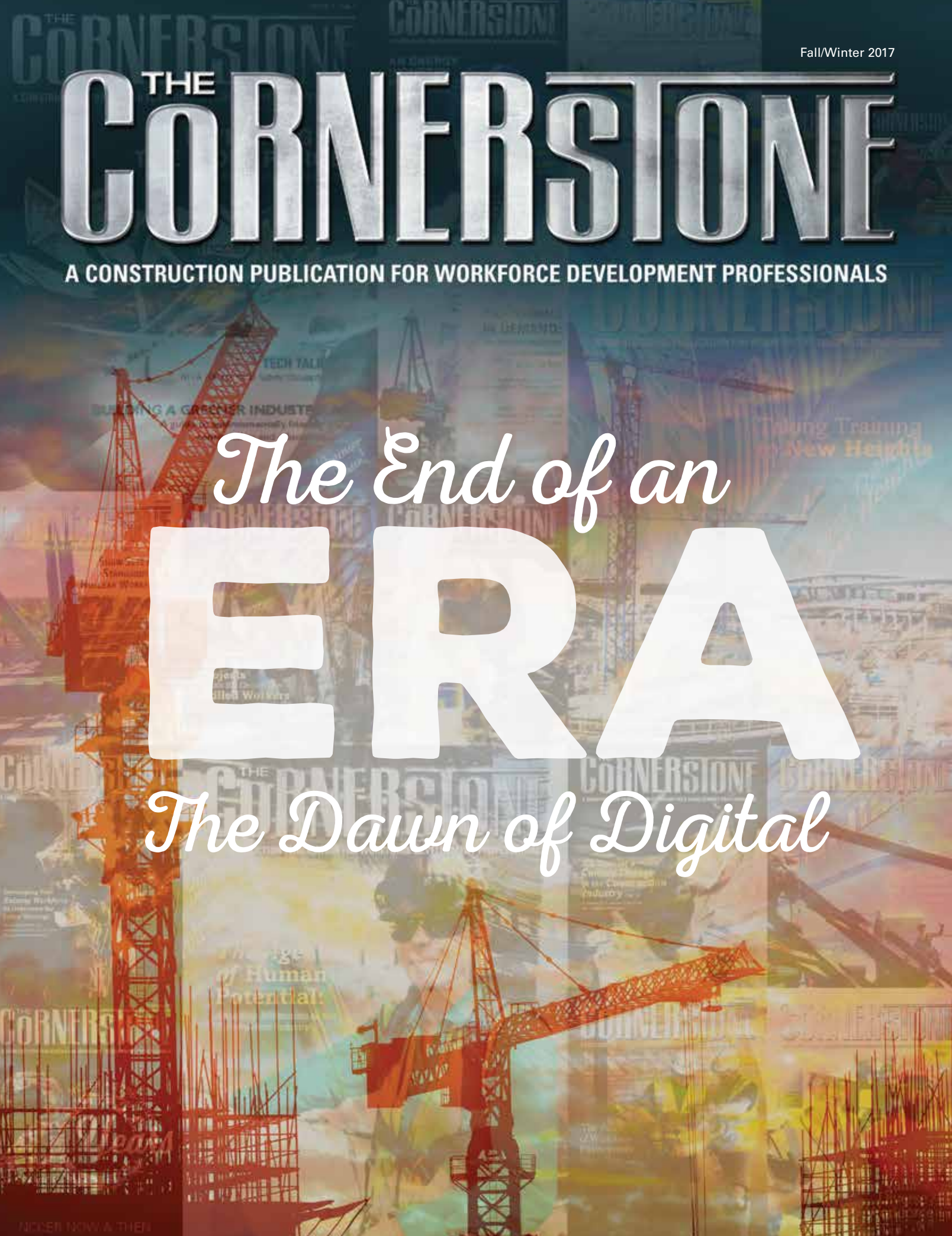
Fall/Winter 2017

THE CORNERSTONE

A CONSTRUCTION PUBLICATION FOR WORKFORCE DEVELOPMENT PROFESSIONALS



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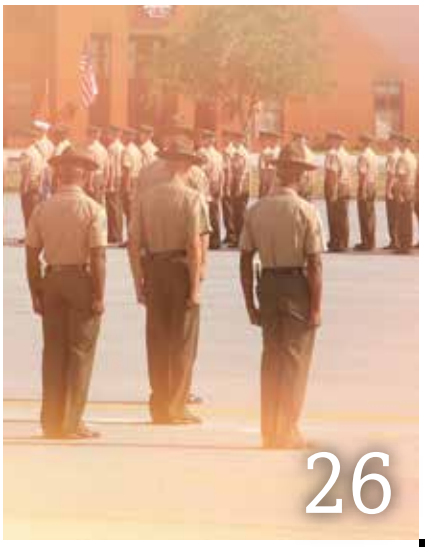

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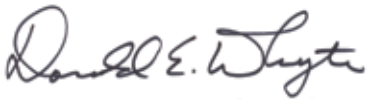
In 2009, NCCER transformed its monthly newsletter into a biannual magazine, The Cornerstone. Our goals were to provide a publication solely focused on workforce development issues in the construction industry and highlight exceptional NCCER sponsors and instructors in hopes of providing successful models for others developing programs. As the need for an online presence grew, we added a magazine website in 2012 and released a weekly blog in 2014.

Over the past nine years, this magazine has published 18 issues and covered important topics relating to workforce development, training and innovation within the construction industry. We have recognized 68 Accredited Training Sponsors in Sponsor Spotlights, profiled 21 craft professionals in the Cornerstone of Craftsmanship and annually produced 34,000 printed copies.

The print magazine has been a reliable vehicle for reaching NCCER's network, but as the world progresses, so must we. According to the American Press Institute, 74 percent of people now get their news from online sources. Therefore, NCCER is saying goodbye to our print publication. However, the articles found between these covers will remain. Moving forward, our Sponsor Spotlights, Community Builders, Inside the Industry and so much more will be published exclusively online. Instead of waiting months between issues, content from The Cornerstone will be combined with our Breaking Ground Blog and NCCER's press releases into a digital newsroom.

The new digital newsroom will give NCCER the flexibility to address current topics as they are happening. We will reach a greater portion of our expanding network and make vital workforce development issues known to a broader audience. We hope that you will join us online, share our stories and tell us your thoughts so that we can continue to serve this great industry. At the end of the day, the purpose of The Cornerstone does not lie within glossy paper, cover images and the number of pages per issue, but in the significance of the information we are spreading. This letter is not a farewell, but the beginning of our next step in providing our industry with the information and recognition they deserve.

Sincerely,



Donald E. Whyte
President, NCCER

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Association for Career and Technical Education

Association for Skilled and Technical Sciences

Construction Industry Institute

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ISN Software Corporation

Judgment Index

Manufacturing Institute

Mason Contractors Association of America

Merit Contractors Association of Canada

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National Insulation Association

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NAWIC Education Foundation

North American Crane Bureau

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University of Florida, M.E. Rinker Sr. School of Construction Management

Women Construction Owners & Executives, USA

news and events

New Online Testing System Now Live!

NCCER's new testing system is improving the way tests are administered, graded and scored. Completely online and managed in-house by NCCER, the new testing system operates on the same platform utilized by ACT. With enhanced, easy-to-use features and greater capability across multiple devices, module testing has never been easier or more efficient.

While paper test options are still available, the new testing system has eliminated the need for paper-based testing and record storage. Users can create, launch, score, store and submit module tests online. Performance Profiles are also submitted through the new proctor station and results are automatically reported to NCCER's Registry System. The system operates on all major internet browsers and no special hardware or software is required.

Webinar trainings with detailed walk-throughs of the new system and a robust library of infographics and how-to documents are available on **nccer.org/testing**. With a heightened focus on testing delivery systems and third-party verification, NCCER's new testing system provides organizations with everything they need to meet today's standards.

NCCER Training at ACTE CareerTech Vision Conference

In support of our new resources and an increased demand for NCCER program training, we held a series of six sessions on various topics at the 2017 ACTE CareerTech VISION Conference in Nashville, Tennessee. The sessions filled up quickly with ACTE conference attendees and NCCER's industry representatives. Topics included the new online Testing System; NCCERconnect and customer book build; workforce development; recruitment and marketing for industry programs; Construction Career Pathways resources; and schools as a talent pipeline.

First NCCER Training Session held at the 2017 ABC WFD Week.

Back to Basics Video Series

Our new website is more interactive than ever! Check out NCCER's brand new series of videos featuring our team, industry leaders and educators. These short videos explain essential NCCER programs and processes in a way that's easy to understand. Visit the videos page at **nccer.org/news-information/videos** and stay tuned for more releases in the near future.

Redesigned BYF digital trading cards at byf.org.

NCCER PRODUCTS COMING SOON!

- Heavy Highway Construction Levels 1-2 (2nd Ed.)
- Mobile Crane Operations Levels 1-3 (3rd Ed.)
- Basic Rigger (3rd Ed.)
- Intermediate Rigger (3rd Ed.)
- Advanced Rigger (3rd Ed.)
- Signal Person (3rd Ed.)

New BYF Website

The Build Your Future website rolled out a fresh new look for Careers in Construction Month in October. The enhanced website features all your favorite recruitment resources plus some new ones that are sure to grab the attention of aspiring young craft professionals. Data from the Craft Labor Map (powered by the CLMA) has now been integrated into the craft trading card section. In addition, the Craft Labor map is now filterable by both state and demand, and you can easily print a list of the craft demand for your state. The Construction Career Path has also been enhanced. Students are able to choose each step on their personal career path and then print it out for future reference.

Visit **byf.org** to check out all these new features and more!

Redesigned BYF website homepage at byf.org.

Hard Hat Heroes Earns CURT WFD Award

NCCER is proud to announce that our Hard Hat Heroes Credentialing Portal won a 2017 CURT Workforce Development Award. This award recognizes exceptional workforce development programs that encourage individuals to pursue a career in the construction industry.

Hard Hat Heroes is part of the Build Your Future initiative and is focused specifically on providing successful career pathways in the construction industry to service members and veterans. This credentialing portal was explicitly designed to provide credentials for transitioning service members and veterans for the training they received while in the military. It was launched on Veterans Day 2016 and has been offering credentials and continuing to build more alignments ever since. To find out more, visit **veterans.byf.org.**

I Built This!

The I Built This! video contest was a huge success! This year we had the most submissions and best videos yet! With prizes that included GoPro Hero5 cameras, gift cards and BYF swag, along with the opportunity to be promoted on the NCCER YouTube channel and Facebook, the competition was tight.

This contest uses videos to promote construction as an industry of choice and highlights amazing construction programs across America. Go to **nccer.org/i-built-this** to see this years' winning videos and watch for the 2018 contest with even bigger prizes to come.

Scholarships

Build Your Future works with partnering organizations to award various scholarships for construction students each year. Go to **byf.org/scholarships** to see all of the scholarships available and find out when the next application period opens.

John Havlik, NCCER (bottom left); Carpentry Technical Committee Chair Boyd Worsham, The Haskell Company (top left) and Tim Mosley, The Haskell Company (bottom right) with the 2017 National SkillsUSA Carpentry Competition Winners.

