Educational Imperative

A look at new programs to attract, train and retain construction professionals

By Vicki Speed
Doors of Opportunity

Industry Initiatives Continue to Transform the Next-Generation Workforce

While many continue to talk about growing workforce shortages, a number of industry associations, educational institutions and construction firms are putting ideas into action, opening new doors of opportunity, offering career growth paths and transforming the look of the industry.

There has been a considerable uptick in programs that raise awareness about industry opportunities for everyone from children and young adults to military veterans and underserved groups.

Youth Appeal

A recognition of the need to change perceptions and raise awareness of career opportunities in young people has sparked a number of programs throughout the years.

The ACE Mentor Program’s free after-school program that introduces high school students to the dynamic construction industry is among the largest, oldest (celebrating 25 years) and most successful of its kind. In 2019 alone, ACE’s 4,000-plus mentors introduced more than 10,000 students (roughly 70% minority) from almost 1,100 high schools to career opportunities in the industry and provided $2.7 million in scholarships for higher education and training.

On a more local level, the TEXO Foundation, a Texas-based 501(c)(3) organization that supports the construction members of TEXO Association in workforce development efforts, has a high school outreach team that works with the construction industry and school districts across the Dallas/Fort Worth area to collaborate on curriculum and career opportunities. The organization also hosts KIDSBUILD events to introduce kids ages 3–10 to construction through fun, hands-on activities such as concrete handprints, giant building blocks and sand structures.

Theory to Practice

At the college and university level, the scope and scale of construction-oriented initiatives has grown significantly in recent years.

One of the current innovators in the workforce development arena at higher-education institutions is the Wentworth Institute of Technology (WIT) College of Architecture, Design & Construction Management. WIT facilitators lean heavily on their Industry Advisory Board (IAB) for Construction Management, a board comprising a who’s who in the construction space, with members from companies including Gilbane Building Co., Suffolk Construction, Skanska USA and Walsh, as well as leaders from industry associations such as the Associated General Contractors of America (AGC).

“We meet with our IAB formally twice a year but communicate regularly throughout the year,” says Scott Sumner, chair of the WIT Dept. of Construction Management. “We use these individuals to provide boots-on-the-ground advice about topics ranging from technology to best processes and practices.”

The IAB input is a big reason why WIT built its BOND Virtual Design and Construction Lab, which prepares students for the reality of a jobsite. As they learn to build a BIM model, students better understand the interrelationships of different building systems and need for clash detection prior to construction. The close relationship with its IAB is also helping improve diversity. The program offers targeted scholarships using membership fees from its IAB to attract additional female students. The scholarship program has helped more than double the percentage of women in the program.

Industry associations are also getting involved in the movement. Earlier this year, the Sheet Metal and Air-Conditioning Contractors’ National Association (SMACNA) partnered with the American Institute of Architecture Students (AIAS) to start an architectural
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internship program that pairs leading architectural sheet metal contractors with promising architecture students.

Thomas Soles, executive director of member services and market sectors at SMACNA, believes that cross-collaborative training is gaining momentum. “SMACNA and AIAS have a great partnership and a shared interest in helping students learn and understand architecture, engineering and construction from a different perspective while expanding their skillset,” he says. “In fact, SMACNA members have continued to express interest in getting involved with the program as it grows.”

SMACNA believes that launching this new architectural internship program is just the beginning of a long-term, multifaceted effort to raise awareness of the sheet metal industry and convey all the benefits that come from working within the trade.

Jeff Henriksen, executive director of communications at SMACNA, adds, “Partnerships with AIAS and other collaborative efforts will be a major focus of SMACNA’s workforce development efforts as we work hard to attract the brightest and best candidates to our trade. We strongly believe in the value of our profession and remain dedicated to spreading awareness of rewarding career opportunities of which people can be proud.”

**Industry Commitment**

Collaboration between industry firms and associations and institutions is also creating opportunities for graduates to gain much-needed practical on-the-job training through both internships and entry-level positions.

