream, RAIR encourages residents to consider their studio practice through the lens of sustainability and to thoughtfully re-assess their processes of material sourcing and waste disposal.

Collaborating with community groups, art institutions, and waste industry partners, RAIR has also extended its reach far beyond its resident artists through a multitude of projects. These types of endeavors include recycling facility tours, class presentations, public events, and exhibitions. RAIR also has painted some of Revolution Recovery's dumpsters and creates their holiday card every year! Projects like this illuminate the connections between art, industry, and sustainability. RAIR also offers assistance with

the material sourcing, planning, design, and fabrication involved in a range of cross-disciplinary projects, and works with collaborators to maximize the creative potential of waste materials.

As a part of the construction industry, Revolution Recovery is proud to provide excellent dumpster service while also diverting material from the landfill. Although most of the material coming into the facility is separated then shipped out to other processors, RAIR offers another pioneering way to reuse construction debris. So, if you are ever wondering what is happening to your construction debris after it leaves your project, there is a good chance that if Revolution Recovery is involved, RAIR might just turn that piece of drywall, cardboard box, plywood, or metal stud into an inventive and profound work of art!

If you'd like to find out more about and support RAIR, please consider attending the annual Trash Bash! More information available at rairphilly.org/2018trashbash. ■



STOP COLLECTING (BUSINESS CARDS) AND



START CONNECTING

by Nancy Dunleavy, President, Founder, CEO and Chief Talent Scout, Dunleavy & Associates

The future is coming: things change and technology changes faster. It's tempting to take the sideline approach to change — sit by the side of the road and wait for the change to happen or, you can be less reactive by embracing the inevitable change by becoming knowledgeable about what's to come. With an inquisitive mindset you will benefit greatly from building relationships with thought leaders in your field. Develop an appetite for calling someone who you heard speak at a conference or who wrote an article in a trade publication — to acknowledge the impact that their work has made on yours — and to ask clarifying questions. Being proactive about how you view the future, eagerly not resentfully, will put you in the mindset of being a connector, being intentional about what you need and about what you have to offer.

Taking action, not waiting to react.

The act of networking feels unnatural — why? Probably because it feels transactional not relational. When did *networking* become a verb, anyway? It's not. *Connect*, however, is a verb. (I know, I looked it up.) Oxford defines *connect* as, “bring together or into contact so that a real or notional link is established.” That's what you want to be — a connector of people who can help each other, not a collector of business cards or LinkedIn connections.

I firmly believe in the power of the “connector.” Bestselling author Malcom Gladwell describes a connector as someone who seems to know everyone and is able to zero in on the needs of one person and

connect them to another who can meet that need. If you can behave like a connector — someone who is intent on making connections and connecting people you will never feel like someone who “leverages” their network. People want to do business with people that they trust so we must never take for granted the humanity in our relationships whether business or professional.

In your world of construction seek out architects and engineers who seem to see things differently and ask them “why?” By surrounding yourself with those who think differently, you will never stop learning. The best way to learn is to “exercise that ask muscle” and be deliberate in doing so. How will we know what people need if we don’t ask them? How will we get our own needs met if we don’t speak up? You may be unsure of how to even begin or how to meet those different than you in a world where we are drawn to those like us. It can be as simple as a smile to a stranger or reaching out to an old acquaintance you haven’t spoken to in years. These connections will be some of your most important. After all, we were all strangers at one point.

How to Avoid Missing Connections:

Step 1. Look people in the eye. People who open doors for you, serve your meals and take your payments at cash registers. Ask them their names. Make them feel as important as they are.

Step 2. Remember that people have connections that extend past the network you are aware of. To really do this right you have to be a bridge to all of the worlds in which you have your feet. Learn more about those around you and what is happening in their lives.

Step 3. Be curious and dig deeper. Not everything is what it first appears to be. Sometimes when you dig a little deeper you can see that the solutions to problems may be completely different from what initially asked for.

Step 4. Don’t be afraid to say, “I don’t know.” You may not know something initially, but you do know how to find out.


Step 5. Don’t be afraid of “the ask.” Listen to the asks made of you by others and ask when you need help. By being more present when with others you can make way for the invitation. Because honestly, it doesn’t take that much time to help or be helped.

Step 6. Follow through, period. Relationships are important and you have to do what you say you will do to gain the trust of those around you.

Step 7. Recognize that it’s not who you know but who knows you. Open up to those around you and be present in each conversation.

Step 8. Start exercising your “ask muscle” daily. For some it will take a great deal of practice, and like any out-of-shape muscle, it’s not always easy at first. Making little asks each day can help your muscle grow stronger and help you make very valuable connections along the way. Oh, and it feels really good to help others so ask someone you’ve just met, “What can I do to help you?”

For more on this subject, consider reading “Exercise Your Ask Muscle,” available on Amazon. And, if you want to see this theory in action, join the Construction Leadership Council as they take a deeper dive into “Beyond Networking... become a connector, not a collector” at their fall event on October 11, 2018, at the GBCA headquarters. ■



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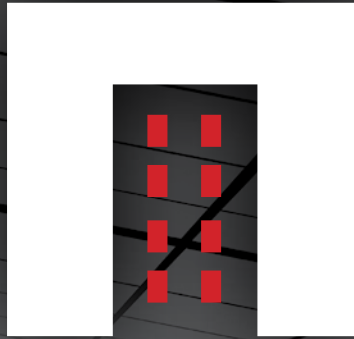
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