Al Herndon, Florida Masonry Apprentice & Educational Foundation (bottom left) and Ryan Shaver of Pro Block (bottom right) with the 2017 National SkillsUSA Masonry Competition Winners.

2017 National SkillsUSA Competition Winners

This year, NCCER sponsored the national SkillsUSA carpentry competition for the eighth year in a row and the national masonry competition for the fifth year in a row. NCCER is proud to congratulate the winners from both contests:

In carpentry, high school medalists were Mason Volmer of Parsons, Kansas (gold); Toye Patrick of Greenwood, South Carolina (silver); and Irving Skowfoe of Schoharie, New York (bronze). Postsecondary medalists were Dylan Giager of Parsons, Kansas (gold); Alex Engelmeyer of Freeport, Minnesota (silver); and Matt Spawn of Columbus, Nebraska (bronze).

In masonry, high school medalists were Kelby Thornton of Midland, North Carolina (gold); Elijah Williams of Woodstock, Virginia (silver); and Cole Christadore of Hampton, Connecticut (bronze). Postsecondary medalists were Jake Freeman of Collinsville, Alabama (gold); Ronald Vann of Chester, Pennsylvania (silver); and Ramon Vargas of Phoenix, Arizona (bronze).

CALENDAR

2018 Skills Summit
Feb. 5 – 7 • Washington, D.C.
nationalskillscoalition.org/resources/events/2017-skills-summit

Scramble for Skills
Feb. 11 • Chandler, Arizona
nc.curt.org/event/golf

CURT National Conference
Feb. 12 – 14 • Chandler, Arizona
curt.org/event-listing

99th Annual AGC Conference
Feb. 26 – 28 • New Orleans, Louisiana
convention.agc.org

ABC Workforce Development Conference
Mar. 18 – 22 • Long Beach, California
abcconvention.abc.org

USA Science & Engineering Festival
Apr. 7 – 8 • Washington, D.C.
usasciencefestival.org

* *Dates and locations subject to change. Check www.nccer.org for the most up-to-date schedules and information for our programs and services.*

November Master Trainer Class at NCCER Headquarters

Master Trainer Classes
Upcoming class dates listed on
nccer.org/news-information/events

SPONSOR SPOTLIGHT

BUILDING PROGRAMS THAT WORK: TIERED LEARNING OPPORTUNITIES

In an area expected to see unprecedented growth and an extreme shortage of skilled craft professionals, Western Nevada College (WNC) in Carson City, Nevada, has worked diligently to develop strong partnerships and effective programs to fill the construction workforce pipeline.

According to area economic development reports, Northern Nevada will see a large surge in population growth over the next five years and beyond. Such growth requires an upswing in building activity, but after the hard-hitting economic downturn, trained craft professionals are proving hard to find. Coupled with decades of young generations hearing that four-year degrees are the only road to success, Nevada, like other states, is left without programs to train the next generation of skilled craft professionals.

Fortunately, Western Nevada College in Carson City has been able to fill this void by developing a comprehensive, tiered, NCCER-accredited program to meet the immediate needs of a rapidly growing industry.

Dr. Georgia White, Director of Career and Technical Education for the college, says that with a tiered approach, "WNC's programs provide defined on and off ramps for students at all levels. Individuals may gain skills over a short period of time, go to work, then return to complete education and advance in the fast-growing construction industry."

The school currently provides four levels of instruction. The Construction Gateway Program is a unique nine credit, six-week course which provides a fast-track to attainment of the NCCER Core and Construction Craft Laborer credentials as well as OSHA 10. The Ramsdell Academy provides dual-enrollment for high school students and individuals desiring a cohort model and includes a two semester-based program. Successful participants in the Ramsdell Academy earn 24 college credits and the NCCER Core, Construction Technology I, Basic Crew Leadership and OSHA 30. Credits from these programs carry over to both the Associate of Applied Science and the Bachelor of Applied Science degrees in Construction Management.

"The opportunity to build necessary skills and obtain recognized NCCER credentials, in addition to having the option to work towards an AA or BA degree, sets students up for success in our industry," says Aaron West, CEO of Nevada Builders Alliance, an organization partner of WNC that helped develop the Gateway program. "The students come out of these programs ready to go to work and are often placed in well-paying careers with local employers. It meets the immediate demand while at the same time provides opportunities for individuals to improve their skills and advance in their careers."

An additional component to the success of these programs is the unique partnership between not only WNC and Nevada Builders Alliance, but JOIN, Inc., the preeminent career training organization in Northern Nevada. According to Denise Castle, Executive Director of JOIN, Inc., "Our three-way partnership has allowed us all the opportunity to work together and address our area's workforce development needs in an effective way."

In addition to developing its construction programs, WNC is an NCCER Accredited Training and Educational Facility under the Nevada Department of Education. "This will allow us to offer more NCCER training curriculum and provide a much-needed service to the local construction industry," says Bob Ford, NCCER Master Trainer and instructor at the college. According to Ford, the college's unique, tiered program is also a candidate for the American Council of Construction Education (ACCE) accreditation process that will further establish the program as a reliable, competent and qualified source of instruction.

By working with local industry and service providers, WNC has created a three-tiered approach that will help fill the needs of a growing industry and can serve as a model for other regions not only in Nevada, but throughout the country.

(Continued on page 10)

Photo provided by GetHealthyCarsonCity.org

Photos above provided by Virginia Technical Institute.

VIRGINIA TECHNICAL INSTITUTE

The Virginia Technical Institute (VTI) is creating a class of highly skilled construction employees through their training programs anchored in the NCCER Curriculum, educating over 200 students per semester.

Through night classes, the institute offers training in plumbing, electrical, industrial maintenance, carpentry, welding and HVAC. "We offer classes based on the needs of our various industrial partners," said Leslie "Tyke" Tenney, director of VTI. "We run on a semester schedule and all of our classes are from 5 p.m. to 9 p.m. to accommodate our students who work during the day and our instructors who are all working craft professionals as well."

The institute uses the NCCER Curriculum for three core groups of students: students from Liberty University or Central Virginia Community College that are taking the classes as an elective or part of a technical studies associate degree program; students coming directly from their employer; and students who are local and unemployed, underemployed or newly graduated from high school.

Additionally, VTI is expanding their student population to include another crucial group of workers. "Just this past year, we were granted the ability to accept the G.I. Bill so we are looking to get more veterans in the NCCER programs," Tenney said. He has directed several veterans to the Hard Hat Heroes' credentialing portal at veterans.byf.org and is very excited about what NCCER has done to help veterans enter the industry.

A benefit for veterans, says Tenney, is that NCCER will give them credit for prior work they've done in the military. Skills acquired in the military are easily transferred over to the programs VTI has to offer, meaning that some students can easily complete the journeymen's license in two years.

"Veterans have already received credit towards their NCCER training and because of that, it speeds up their progress on the rest of the levels," Tenney said. "A veteran's skills based on what they've done in the military means they have to do less in terms of training."

In addition to meeting the needs of individuals, VTI is helping high schools and businesses build a pipeline of local talent. "We sponsor 11 Accredited Training and Education Facilities and two training units," Tenney said. "So we are sponsoring the craft training programs for most of the county high schools in the area."

VTI also provides custom classes to meet the needs of businesses by using NCCER Curriculum as the groundwork and then adding in additional training that is specific to the company.

"NCCER is always a great framework to start with, and we found that everyone was very happy with what they saw and appreciated that we had standardized curriculum that met their needs in that craft area," Tenney said. "If companies just want the NCCER Curriculum and credentials without customization, they can send their students to our night program where we teach the NCCER Curriculum. It gives students a standardized platform to start with and is a good foundation for our custom classes."

LANE CONSTRUCTION

Education and career advancement go hand-in-hand at Lane Construction. By working with Valencia College, Lane Construction is able to hire people directly from the college's training program. Valencia College, which serves Orange and Osceola counties in Florida, trains through their campuses for a variety of industries, ensuring that their students can become some of the best-trained employees in whatever industry they go into.

The college and Lane Construction rely on the NCCER Curriculum for construction craft training. Mike Steigerwald, senior training specialist at Lane Construction, said that they use NCCER because they recognize the need for the type of standardized education NCCER offers. Industry standardization makes it easy for the college to uniformly train workers so that companies, like Lane Construction, have a pool of industry-ready workers to hire from. "That's the beauty of NCCER being so popular," Steigerwald said. "It lends itself well to employers like Lane."

Javier Rojas, program manager at Valencia College, said that the college aims to offer students programs with industry-recognized credentials that provide knowledge, hands-on experience and soft skills training. Students are expected to treat their training like a job with the schedule following that of a typical work day and expectations of being on time, well-prepared and ready to work.

As a result of their partnership with Valencia College, Lane Construction is able to maintain top-notch employees regardless of their background. "I've seen a lot of success with NCCER over the years. Everybody seems eager to take even more classes after completing Core Curriculum," Steigerwald said.

Steigerwald helped the college explore the many paths NCCER has to offer and assisted in the development of a mutually

(Continued on page 12)

Photo below provided by Lane Construction.

Photos above provided by MMR Group.

beneficial training program and course map. Now, they run a five-week program that utilizes Core Curriculum and trains on equipment used on job sites across the nation.

As Lane Construction continues to grow, so do the NCCER programs available through the partnership. "They have expanded NCCER into more areas," Steigerwald said. "Graduates are close to an 80 percent hire rate. The reality is this partnership has been absolutely fabulous. We have worked together to continually improve the program."

Lane Construction continues to expand its training and education efforts by partnering with Northern Virginia Community College. "We want to partner with universities that are interested in continuing education and helping promote the certificates that are available to get folks back to employment," Steigerwald said. "We have people who started in the field and are now foremen or project managers. That's what we are trying to do—provide a pathway for a successful, sustainable career and NCCER is helping facilitate that."

MMR GROUP

At the MMR Group, top-notch training is at the crux of what they do. As an industrial contractor, they have been an industry leader in instrumentation, electrical construction, and maintenance and technical services for over 50 years. With NCCER training programs, the company is able to continually train top professionals in the industry.

"We build refineries, car plants, chemical plants—we don't do commercial work like apartment buildings or Wal-Marts," said Richard Sanders, the training craft coordinator and master instructor. "We do the heavy stuff."

Because of the nature of their industry, highly trained and specialized employees are a requirement to maintain an exceptional level of service to their diverse list of clients. The MMR Group places an emphasis on combining industry knowledge with hands-on training. The company utilizes NCCER to set a baseline when evaluating the skill level of current and incoming employees.

"It's kind of the national trend to use NCCER as an evaluation of our craft," said Grady Saucier, the vice president of marketing. "It's an industry standard."

The MMR Group has over 20 branches in the U.S., Canada, Colombia, Trinidad, Venezuela, Panama and Ecuador. Their training has to be both vast and comprehensive to perform work in multiple countries and various sectors, including offshore, energy, chemical, petrochemical, industrial and manufacturing.