One of the most noted college-industry partnerships is the Sundt Construction and Central Arizona College’s (CAC) CAC-Sundt Pre-Employment Pathways Training Program that provides skills training in heavy-equipment operations, welding, pipefitting, industrial and concrete construction. The number of students in the program jumped from 100 in fall 2017 to 328 by fall 2019. Once students earn their certificates, those hired by Sundt receive a $1,000 tuition reimbursement to help defray the cost of the $2,500 program.

Similarly, the Laborers’ Local 300 in Los Angeles is working with Workforce Initiative Now-Los Angeles (WIN-LA) to identify, assess, train and employ participants in the transportation industry. These career pathways include construction and non-construction opportunities such as operations/maintenance, administration and professional services within Los Angeles County Metropolitan Transportation Authority (Metro) and other transportation organizations. The program is particularly focused on underrepresented Los Angeles County residents, including economically disadvantaged, homeless and chronically unemployed.

Along the same lines, the TEXO Association is currently working to raise the bar on contractor safety programs. The group recently partnered with its members—construction organizations that are also members of the Associated Builders and Contractors (ABC) and the AGC—to develop a 12-module orientation program. The program combines classroom studies with an interactive safety lab experience.

Lois Hamilton, safety and operations coordinator with the TEXO Association, explains, “The safety lab is where our participants put protocols and best practices into action. For instance, the fall-protection course requires participants to inspect and test safety harnesses.”

The program, taught by experienced construction safety professionals, covers all of OSHA’s big four: 1) fall protection, 2) trench and excavation accidents, 3) electrocutions and 4) workers being struck or caught by equipment. As well, there are additional modules tailored to local challenges, such as heat stress, cold stress and silica standards safety. Participants can also earn OSHA 10 certification. Further, the orientation program is designed for both English- and Spanish-speaking participants as well as those with limited reading and writing skills.

Since introducing the program in 2013, TEXO’s safety team has trained more than 40,000 workers. Participants and employers have noted that their people are much better prepared for jobsite work thanks to the standardized and hands-on nature of the program.

Read on to learn more about emerging craft certification initiatives; the Dragados EDP program, which is one of the industry’s most unique workforce development programs for newly graduated engineers; and one infrastructure company’s nationwide workforce development program.
Innovation has a new home base

Alliance Safety Council recently introduced two new dynamic resources for its members: the Emerging Technologies Center (ETC) and Design Thinking services.

The Alliance ETC is a 26,400-square-foot facility dedicated to advancing the future of learning technology and training process innovation for business and industry.

Within that space, there is an area dedicated to Alliance’s new Design Thinking services, which includes workshops to help companies in need of a solution-based approach to solving complex problems. These sessions consistently help uncover the root causes of issues and use a company’s most valuable resource – its employees – to discover the best possible solutions.

Design Thinking

Design Thinking is a strategic, human-centered process that encourages quickly moving from an idea to a solution.

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Workforce shortages and talent retention are top of mind for most construction companies today, which are all searching for remedies to minimize the shortfall.

Dragados USA, the U.S. subsidiary of the global civil engineering and construction company Dragados, is finding the answer in the form of its innovative Engineering Development Program (EDP) that does more than simply give young engineers an opportunity to put theoretical studies into practical application—it also provides them a path into the operational heart of the company and its long history.

The three-year, full-time program introduced in summer 2017 emphasizes professional development and goal-oriented career aspirations for recent college graduates. The EDP includes support and training in five key areas—Leadership, HR/Compliance, Safety, Soft Skills and Technology—as the participant progresses along a career path from field engineer to program executive and beyond.

More than 100 young engineers are now entered in the program (which also has a sister program focused on construction finance). The first cohort will finish the program in summer 2020. However, the company does not have to wait that long to see the positive effects of this unique program on its young engineers, their managers and the company. They only have to talk with the participants, such as Javier Fernandez.