"We use NCCER assessments and the hands-on portions of the modules," Sanders said. "We go to jobsites and train in specialized areas using NCCER's modules," he added. "As employees are coming into the work week, they go through the course, do the hands-on training and are then evaluated."

By using NCCER as part of their comprehensive training, the MMR Group says they reduce turnover. Research shows that employees tend to stay with companies that invest in their development and that's exactly what they have done. "When they pass our NCCER-based training program, they get more money per hour on any MMR job they go to," Sanders said. "It's a good basis for the program. There are not a lot of training and assessment programs out there for industrial contractors. We would not have developed our program without the NCCER base."

SOUTHLAND SAFETY

For Southland Safety, emphasizing the importance of proper training and industry certification is the first step toward engaging local high school students and other young people in construction and pipeline careers. By training thousands of students, Southland Safety provides fundamental industry knowledge, preparing students to become the industry's pool of future craft professionals.

"When we have an incoming class, we give them information on local companies that may be able to talk with them about employment opportunities," said Cameron Strother of Southland Safety. "The hardest thing for young people is getting their foot in the door. If we can give them some basic knowledge, it gives them a step ahead when they walk in. Most of the kids entering the pipeline industry are young men and women coming out of high school looking for their first job. We want to give them the knowledge to make them aware of the hazards related to the industry."

NCCER Curriculum allows Southland Safety to give young adults a broad overview regarding the different crafts in construction. "We want to give them a foundation," Strother said. "They work under a seasoned person in the industry and really learn what it takes. Companies would rather they build awareness now, so that when they enter the industry they can get additional upgrade training to advance on to different levels."

Companies would rather they build awareness now, so that when they enter the industry they can get additional upgrade training to advance on to different levels.

The company's mission is to deliver customized safety solutions and empower employees to be leaders in safety and health, and that starts in the classroom.

With the NCCER Curriculum, Southland Safety finds that instructor materials, such as PowerPoint presentations, are more effective in reaching young adults. "Most kids nowadays are auditory and visual learners. It's good to have materials like that to show them examples of how things get done," Strother said.

As a safety consultant company, Southland Safety supports all of their clients in a variety of services. One of the key ways they continue to do this is through the training they provide to youth. In addition to pipeline, Southland Safety offers training in crane, rigging and safety. "We have been in business for about 20 years now and we have done a lot with NCCER," Strother said. The company is looking forward to a future of training the next generation of construction workers. ■

Dr. Kimberly-Joy Harris

Enbridge Pipelines Inc.

Supervisor Corrosion Control

Dr. Kimberly-Joy Harris grew up on the south side of Chicago, Illinois, and has spent over 26 years working in the oil/gas industry. For the past 18 plus years, Harris has worked for Enbridge Pipelines and is currently the Supervisor of Corrosion Control overseeing their U.S./Canada Liquids Assets. She supports Enbridge in the areas of training, OQ evaluations, regulatory audits, cathodic protection, internal corrosion mitigation and protective coatings selection/testing for pipelines and above-grade storage tanks (on-shore and off-shore assets). She's a 23-year NACE member and actively assists with the training program. She also sits on several technical and professional committees in the areas of Internal Corrosion/External Corrosion Control and Protective Coatings for both on-shore and off-shore systems.

HOW DID YOU CHOOSE A CAREER IN THE INSULATING OR CORROSION CONTROL INDUSTRY?

I had the opportunity to attend a career day event in college and a major pipeline operator was looking to recruit an electronic engineer. The rest was history.

WHO INSPIRED YOU TO ENTER THE INDUSTRY?

I really can't say that an individual inspired me to join this industry. However, I have met a lot of great people who inspire me to continue on my path including technicians, engineers, contractors, vendors, professors, etc.

WHAT TYPES OF TRAINING HAVE YOU BEEN THROUGH?

I have had an extensive amount of formal and informal corrosion control training, various NACE International courses and from NCCER. It varies from chemical engineering, internal corrosion mitigation, external corrosion control, applications of protective coating materials, inspection and earning a doctorate in physics.

HOW IMPORTANT ARE NCCER CREDENTIALS TO YOUR CAREER?

NCCER credentials are very important to my career, because they are recognized around the country and I am proud to be a certified evaluator. I would like to see the NCCER program implemented in Canada so that we could benefit from the program cross-border.

HOW HAS CONSTRUCTION CRAFT TRAINING YOUR LIFE?

Construction craft training has impacted my life in a number of positive ways. It has broadened my education in countless areas of the industry, allowed me to work around the world and demonstrate and share my experiences with others. It has also allowed me to be an educator and mentor in the oil/gas industry.

TELL US ABOUT YOUR PRESENT JOB.

My present job consists of supervising the liquids corrosion control program, developing and maintaining operating procedures, participating in regulatory audits, researching new technologies and assisting with the development of others both internal and external to the company.

What I enjoy most about my job is being a part of the overall corrosion control mitigation process and assisting with the development of others.

WHAT FACTORS HAVE CONTRIBUTED MOST TO YOUR SUCCESS?

I feel that my willingness to continue my education, to be a part of the continuous development of corrosion control programs and working with committees and societies, as well as my willingness to take-on jobs and/or projects abroad to enhance my overall oil/gas pipeline experience has been some of the most contributing factors to my success.

WOULD YOU SUGGEST CONSTRUCTION AS A CAREER TO OTHERS? WHY?

I would definitely recommend construction as a career to others. There are unlimited opportunities, and every one I have encountered has always been willing to help mentor others along.

WHAT ADVICE WOULD YOU GIVE TO THOSE NEW TO THE CONSTRUCTION FIELD?

My simple advice to individuals that are new to the construction field is to always remain professional, respect others and never stop furthering your education.

HOW DO YOU DEFINE CRAFTSMANSHIP?

I would define craftsmanship as a highly skilled individual who takes pride in the quality of his/her particular craft and continues to enhance their skills and professionalism. ■

NCCER's testing has gone DIGITAL

Want to save countless hours administering, scoring and submitting module completions?

NCCER's new testing system electronically creates, launches, scores, stores and submits module tests. Say goodbye to all those Form 200s!

Previous processes required craft instructors to generate, administer and score NCCER module tests and then submit for credentials. The new system allows for all of this to be done electronically while also eliminating the need for paper-based tests and record storage. Completed Performance Profiles can be entered directly into the system.

See the new system in action by watching a training webinar at nccer.org/testing

Testing system includes:

- Platform managed in-house by NCCER
- Single Sign-On with registry system (only one login/password for both)
- Proctor Station for ease in test administration
- Automatic submission to NCCER's Registry System
- Web-based platform does not require any special software or hardware
- Operates and conforms to all major browsers
- Automatically conforms to multiple devices – (i.e. laptops, tablets, Google Chromebooks, Macbooks)

COMMUNITY BUILDERS

YOUTHBUILD NEWARK

By Sam Burroughs

Youthbuild Newark (YBN) takes community building to the next level. The community development agency, dedicated to providing opportunities for disadvantaged and disconnected youth, incorporates hands-on job training with traditional educational opportunities. The program was founded in 2003 by executive director Robert Clark and engages young people ages 12 and up in learning the skills needed for successful career paths in industries from construction to healthcare. To accomplish their goals, YBN uses traditional academic teaching, the state-aligned Common Core Curriculum and hands-on industry training programs, including NCCER.

"We try to bring young people in who are looking to change their lives, and we are also looking to make a big impact on the community," said Terry Lang, senior vocational instructor. "It gives them a sense of pride that they are rebuilding their community and the opportunity to transition from students to entry-level workers."

The program empowers students, provides service learning, teaches leadership skills and offers career counseling. They combine workforce training with community service by having students use the skills learned in the classroom on jobsites for community service hours. Students on YBN's construction track often work on projects for low-income families, help build playgrounds for elementary schools and have even aided in building a nursery.

> *We try to bring young people in who are looking to change their lives, and we are also looking to make a big impact on the community.*

"For construction training, the way our program is designed is our student body is split into two groups. One group is in the academic class for a week while the other group is doing hands-on training," Lang said. "Every week we rotate them out. When they are 90 percent done with NCCER, we send them out to worksites where they are earning community service hours. Most of the projects they work on are for first-time homeowners and low-income families."

For students looking for careers in the construction industry, NCCER training is the place to start. It gives students the foundation of knowledge they need to enter the industry. With this training, students will be presented with opportunities that not only fulfill their career goals, but also their aspirations of making their community better.

"It is easier for the students to learn about OSHA and safety precautions in the classroom," Lang said. "Once they are comfortable with it, they know how to prevent accidents on the jobsite. It gives students an edge so when they go to a jobsite, they know what to look for."

YBN serves its community in more ways than one. What began as a youth-service agency has evolved into a teaching and job-training organization that focuses on the needs of disadvantaged youths and the needs of the communities they come from as a whole. Through offering alternative educational

Photos above provided by Youthbuild Newark.

THEORY OF CHANGE

1 Individualized Learning
meeting the students, identifying their goals and offering them opportunities

2 The Accountability Factor
allowing students to create plans that outline their personal and professional objectives so they have a way to hold themselves accountable

3 Soft Skills
teaching students how to develop healthy relationships with peers, coworkers, staff, families and their community

4 Leadership Training
providing every student the opportunity to become a leader by developing their skills

5 Social-Emotional Support
providing case managers and partnerships with social and health agencies to give students the support they need in all aspects of their lives

6 Work Readiness
preparing students for careers that are in high demand through workshops, guest speakers, conferences, on-site construction training and other skill-development tasks

fields, YBN is able to make sustainable contributions to certain workforce sectors.

"It has allowed current and former students to get internships with large development construction companies," Lang said. "With the knowledge they are gaining, they are able to do the job."

Their model of teaching and training supports what YBN calls their Theory of Change: by providing young people with rigorous training, relevant educational experiences and support services, they can become productive and contributing members of their community. YBN highlights six key points that outline the bigger picture of what they do and how they get it done. ■

APPRENTICESHIP

THE BUZZ WORD THAT MAY VERY WELL HELP THE CONSTRUCTION INDUSTRY

The word apprenticeship is showing up everywhere and everyone seems to be talking about it; but what is it, what does it mean and why is important? To be honest, the problem is that most people don't know the answers to these questions, and to make matters worse, parents and students certainly don't know. The ever-growing skills gap, paired with our inability to attract enough new people into the construction industry, shows it is high time we emphasize the benefits of this work and learn model that our industry has been implementing for decades. In fact, most people don't know that the construction industry is the largest user of the apprenticeship system in the U.S., representing approximately 30 percent of all active registered apprentices. This number rises to over 35 percent when the military apprenticeships are deducted.

THE BASICS

According to Merriam-Webster Dictionary the word apprenticeship means "an arrangement in which someone learns an art, trade or job under another." Sounds pretty simple, right? Well then you probably have not had the opportunity to look into the American apprenticeship system. The complexity of this system has done nothing to encourage young people to enter into these established programs but instead has done everything to discourage people from getting involved.

(Continued on page 20)

The model of apprenticeship is a solid one that has been in existence in America for over 100 years. It offers individuals a way to receive training while working and have that training paid for by their employer. It is essentially the best of both worlds—earn as you learn. The ultimate benefit is that the individuals in these types of programs gain competence and a credential at the end of the training that represents their knowledge and skills.

Typically an apprenticeship lasts for one to four years, although some may last up to six. An apprentice starts out making a percentage of journeyman wage based on a predetermined, agreed upon pay scale that increases as the apprentice progresses through training. Apprenticeships can be time-based measured by the hours spent in the classroom and on the job; competency-based measured by the ability to demonstrate application of relevant knowledge and skills; or a hybrid which is measured on a combination of both time and competency. Some employers partner with associations, career schools, community colleges or other education providers to make this type of program available to employees while others have internal programs. Many times, these types of partnerships lead to the opportunity for the apprentices to receive multiple credentials or college credits simultaneously.

With so many benefits for the employees, it may seem one-sided. However, employers get well-trained employees who have committed to a program that is focused on knowledge and skills in a specific area; a well-developed career path that can be used for recruitment and retention; and a financial return that the American Institute for Innovative Apprenticeship averages to be around $1.40 for every dollar spent.

Along with all of these advantages, many people are not aware of the numerous career fields that offer apprenticeships or the fact it is these same careers that are in most demand globally. The 2016-2017 ManpowerGroup Talent Shortage Survey reports that 40 percent of global employers report talent shortages; this is the highest shortage since 2007. To further emphasize the need for careers that use apprenticeship training, it is the fifth consecutive year that skilled trades' positions are the hardest to fill, and IT jumped seven places to second position globally. Both of these sectors rely on apprenticeship-style programs along with allied health, transportation, communications, energy, banking and finance, advanced manufacturing, sales, management and hospitality.

NOW FOR THE REST OF THE STORY

Here's the downside, at one time apprenticeship was the predominant source of skilled training in the U.S., but the number of registered apprentices has not significantly changed in 30 years due to the increase in cost and start up time, complexity, bureaucracy and burdensome compliance for employers. In addition, the confusing differences in state apprenticeship programs; the disconnect with high school programs; and the lack of general knowledge on how to enter the system have contributed to the stagnation of a model that would otherwise be providing skilled professionals to those industries in most need. Instead, we see an increase in college debt with graduates who do not have the skills needed to find jobs. In fact, according to U.S. student loan debt statistics, Americans owe over $1.45 trillion in student loan debt, and the average 2016 college graduate has $37,172 in student loans, up six percent from the previous year. Couple this with Bloomberg reporting that 44 percent of recent college graduates were employed in jobs not requiring degrees in the final quarter of 2016, and we have a recipe for disaster. To further complicate things, there is no single repository of data for all of the registered apprenticeship programs. The Administration of Registered Apprenticeship system is fragmented—25 states use the Office of Apprenticeship at the U.S. Department of Labor to register and oversee their programs, and the other 25 states and the District of Columbia use State Apprenticeship Agencies. Some use the state agencies and others use the federal agency which makes it nearly impossible to get a true picture of the number of apprentices. What about the programs that are using the apprenticeship model but are not registering their programs at the state or federal level?

To make matters worse, young people are still being pushed to get a four year degree whether there is a need in the workforce or not. In 2016, the Registered Apprenticeship system boasted approximately 505,000 active registered apprentices but almost 100,000 of these were in the United Services Military Apprenticeship Program. When we compare this to the number of students registered in college programs across the U.S., it is not even a drop in the bucket. According to the National Center for Education Statistics, 20.4 million students were expected to attend colleges in the U.S. in the fall of 2017. When you couple this with the debt mentioned previously and the lack of work experience and skill these students leave college with, there is no doubt that apprenticeship-style training is undervalued and misunderstood.

In construction, there are daily untold success stories of individuals who have gone through craft training programs that have led them down a debt-free career path at a very young age. Take Robert for instance, a combination welder at Turner Industries and a structural welding instructor at the Associated Builders and Contractors' (ABC) Bayou Chapter. He began taking welding classes in 11th grade at his local high school and the September after graduating, he was hired by Turner as a helper. At just 19 years old, he was a homeowner and working his way up at Turner. Or, Joey, the young man highlighted at NCCER's 2015 Construction Career Pathways event who was dropped off at the Big Oak Boys Ranch in Gadsden, Alabama, when he was six years old. Despite his childhood adversity, he knew early on that he wanted to learn a craft that would lead to a construction career. He attended Etowah County Career Technical Center, enrolled at BE&K School of Industrial Construction during his junior year of high school and received NCCER training for Welding Levels 1, 2

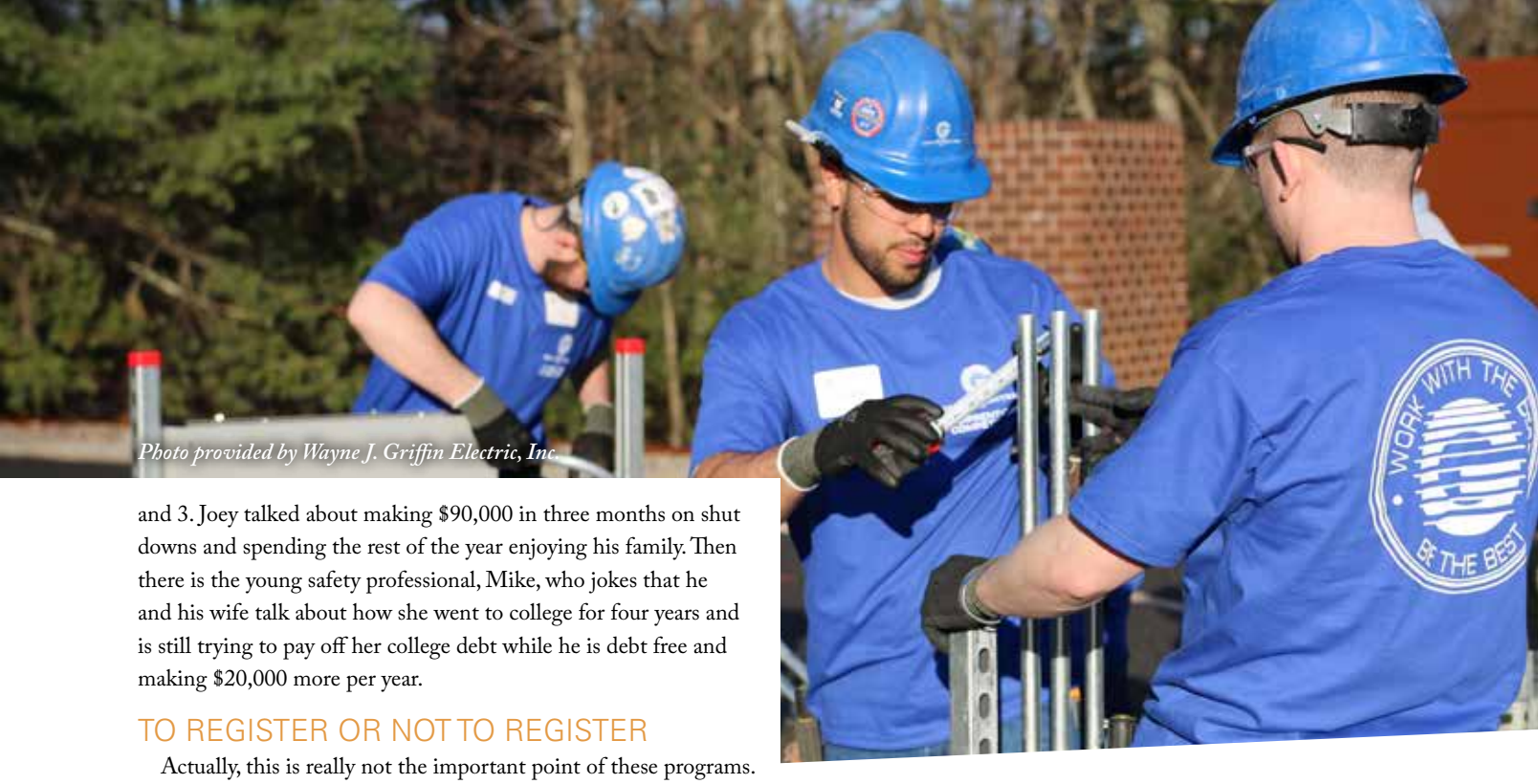

Photo provided by Wayne J. Griffin Electric, Inc.

and 3. Joey talked about making $90,000 in three months on shut downs and spending the rest of the year enjoying his family. Then there is the young safety professional, Mike, who jokes that he and his wife talk about how she went to college for four years and is still trying to pay off her college debt while he is debt free and making $20,000 more per year.

TO REGISTER OR NOT TO REGISTER

Actually, this is really not the important point of these programs. Essentially the only difference between registered programs and most nonregistered programs is the registration process and regulations. All of the trainee/employee benefits of both models are basically the same. Nonregistered programs follow the apprenticeship model by meeting both the classroom hour and competency requirements set by the Department of Labor Office of Apprenticeship. The only real difference is the decision on the part of the employer or organization not to go through the registration process and be included in the data.

Does this mean the apprentice will not get a credential or receive less training? No. Does this mean the apprentice will not be able to earn while he/she learns? No. The question that may come to mind is why wouldn't an employer or organization register their program? The answer may simply be the extra hoops that they would have to go through are not worth it, even though the programs they already have in place are essentially the same. There are 23 specific program requirements in addition to the apprenticeship-specific equal employment opportunity regulations that must be met and maintained to participate as a registered program. For the construction industry, it may also be the prevailing wage requirements that are inflicted on contractors and subcontractors interested in participating in federally funded or assisted contracts for public buildings or works.

WHAT ROLE DOES NCCER PLAY?

Though NCCER's resources are used in numerous registered apprenticeship programs nationwide, many owners, contractors, trade associations, secondary and post-secondary schools, and government entities leverage these same resources under our more popular accredited, non-registered apprenticeship-style model to develop talent.

An NCCER accredited craft training program is an apprenticeship equivalent without the bureaucratic regulatory and administrative burdens, approvals and oversight. Due to regulatory requirements, many organizations operate craft training programs alongside formal apprenticeship training. NCCER accredited craft training programs have identical classroom instruction hours and length requirements to their apprenticeship program counterparts. In fact, the NCCER curricula have been competency-based from the beginning and are developed to meet the Department of Labor Office of Apprenticeship requirements of 144 classroom hours annually. In some states and programs, registered apprentices and craft trainees can be (and sometimes are) in the same classes at the same times, although there are some state laws that prohibit mixing types of students. Many organizations operate craft training programs instead of formal apprenticeship training because they perform little or no public work governed by Davis-Bacon.

Additionally, an NCCER accredited craft training program provides flexibility in instructional approaches and curriculum that helps better meet the needs of the trainee, the contractor and the training organization. Using craft training, a contractor might combine crafts like carpentry and concrete finishing or structural ironwork and rebar to develop a cross-skilled worker who performs work for a longer portion of the project or throughout the life of the project. In fact, it may actually produce a more well-rounded professional. NCCER accredited craft training programs also use online training, simulation and other training methodologies to accelerate or compliment classroom instruction or supplement hands-on experience.