A Path of Opportunity

Fernandez, a graduate of the University of Maryland, earned his degree in mechanical engineering, graduating in December 2017. His study emphasis was in mechanical design of electromechanical systems and sensors.

“I had always thought I would work in the industrial or manufacturing space—construction was not even on my radar until one of my friends talked about his experiences,” Fernandez recalls. “I learned that construction is one of the few industries where an engineer has direct interaction with the implementation of design into operation. That is when I came across Dragados.”

By early 2018, Fernandez was enrolled in the program. Now preparing to enter his third and final year in the program, he is working on the Parallel Thimble Shoal Tunnel Project for the Chesapeake Bay Bridge-Tunnel Authority in Virginia as a TBM engineer. The Chesapeake Tunnel Joint Venture, which is mining and constructing the tunnel, is comprised of Dragados USA and its affiliate, Schiavone Construction Co.

“I’m fascinated by all that goes into operating a tunnel-boring machine such as we are using on this project,” Fernandez says. “It is exciting to learn about and help engineer all of the pieces that go into its operation, from the primary machine to the auxiliary units that provide water and power. But that is just a small part of the opportunities made possible to me through Dragados’ development program.”

Dragados project managers are equally invested in and excited about it.

Enduring Bonds

Beyond the opportunity to learn and resolve technical challenges, Fernandez appreciates the chance to interact with other EDP participants.

“For our continued growth, it is imperative that we invest in every member of our team and fully support programs such as this,” says John Hellman, Dragados project executive on the Chesapeake Tunnel project. “Our team members’ success is our success.”

As part of its Engineering Development Program (EDP), Dragados USA has young engineers working on projects such as the Parallel Thimble Shoal Tunnel Project in Virginia as TBM engineers.
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Innovation Has a New Home Base

Alliance Safety Council, one of the largest safety councils in the United States, has introduced two new dynamic resources—the Emerging Technologies Center (ETC) and Design Thinking services—to further its safety and workforce development mission.

Alliance’s ETC is a 26,400-sq-ft facility located in Baton Rouge, La., dedicated to advancing the future of learning technology and training process innovation for business and industry. Within that space, there is an area dedicated to Alliance’s new Design Thinking team, which offers workshops to companies in need of a solution-based approach to solving complex problems.

“This new facility will provide an environment conducive to design thinking and innovative content development and delivery technologies that will transform the adult learning experience,” says Alliance Safety Council President and CEO Kathy Trahan. “We are here to support our members and training partners so that they can in turn be responsive to the changing needs of their workforce.”

Dennis Lytle, senior manager of operations and safety at Entergy, was introduced to Alliance’s Design Thinking after Travis Broussard, vice president of business development at Alliance, invited him to tour the new ETC.

“The timing of the workshop with Alliance was very good,” Lytle says. “We faced some safety issues and knew we needed to shut things down until they could be resolved. Alliance Innovation Consultant and Design Thinking Specialist Johnny Saye’s guidance in the workshop got us to the right place quickly.”

Alliance’s top priority remains ensuring that its members are thoroughly prepared for the industry changes that technology is rapidly introducing. The ETC represents a bold investment in the future of safety and technology for local and international workforces across multiple industries.

To learn more, call 225-228-4308 or email etc@alliancesafetycouncil.org.

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At Wayne J. Griffin Electric, learning never stops. As part of a commitment to being “the best of the best,” the company strives to offer first-rate educational and training opportunities for all employees. Investing in building a strong team of professionals through continuous development programs while promoting diversity, fairness and equality ensures that it stays in a position to be competitive and successful.

For more than 25 years, Griffin Electric has prepared hundreds of men and women for rewarding careers in the electrical trade through its in-house apprenticeship training program. Apprentices benefit from 600 classroom hours and gain practical field experience with 8,000 hours under the supervision of a licensed journeyperson. Participants of the program also earn excellent wages and benefits. For electrical or telecom graduates of the program, the company has made it possible through its partnership with Wentworth Institute of Technology in Boston to achieve an Associate of Applied Science in Engineering Technology. Graduates of the Apprenticeship Training Program get credit for nearly half of the requirements toward the associate’s degree, with Griffin covering 70% of the tuition cost.

All company employees have access to complimentary classroom and online seminars ranging from electrical safety to topics of personal development and wellness. These education and training opportunities are open to all field and office employees on a voluntary basis.

At the center of the company’s approach to growth and success has always been a dedication to ensuring its team members have every opportunity to live up to the motto, “Work with the Best. Be the Best.” Building a diverse workforce and providing its employees with the education and freedom to advance their careers through the strength of their own drive and effort is at the heart of the merit-shop philosophy with which Griffin Electric operates.

For additional information, visit www.waynejgriffinelectric.com.
One Institution’s Workforce Development Strategy Paves Interdisciplinary Path

The Wentworth Institute of Technology (WIT) College of Architecture, Design & Construction Management continues to push the boundaries of conventional higher education, particularly in its Construction Management (CM) Program. Building on its cooperative (co-op) education format, WIT draws on its Industry Advisory Board (IAB), professors and technology to increase diversity, address workforce shortages and improve collaboration.

Scott Sumner, Dept. of Construction Management chair, explains, “Alongside the concerns about workforce shortages and diversity, there is increasing desire for students to have interdisciplinary skills. For instance, construction managers should understand an architect’s and engineer’s role on a project.”

To meet this need, the CM program regularly engages in interdisciplinary projects with other Wentworth programs, including Interior Design (where CM does cost estimating for Interior Design studio projects), Architecture and Civil Engineering. For instance, architectural, civil and CM students recently worked together on the hypothetical demolition of a downtown Boston overpass, reconfiguration of the street system and addition of a new hotel. CM students can now choose a concentration in Facility Management or Real Estate Development (new in 2019), in addition to learning the basics of managing a construction project.

The program also incorporates new technology—such as BIM and drone-enabled survey tools—to ensure students are current on industry best practices and further enhance interdisciplinary collaboration.

All of these efforts are paying off for the program. Enrollment has grown steadily in recent years; this fall’s entering class numbers about 120. Students often have multiple offers for their co-op semesters, as well as employment following graduation.

“You can’t go to a jobsite in Boston, or most of New England, without running into our alumni,” Sumner says. He intends to keep it that way.

Expert industry professionals are an integral part of WIT’s CM program.
National Welding Certification Program Expands To Meet Demand

The American Welding Society (AWS) estimates that there will be a shortage of 290,000 welding professionals by 2020. The Iron Workers (IW) and its employer-ironworker partnership, IMPACT, are dedicated to preparing highly qualified, competent welders to close this gap through the accredited IW/AWS National Welding Certification Program (WCP).

IW and AWS are continually adding new procedures to the WCP curriculum to create opportunities and meet the changing needs of the industry. The program currently has 125 prequalified welding procedures, with another 14 new procedures coming soon. Additionally, the WCP recently added two new procedures for qualifying welders on boiler tube.

The IW/AWS WCP program provides Welder Performance Qualification Records (WPQRs), making it possible to qualify welders in a variety of processes and positions to meet demand. A welder certification card with a photo identification is issued every time an ironworker welder successfully passes a qualification test to allow easy verification of skills. IW/AWS welding certification is portable, allowing ironworker welders to move from project to project, eliminating the need for requalification and saving employers time and money.

Convenient online verification is offered at www.welderscertification.org, allowing contractors and end users to view or print a participating ironworker’s welding certification and verify continuity at any time.

IMPACT funds the IW welder qualification and certification, so there is no out-of-pocket cost to participants who keep the continuity up to date. The IW has 112 AWS Accredited Training Facilities and 157 training centers in the United States and Canada, and more than 15,000 AWS certified welders and 4,500 CWB certified welders.