Whether registered or nonregistered, NCCER programs are being utilized by some of America's leading construction industry contractors and trade associations who recognize the critically important need to have a safe, productive and sustainable workforce of craft professionals.

(Continued on page 22)

Cianbro Companies – Cianbro is based in Maine and is a construction and construction services company that manages and self-performs civil, structural, mechanical, electrical, instrumentation, fabrication and coating. Cianbro utilizes NCCER in both its registered and nonregistered training programs and offers one to five year programs depending on the craft. The majority of Cianbros' programs are paid training, in which team members are paid their normal wages and per diems for the time spent in class. Most apprentices will spend three weeks a year attending school. NCCER credit is earned by participants, in addition to receiving apprenticeship completion certificates (for registered programs). Class sessions including classroom and lab work are held in 40 hour blocks.

Cianbro connects with other educational institutions as well by offering tuition reimbursement to team members. Many post-secondary schools in Maine will grant 24-30 credit hours of college credit to Cianbro team members who have completed an apprenticeship program. Cianbro's craft training and apprenticeship programs are supplemented by recruiting career and technical education students out of secondary and post-secondary programs.

Photo below provided by Fluor.

Wayne J. Griffin Electric, Inc. – Griffin Electric's headquarters is located in Holliston, Massachusetts, and features a 17,500-square feet training space. Their Apprenticeship Training Program is a federally recognized and state approved 600-hour related instruction program consisting of four levels of training, encompassing all aspects of electrical theory and applications. This apprenticeship program has been in place in New England for 25 years, is fully accredited by NCCER and is designated as an approved training site by the Department of Veterans Affairs. Griffin Electric annually trains an average of over 300 apprentices within the four levels. The apprenticeship training program is approved and registered in the following regions where they serve: Massachusetts, Maine, Vermont, New Hampshire, Rhode Island, North Carolina, Georgia and Alabama. On the job, each apprentice earns competitive wages and benefits while being paired with an experienced journeyman who is responsible for helping develop the apprentice through practical field experience. The success of their students, evidenced by achieving their state electrical journey-level license (most often on the first attempt), validates the quality and strength of the classroom instruction and on-the-job learning offered.

Fluor – Fluor is a Fortune 500 company based in Texas that delivers engineering, procurement, fabrication, construction (EPFC) and maintenance solutions to the government and private sector. Fluor recently opened its U.S. Gulf Coast Craft Training Center with the key objective to make a long-term investment in the industry by helping to build and strengthen the pipeline of skilled craft professionals in one of the country's most active industrial regions — the U.S. Gulf Coast. Fluor's training center offers tuition-free, pre-employment training in various disciplines with no obligation to work for Fluor upon completion. The 12-week, NCCER Accredited Training program combines classroom education with hands-on training led by experienced craft professionals. With the program committed to providing a comprehensive approach to training and development, graduates are seen as "preferred recruits" by Fluor's craft recruiters, as well as recruiters for other companies. In addition to hands-on, technical training, Fluor also provides more than 40 hours of instructor-led training in employability skills development to help foster healthy attitudes in relation to construction careers.

After completing the required 12 weeks of instruction, including more than 480 hours of instructor-led training and practice and 40 hours of employability skills development, students will have an industry-recognized, portable credential. Most graduates successfully transition to the jobsite, either with Fluor or other major contractors, where they can complete their training to journey-level.

TIC -The Industrial Company – TIC was founded in 1974 in Steamboat Springs, Colorado, and is a direct-hire general industrial construction company. TIC offers all expenses

paid training in three-week blocks to all active employees. Trainees are nominated by their jobsite managers to enter the program as laborers or helpers. After four years, the goal is to attain NCCER Certified Plus status or to earn a state license in their chosen craft. TIC uses a three-week academy model to complete each NCCER Level which contains 150 hours of instructor-led training with about half in the classroom and half in the labs or yard. TIC instructors are all full time and every instructor is NCCER Certified, with at least 10 years of industrial experience in their craft.

The company pays to fly each attendee from their current jobsite to the training center and pays the attendees full wages, subsistence, and all room and board while attending training. They then return to their jobsite to use their newly acquired skills for the rest of the year. Each subsequent year the trainees are flown back to Colorado.

Employees who attend TIC's Craft Training are not obligated to stay with TIC or to repay TIC training costs in any way. TIC has trained thousands of men and women over the years who are making the entire industry safer and more productive.

Turner Industries Group – Turner is located in Louisiana and has four divisions: Construction; Maintenance and Turnarounds; Fabrication; and Equipment and Specialty Services. They build, maintain and service the heavy industrial sector. Turner has developed and defined clear career paths for each of its crafts, which enable its craft professionals to identify career progression opportunities. Turner provides career paths that are broken into four tiers. The first tier consists of new high school graduates, entry-level workers and helpers. First tier employees looking to advance to the second tier must complete NCCER training and receive credentials. After becoming

(Continued on page 24)

Photo above provided by TIC.

NCCER Certified Plus, employees advance to the second tier, which includes journeymen and craft leaders. Successful second tier employees can advance to the third tier, also known as a multi-tier, which includes project managers, supervisors, safety advisers, and quality assurance and quality control employees. Finally, employees can advance into Turner's fourth tier, which consists of executives and upper-level management.

In addition, Turner offers all students at its partner schools fully-funded scholarships to attend evening training classes at ABC Pelican Chapter. Currently, Turner has relationships with over 20 high schools and technical colleges in Louisiana and Texas and continues to expand.

Associated Builders and Contractors (ABC), Inc. – ABC's Pelican Chapter represents the Baton Rouge and Lake Charles areas of Louisiana, which grew from the initial Louisiana ABC chapter headquartered in New Orleans. Accredited as a journey-level NCCER Training Sponsor in 1997, ABC Pelican Chapter is responsible for the training of over 2,000 students per year. Each student who successfully completes the training program receives NCCER industry-recognized credentials. Students have the opportunity to take the NCCER journey-level assessment related to their craft of study at the end of their last semester resulting in a journey-level, knowledge-verified credential. ABC Pelican Chapter offers both apprenticeship-style craft training and registered apprenticeship craft training. In the registered apprenticeship program students are sponsored by contractors to attend training; however, students are not required to be employed in industry during training. To accommodate work schedules, training is traditionally conducted in the evening. The state-registered electrical apprenticeship program is a four year, 8,000 hour program. It uses all four levels of NCCER's Electrical Curriculum, and all training is submitted to NCCER for credit. The other seven programs are offered as nonregistered programs.

WHERE DO WE GO FROM HERE?

While the American apprenticeship system remains complicated, the construction industry has shown the success of both registered and nonregistered apprenticeship programs. Even without the government stamp of approval for a registered program, a work and learn, apprenticeship-style training model is already a large part of the construction industry. Additionally, apprenticeship-style training offers what the 2017 FMI Industry Survey indicates are the most popular strategies for retaining high-potential employees in construction: challenging job assignments, competitive salaries, training opportunities and ongoing performance feedback.

With the word apprenticeship garnering national attention by politicians and spokespeople across the nation, the construction industry needs to seize the day and promote the type of training we have been doing all along. We have been so busy trying to figure out what the younger generation is looking for or what the secret sauce is for recruitment, that we may have overlooked the easiest and most efficient way of all—just promote the way we train. Whether it is registered or nonregistered programs, the structure is the same. We are the earn as you learn industry—Carpe Diem. ■

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BROADENING OUR HORIZONS: THE SEARCH FOR NEW TALENT

Professionals within the construction industry already know about the great opportunities it offers and the numerous benefits for individuals from all socioeconomic backgrounds. Even better, they understand that acquiring an education in our industry doesn't have to begin in college. There's no need to spend years and thousands of dollars on multiple degrees to get started on a successful career path. In construction, building a career-ready skill set starts on day one, and it is this aspect that is helping to revive career and technical education (CTE) in schools across the nation. While it is becoming the solution for many school districts' career-ready requirements, it can also be used as a recruitment tool into these programs for students who want to connect what they are learning with what they will be doing in their careers. To put it simply, hands-on training is more appealing than writing essays or remembering how many syllables are on each line of a haiku. From this perspective, construction should be an easy sell, but first we need find the right target markets to send the message to.

Whether you're young (or young at heart), male or female, from the right or the left side of the tracks—if you work hard and are committed to a job well-done, there is a place for you in the industry. It isn't a lack of hard workers in America that have caused the huge shortage of craft professionals—it's getting people to choose construction in the first place. Large numbers of workers have left the industry and construction is steadily losing more as baby boomers, the largest group within the workforce, approach retirement. Forbes' article, "How Construction Firms Plan To Build The Labor Pool, Improve Productivity," summed it up by stating, "The U.S. lost more than 2 million construction jobs after the Great Recession, and while more than 1 million of these jobs have returned, the industry is still falling short of high-quality labor." Bottom line—with the economy recovering and construction booming, we need to find replacements for those skilled professionals—and we need to start now.

VETERANS – THE PERFECT FIT

More than 200,000 highly trained service members transition out of the military each year. Interestingly enough, many of these men and women will leave with skills directly related to the construction industry. With the impending labor shortages and widening skills gap, veterans are a perfect fit for the industry's workforce needs.

According to Prudential's research report, "Veterans' Employment Challenges," three in five veterans worry about how to translate their military skills to a business environment and two-thirds experience a difficult transition from military to civilian life. Fortunately, the construction industry provides craft-specific training that leads to a career-ready skill set and a variety of lucrative career paths. When this quality training is combined with the leadership skills already ingrained in a veteran's work ethic, the industry can quickly begin rebuilding its talent pipeline.

Think about the valuable soft and hard skills needed in the military: dependability, problem solving, leadership traits and even craft-specific training. As said in "The Benefits to Hiring Veterans" article in U.S. Veterans magazine, "Strong work ethic and dedication are just a few of the characteristics that veterans bring back to the civilian lifestyle. They are disciplined team players, organized and dependable, which are all talents that make it advantageous for construction companies to hire them." Service members already have the mindset to focus on safety, the job at hand and accomplish tasks in a timely fashion. In addition, they are accustomed to working as a team. Industry professionals are beginning to notice this undeniable connection. The overlap in abilities is significant and makes transitioning military an easily attainable and sustainable pool of potential talent to begin rebuilding the construction workforce.

A VETERAN'S SUCCESS STORY

Galen Collins was 19 when he joined the Navy; for the next 3 years, he traveled around the world as a Boatswain's mate in construction. When his tour of duty ended, he decided to return to his hometown in Houston and spent the next few years in and out of various jobs while supporting his four children as a single father.

In Collins' own words, "There were not a lot of jobs out here because of the recession but I had to work. Those jobs were just unstable and were not ones I felt passionate about."

After a period of financial strain and having to leave yet another job that lacked opportunity for advancement, Collins was forced to once again enter the job market. However, this time he took a different approach. Instead of looking for just a job, he focused on finding a career by learning a craft that would support his family long-term.

With guidance from the Texas Veterans Commission and Texas Work Source, Collins reached out to Rommell Williams, program manager at Houston Area Urban League. Having previously earned his OSHA 10 and a few other certifications, Collins thought the NCCER program offered by the organization would complement his existing skill set. "The experience turned out to be overwhelmingly exciting. In addition to what I thought I knew, I learned more in-depth about safety concepts and career pathways," Collins said.

During one of Houston Area Urban League's NCCER recruiting events, an attending organization offered him a job for $13 per hour. Three weeks after that, Collins was offered another job by Schlumberger making a $19.50 per hour with benefits. As of today, he is still with the oil-field services company working as a maintenance technician in-training and earning $22 per hour. The training he received paid off and after years of


Galen Collins

struggle, Collins was in a place where opportunity abounded. He stated, "With NCCER Credentials, your options are endless. You may come into the situation expecting one thing, but leave out of the training with an unexpected opportunity. I was expecting $10-11 dollars [an hour] or a temp-to-hire position, but did not expect this in my wildest dreams. Often times, I have had to start at the bottom, but I am good where I am now."

EVERYONE BENEFITS

What is interesting about Collin's story is seeing that the benefits are two-fold—by hiring veterans, not only is our industry gaining from their existing skills, we are also helping veterans get back on their feet after service. They selflessly put their lives on hold to protect our country; now we can give them the tools to build it.

Historically, the issue has been translating the skills service members obtained while in the service to the skills needed on project sites. NCCER worked diligently to develop a resource to help the construction industry do this more efficiently while also assisting our veterans in finding how they can fit into rewarding career pathways. On Veterans Day 2016, NCCER released the first of its kind military credentialing portal as part of the Hard Hat Heroes initiative. The portal allows veterans to receive credit towards NCCER credentials for the skills and training they already received while in the service without having to take a test or spend a dime. Alignments were developed with both military trainers and industry experts and are available for 19 Army military occupational specialty (MOS) codes, 36 Navy Seabee rates and 12 Air Force specialty codes. A workshop to add more Army and Air Force codes recently took place with the Marine Corps also coming on board with three MOS codes to start.

MILLENNIALS – THE LATEST CONTENDERS

According to Pew Research, millennial workers, born between 1982 and 2004, make up the largest generation in the workforce and by 2025 are expected to constitute 75 percent of it. It makes sense that managers and consulting firms are obsessed with learning what makes them leave and what makes them stay; however, it's not as difficult as it seems.

In a Harvard Business Review article titled "What Do Millennials Really Want at Work? The Same Things the Rest of Us Do," Bruce Pfau writes, "Millennials largely want the same things from their employers as most generations. They look for growth opportunities, great managers and jobs that are well-suited to their talents and interests."

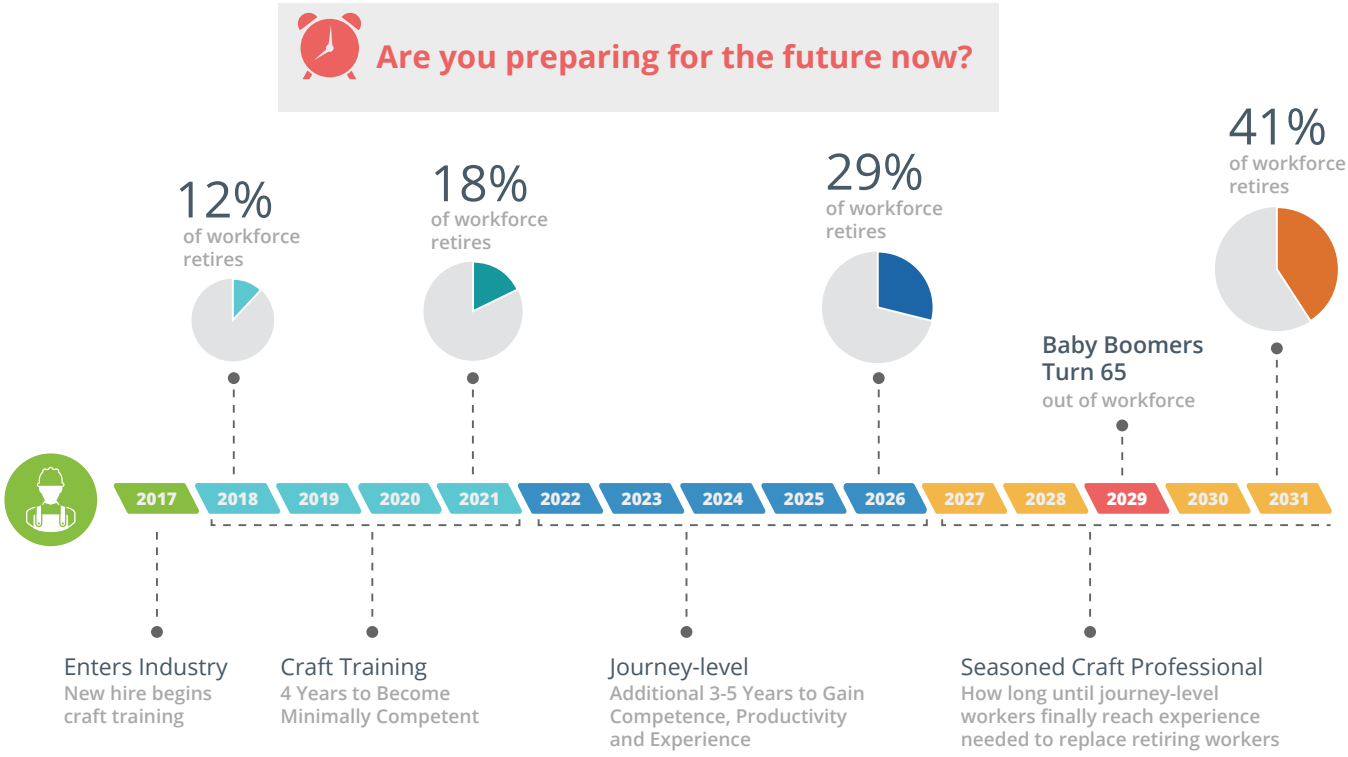
The truth is that every individual, regardless of his or her generation, envisions a dream job and ideal corporate culture. More often than not, these jobs align individual passions with large-scale purpose, motivating individuals to come to work each day and do their best. Interestingly enough, a multigenerational study conducted by IBM reported that 25 percent of millennial workers strive to make a positive impact on their organization compared with Gen X (21 percent) and baby boomers (23 percent).

When you look at what the typical millennial seeks in a career, the construction industry is a great fit. There are endless opportunities for advancement, thorough training designed to build a refined skill set and numerous career pathways suited to each individual's lifestyle, learning style and interests. In fact, FMI's "5 Reasons Why Millennials are Great for the Construction Industry" blog states, "Millennials are indeed very dedicated and loyal to their companies and want to do more than just punch a clock and take home a paycheck. They are looking to add value, make an impact and find meaning in what they're doing." With this in mind, it would make sense for the construction industry to reach out to this group and show them how construction makes a difference in people's lives and that craft professionals experience pride and satisfaction in what they do.

Unfortunately, the fish in this pool aren't biting quite yet. A study by the National Association of Home Builders (NAHB) found that millennials are hesitant to work high-paying construction jobs. According to the study, "A poll shows that young Americans, ages 18-25, shows that almost no millennials want a career in construction—a high-paying industry."

(Continued on page 30)

ANY CRAFT



A MILLENNIAL'S SUCCESS STORY

Garrett Thompson was homeschooled and his father was his high school carpentry instructor. Although uncommon, this situation regularly challenged both his education and hands-on technical skills through the application of lessons that complemented each other. From a young age, Thompson was taught important soft skills: respecting others, being mindful, communicating, having discipline and a good work ethic, amongst other things.

When reflecting on his self-growth, Thompson says that soft skills were instrumental to his success. In 2013, he won the gold medal at the National SkillsUSA Carpentry Competition. He attributes his win to his persistence, self-discipline and good daily habits. "Winning a national gold medal was an honor," said Thompson, "but networking with the industry experts on site was even more valuable and that experience eventually led to an internship and then a full-time job offer." Years of self-motivation, critical thinking and resourcefulness allowed him to build a strong foundation of personal skills and assisted in building his career.

Garrett Thompson

In regard to working alongside seasoned craft professionals, Thompson said, "With me being a student and a college intern, sometimes my elders on job sites might have assumed the worst. But as we worked together, they saw that I could communicate, I knew what needed to be done, I could take direction and I worked hard. We quickly gained mutual respect."

Thompson thinks the key to success with millennials is finding those with a solid set of soft skills. "Simple things have set me apart, such as looking other people in the eye, extending a firm handshake and being confident in what I do know without being arrogant," said Thompson. "I feel these basic skills can really change another person's perspective on the next generation. Once my supervisors find out how much I respect them, they reciprocate without hesitation. They even have my back. Sometimes it feels

like I have a bunch of dads in the field and I really like that and appreciate it."

These traits aren't exclusive to Thompson. According to the FMI blog mentioned earlier, the five reasons that millennials can help revitalize construction are many of the soft skills Thompsom mentions and exhibits:

1. **Loyalty and dedication:** majority want to stay with a company more than five years
2. **Innovative thinking:** both in emerging technologies and in wanting to provide input
3. **Tech-savviness combined with a personal touch:** quick to learn new skills, but 86 percent of millennials favor face-to-face feedback
4. **Balance:** looking for a healthy blend between their work and personal life
5. **Collaboration and communication:** great team players

As for Thompson, he wants to continue to learn and even help grow the next generation of leaders in the construction industry. "I am grateful for people like Boyd Worsham of The Haskell Company who saw potential in me and who have taken the time to help me shape a great start to my career," he said. "I'd love to follow in their footsteps and pay it forward one day."

BRINGING IT HOME

We know the benefits of our industry and how many are making strides forward and knocking down barriers every day. However, in order to truly form a strong talent pipeline, we need to diversify the talent that builds it. We have highlighted only two groups on a broad spectrum of individuals who are going to be crucial to the success of rebuilding a sustainable workforce. Both of these groups bring a unique makeup of skills that makes them valuable additions to the industry—veterans who have an obvious correlation to construction and millennials who show promise but are often overlooked due to stereotypes.

Each day that we postpone recruiting fresh talent is one more day that eventually will have to be accounted for in training. The last of the baby boomers turn 65 in 2029—that's only 12 years from now. As shown by the chart on the left, if you hired someone new to the industry today, it would take until at least 2027 to bring them up to speed with your seasoned craft professionals. Don't fall into the trap of procrastination; there are plenty of places to start recruiting. Start preparing for tomorrow, today.

13 PROVEN STEPS TO IMPROVE CONSTRUCTION WORKER SAFETY

By Kevin Cannon

NEW EMPLOYEES

1. Establish a buddy system for all new hires

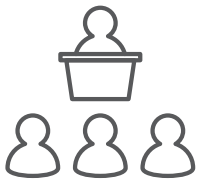
- During orientation assign experienced workers to serve as a new hire's safety sponsor.
- After 30 days, the sponsor and supervisor should evaluate new employee's application of training and understanding of how to perform assigned tasks safely.
- Both must sign off that the worker is ready to work safely without a buddy or the buddy process continues until the new worker has proven they can work safely.

2. Hold safety orientation sessions for all new hires, including temporary workers

- Require every new hire—whether full time, permanent, part time, temporary, and/or labor-firm staff, to complete a safety orientation system before being allowed to work on a project. This orientation should be separate and independent from the general administrative orientation.
- Include photos depicting common and not-so-common (lightning, weather) hazards on projects that trainees are quizzed to recognize.
- Include interactive hazard recognition and group discussion on controls.
- Cover company policies, procedures, and principles covering work rules and conduct.
- Include a verification of competency in the skill or craft the employee was hired to perform.

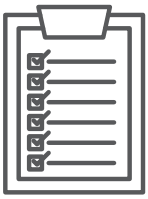
ONGOING TRAINING

3. Ensure managers and supervisors have the appropriate leadership and effective communication skills critical to instill safety culture and concepts into the workforce



- All personnel in supervisory or managerial positions will complete initial management training so they can learn effective leadership and communication skills. This training and continuing leadership education should be an essential element of individual development plans for those in leadership positions.
- These skills are essential to getting workers to embrace an effective safety culture, including grasping and implementing appropriate safety concepts and procedures.

4. Institute two separate pre-task hazard analysis training programs

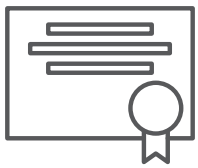


- Create distinct pre-task hazard analysis training programs; one for the crew and one specifically designed for front line supervision.
- These programs help workers operate safely and train supervisors to effectively fulfill their obligation to ensure workers are operating safely at all times.

5. Hold monthly lunch and learn safety training programs

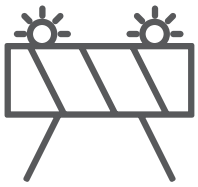
- Organize and host monthly safety lunch and learns.
- Include 30-minute presentations from craft workers on pre-determined safety topics.
- Workers typically learn from their peers more easily than from supervisors. This can be an effective means to acquire skills.

6. Require all foremen and/or superintendents to attend leadership in safety excellence certification courses



- Project leaders such as foremen and superintendents are critical to the success of the day-to-day performance and implementation of a company's safety program.
- Providing them with the necessary skills to effectively communicate the mission is key to this success.

7. Hold targeted safety training to address all safety incidents



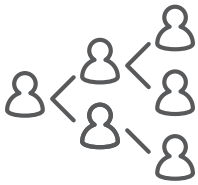
- Identify safety incidents and details.
- Quickly follow up by communicating targeted messages designed to address specific safety hazards to avoid similar future incidents. The message can be communicated in bulletins, e-mails, team meetings, formal training or other appropriate forums.

8. Make sure all training and materials are in the language of the entire workforce

- Workforces may include workers with limited English skills.
- Offer safety training in English and other languages as the need arises, to ensure understanding by all workers.

9. Train your trainers

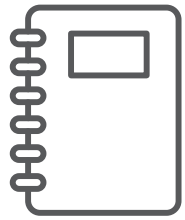
- Training others requires effective communication and training skills.
- Provide "Train the Trainer" instruction to all personnel responsible for training others.



- Training the trainer will help improve the effectiveness of the safety training provided.
- Retaining "science of teaching" consultants to train the trainers on basic instructional skills and/or retained to develop a program implemented in-house can greatly improve the train the trainer programs.
- Professional trainer certification and credentialing through OSHA and BCSP ensures adequate rigor in trainer education.

OPERATING PROCEDURES

10. Create worker task-specific "pocket safety guides" for every task they are assigned



- Laborers may get just one guide for the scope of their task; others, such as equipment operators, may get several pocket guides.
- Guides must be kept on their person and produced upon request by supervisor.
- Workers are required to verbally explain the safe way to do their key assigned tasks.
- During morning meetings workers are called upon to lead the meeting using their pocket guide.

11. Establish craft-specific safety mentoring programs

- Schedule monthly mentorship meetings where employees of varying tenure meet to help each other understand and discuss safety-related procedures, processes and lessons learned.

- At the end of these meetings, the craft workers will summarize the results and share them with senior management to identify areas that may require additional focus.

12. Issue easy-to-read badges to all workers to indicate their level of training

- Issue easy-to-read badges (for example, badges that use QR codes or color coding) that identify each worker's level of training and certification for operating equipment.
- Badges are issued to every worker on a project, regardless of whether they work for a GC or a subcontractor.
- Badges allow everyone on a project to be aware of every worker's training and certification level so they can be assigned appropriate tasks.

(Continued on page 34)

13. Authorize all workers to issue Stop Work Cards to address safety risks

- Issue every worker a "Stop Work Card."
- Instruct every worker that they can use their "Stop Work Cards" to temporarily halt construction activity on a project if they identify a legitimate safety hazard.
- Make it clear to all workers there are no repercussions for using the "Stop Work Cards."

For more information, please contact Kevin Cannon, Senior Director, AGC Safety and Health Services, at (703)837-5410 or cannonk@agc.org.

Kevin Cannon is the Senior Director of Safety and Health at the Associated General Contractors of America. He serves as the primary liaison for federal safety regulations. He is responsible for monitoring regulatory activity relating to safety and health, and communicating with members and chapter staff. He is also responsible for providing technical and other support for those directly involved in congressional relations, analyzing and otherwise assisting with any proposals for new or revised legislation that could have a significant impact on safety or health practices in the construction industry. Kevin is currently serving on the Federal Advisory Committee on Construction Safety and Health (ACCSH) which advises the Assistant Secretary of Labor for OSHA on regulations, standards and policies that impact the construction industry.

Kevin received his B.S. in Occupational Safety and Health from Millersville University and holds the Certified Safety Professional (CSP) designation through the Board of Certified Safety Professionals (BCSP).

Special thank you to The Associated General Contractors of America for allowing the reprint of this article.

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WELCOME TO YOUR FUTURE

By Art Grant

As a 55-year-old master air conditioning technician, it occurred to me that those attics and crawl spaces might get to be too much for me over the next 10 years. So what options did I have? I could be a parts-house worker, get a helper to ride with me, become a manager or pursue another, easier career. Then a friend wanted to take a break from teaching HVAC in the apprenticeship program at our local college and asked if I could teach night classess for a semester. While I knew I could, I quickly learned that having knowledge was much different than sharing it. I prepared two hours for every hour of class time, yet I still had trouble relating. My fire for technical teaching grew and over the next five years, I took teaching courses everywhere I could find a course.

Today, after teaching for almost 10 years, I still attend classes to keep my edge both in knowledge (industry type) and sharing knowledge (teacher type). I learned to seek out other professionals from both areas to overcome challenges in the classroom. With our industries moving at lightning speed and developing new materials, skills and of course, those darned computers, we have to be just as aggressive to keep our future technicians ready to meet the needs of each industry.

With our industries moving at lightning speed ... we have to be just as aggressive to keep our future technicians ready to meet the needs of each industry.

My courses led me to start thinking about language. How many different languages do your students speak? How do they hear your words and how does their culture affect their understanding? Do we really understand them and their needs? Do millennials not want to learn, or is it that we are not evolving to keep up with their style of learning? Do our books, written in English or Spanish, communicate to them the skills they will need to be successful? Do we need audio delivery along with the written books for the classroom so they can learn to read in the language they speak daily? I have a sign on my lab doors that reads, "Safety glasses required beyond the yellow line." One day a student added the same message in Spanish just below mine.

Are our tests written in their language or in their way of understanding? Once I was teaching a city housing authority group and during the class I would orally quiz the students. One student really stood out: 30 years of experience, well-spoken and always willing to help others understand the work. The final test came up, and as I corrected the written tests at home, I could not read his answers. I turned to my wife and read what he wrote. I suddenly realized that he spelled all of his answers phonetically, but not in proper English. I had missed his lack of reading skills. For 30 years, he repaired everything from air conditioning units to stoves to windows and was just about to retire. Did I really know my students?

Many times, our students are "hands-on" learners and not academic ones. They watch and learn, which produces both good and bad habits. However, academic-style teaching can ensure that quality craftsmanship stays on track and translates to hands-on training in the lab. We must combine the hands-on with the academic in order to improve our industries. To advance in any craft, a skilled craftsman has to be able first to observe and follow directions, and second has to understand the written language on contracts, cut sheets, administration papers and the many specification books we use in the craft.

Computers in the classroom are a tool to help students learn in their own language or culture. We can better understand our students and craftsmen if we are open to progressive developments that academic education encourages. We have to be able to search out new ways to train our craftsmen. They come from all walks of life and locations, and our job is to give them the required training, in ways they understand, so they can improve their lives and their crafts for the future. It's our job to prepare them and say, "welcome to your future!" ■

Art Grant has over 30 years of work experience in the Air Conditioning and Heating field, including positions as Helper, Master HVAC Technician, Service Manager, Solar and Heat Pipe Development, Florida State Certified Class A Contractor (Expired). He received an Associates Degree in HVAC from Santa Fe College and a Bachelors Degree in Business Management from University of Phoenix Online.

Grant has been an HVAC Instructor for Technical Training at Santa Fe College for 10 years (2007-2017). In 2014, he received the Provost Award as an Outstanding Instructor for Santa Fe College and also served as the Presiding Officer for Faculty Senate for Santa Fe College from 2015 to 2017.

Serving as a Subject Matter Expert for NCCER, Grant helped develop the NCCER HVAC curriculum. He is also an NCCER Master Trainer, Certified Craft Instructor and serves as an NCCER HVAC Evaluation Coordinator for University of Florida HVAC.

Among his other accomplishments, Grant is an Daikin Air Conditioning Factory Approved RLC and VRV Instructor, an OSHA 10 and 30 hour Construction Trainer, an Extra Class Ham Radio License holder (KM4YGH), 30-year fresh water bass fishing veteran and just a good guy.

REDUCING THE LEARNING CURVE IN TODAY'S LATEST TECHNOLOGIES

By Darin Marsden

Faith Technologies' Learning & Development (L&D) Program provides employees with the top training, tools and career development courses to help them succeed in their current positions and future career goals. One prime example of this is our industry leading Apprenticeship Institute. It's uniquely designed for entry-level field employees with the goal of developing skilled crafts-people with both a broad-based skill set as well as specialty training. While this covers the majority of our workforce—our field staff—we have recently added curriculum to our L&D Program to further engage and train our preconstruction, manufacturing facilities [Excellerate] and field leadership teams in the technology implemented by our Virtual Design and Construction teams. This knowledge will be the catalyst that most efficiently translates cross-departmental collaboration through Building Information Modeling (BIM) and Computer Aided Design (CAD) to our Design and Engineering services for a faster, more efficient information transfer to our workforce at Excellerate and in field.

TRAINING

There are a myriad of services that teach CAD, Revit and Bluebeam to the masses. While adequate, they simply cannot delve into how a company specifically utilizes the tool for data unification. At Faith Technologies, Revit is our main BIM and engineering software for creating documentation for projects. With this tool, we've tasked our team to not only learn what the software can do and how to do it, but also asked them to do it in a very specific manner to facilitate the move from the computer screen to physical objects installed for a project.

While teams may utilize dozens of different softwares to design, engineer and model—each with a specific task in mind—the following is focused on how Faith Technologies cut down standard training time, implemented processes and procedures within the training, as well as automated some of our daily tasks.

RECORDED CONTENT

Everyone in the construction field comes to the table with a different set of knowledge. Understanding that Revit knowledge varies from "no knowledge" to "expert," we've created training content with our own specific processes built in. These short videos cover specific tasks and end with a small quiz on the content covered. Based on the results, the employee moves to the next lesson, or the technical team and the employee's supervisor are notified to identify further training opportunities and areas of improvement.

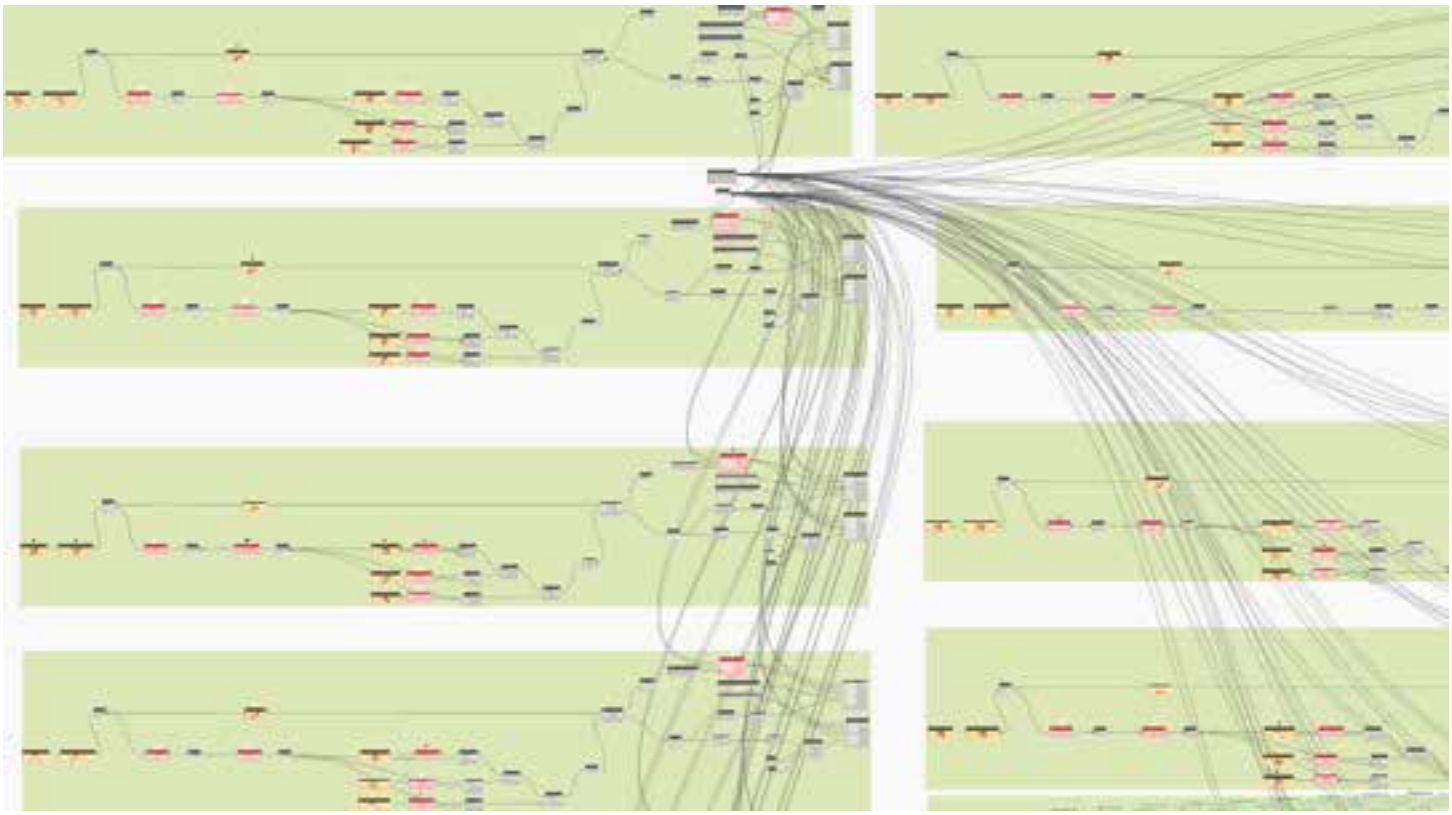
AUTOMATED PROCESSES

Font size, dimensions, text type, drawing format… with so many standards it can be overwhelming to someone who just wants to jump right in. In a world where results are measured, "drafting standards" are one of the first things a customer sees, so a misstep in consistency can overshadow a brilliant design. Faith Technologies works in Dynamo, a graphical programming software, to create a script allowing us to detect missed standards. The result allows us to identify training needs and provides functionality to fix these issues automatically. This allows us to model and design within standards, with a safety net. This process is called our "Model Health Check" and will greatly reduce the review process by lead engineers and supervisors by 75 percent.

DATA UNIFICATION

Enter once, use everywhere. We may be good at our jobs, but when we duplicate information in multiple products, we increase the opportunity for error. Knowing this, Faith Technologies has initiated alliances with software companies and has created "bridge programs" as they make significant investments in creating a single data unification software to reduce this opportunity for error and increase overall efficiencies. Successfully bridging schedule, cost and model data together provide a real-time snapshots of the physical world to the digital world, providing benefits to the project team and owner.

Below is a sample of Dynamo program coding.



DATA TO THE MANUFACTURING PROCESS

The ever widening gap of available skilled trade labor has left the construction industry with very few options to increase capacity. Industry change agents, like Faith Technologies, has turned to manufacturing with automated processes to allow for a greater degree of safety, accuracy and time savings. With the utilization of time studies, Faith Technologies has been able to identify areas to increase our efficiencies within our Excellerate manufacturing facilities. Cutting metal-clad (MC) cable, wire pulling, pipe bending and cutting openings within panels and j-boxes are some of the processes being implemented. Thanks to the efforts of Data Unification, we are able to utilize our design to feed information into machines to perform these tasks. This allows our field leadership to focus on projects, work with clients and mentor future field leaders.

SUMMARY

Training is more than just opening the book on how software works, you need to delve into how your organization wants to utilize the software to bring efficiencies to the organization, not just the department. This will be crucial as the industry faces a shortage of skilled trade workers. ■

As the Director of Virtual Construction, Darin is responsible for developing, implementing, and evaluating technological tools, practices and procedures across the organization. Examples include, but are not limited to, Robotic Total Stations, and building information modeling (BIM) technology including 3D/4D/5D/6D and 3D scanning.

Darin joined Faith Technologies in 1993 and holds an associate degree in electrical design technology from the Wisconsin School of Electronics. In 2011, he became one of the first people in the nation to attain the Associated General Contractors (AGC) Certificate of Management - Building Information Modeling (CM-BIM), which denotes knowledge and understanding of BIM including BIM Technology, BIM Contract Negotiations and Risk Allocation, BIM Process, Adoption and Integration.

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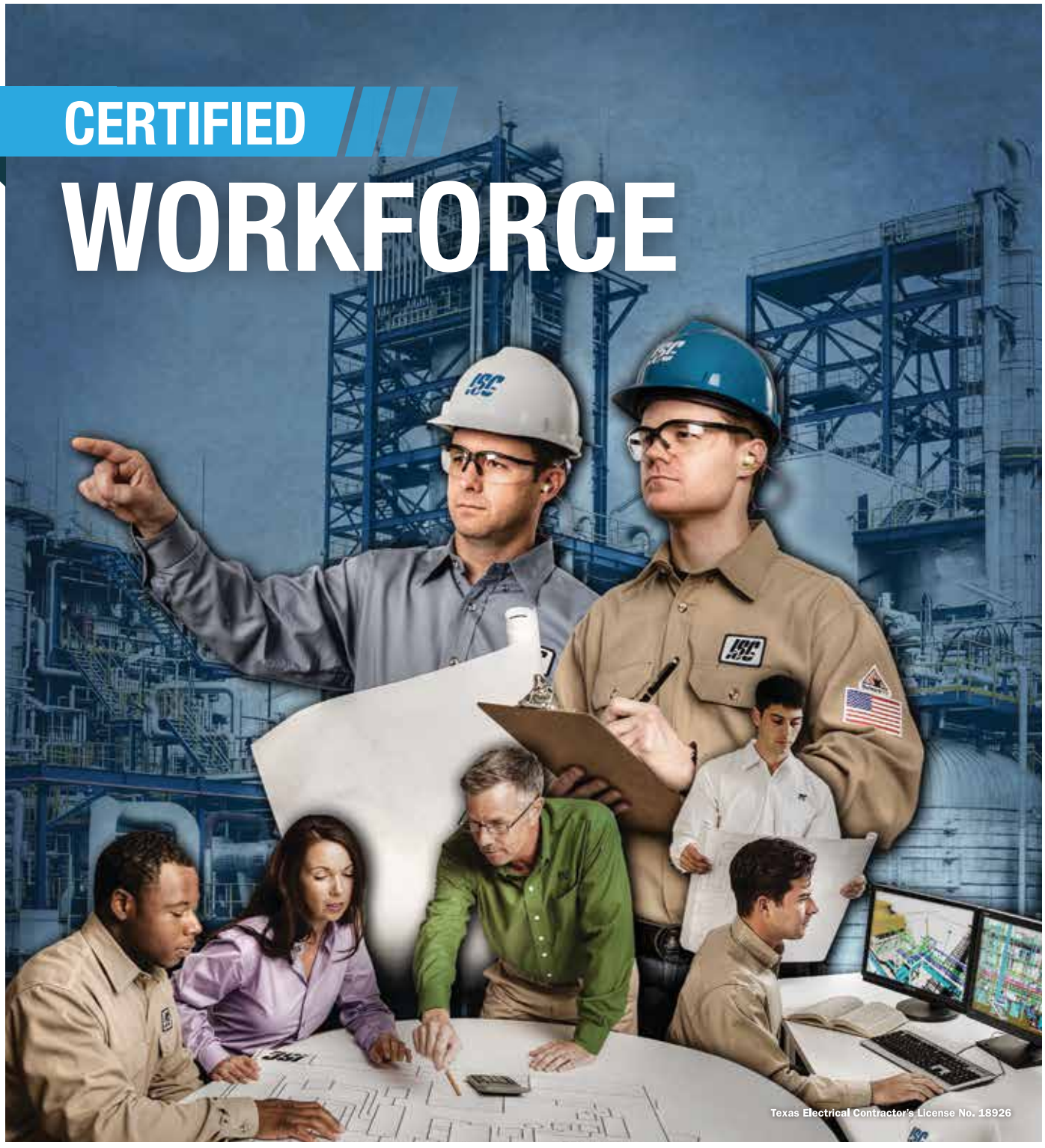

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