The IW National Training Fund trains AWS Certified Welding Inspectors (CWIs) and administers the prep course and exam at the Annual Ironworker Instructors Training Program in Ann Arbor, Mich. The IW has also partnered with the Canadian Welding Bureau (CWB) so the NTF can train CWB Level I and II welding inspectors.

To learn more, contact Ed Abbott at 202-383-4802 or eabbott@iwintl.org, or visit bit.ly/IW-Welding.
Innovation in Credentialing
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For more than 50 years, the Board of Certified Safety Professionals (BCSP) has provided the highest-level credentials to safety and health professionals, totaling more than 100,000 certifications and designations in over 100 countries.

What is new after 50 years? It is called examCORE, and it is revolutionizing safety and health training.

To celebrate its 50th anniversary in 2019, BCSP developed and launched examCORE, an adaptive online pre-examination training program. This learning tool includes 40-plus subject-specific video modules, pre- and post-tests to assess learning, more than 1,000 exam-style questions and answers, and more. examCORE’s exclusive content was developed by 17 leading-edge subject-matter experts to include published authors, academics and practicing professionals.

BCSP’s CEO Dr. Treasa Turnbeaugh says, “BCSP is dedicated to building better safety professionals, and examCORE solves the challenge of preparing for safety and health certifications by bringing the best instructors in the field to any tablet or desktop.”

As the only training program built and endorsed by BCSP, examCORE is the premier pre-examination training material for the ANSI-accredited BCSP certifications. BCSP’s examCORE program provides a viable and cost-effective alternative to other trainings, with greater flexibility and more pre-exam preparation opportunities for both domestic and global practitioners.

For additional information, visit www.examcore.com.

Empowering People, Process & Solutions

National construction management firm Moss is consistently ranked as one of the best places to work—and with good reason.

“We are a family business, with core values that put an emphasis on honoring relationships, embracing opportunities, innovating to overcome challenges and contagious energy. Our employees are part of our family. Their success and growth is our success and growth,” says Moss President Scott Moss.

Moss has created an inspiring and entrepreneurial work environment with multiple career ladders and enrichment opportunities—from internships, community involvement and professional development to employee-led resource groups, including the Moss Women in Construction, an initiative designed to make construction more approachable to qualified women.

Unique learning programs such as the Moss TechTrender Program, another employee-led resource group focused on technology skills, align with a comprehensive eLearning portal for skills improvement, management and leadership development. Quarterly training sessions facilitate sharing of best practices on jobsites for continuous improvement.

Along with comprehensive professional development opportunities, Moss supports an innovative and collaborative safety culture and is recognized by OSHA as one of the elite construction companies in its Safety and Health Recognition Program (SHARP).
Outside the Lines
Infrastructure Company Invests in Targeted Training

Over the past five years, Quanta has invested more than $100 million in workforce development and training. In 2018, the infrastructure solutions company acquired Northwest Lineman College (NLC), which has campuses in California, Idaho, Texas, Florida and soon North Carolina. It also built the Quanta Advanced Training Center at Lazy Q Ranch, a 2,300-acre state-of-the-art training facility in La Grange, Texas. At both locations, students and employees are offered utility training programs in electric power, gas distribution, telecommunications, as well as rapid response and aviation. Currently, Quanta has 5,160 employees enrolled in apprenticeship programs. Since December 2018, the company has trained more than 1,240 line workers to support California wildfire safety inspection programs.

Recently, Quanta widened its effort to recruit, hire and retain military veterans. “These transitioning service men and women are a perfect fit for our company and the industry as a whole,” says Earl ‘Duke’ Austin Jr., president and CEO of Quanta Services. “We offer a unique place for veterans to be employed. When you learn our trades, you will always have a job, no matter where in the world you go.”

Quanta’s workforce development and recruiting efforts are also expanding in universities, including a robust internship program at Sam Houston State University, as well as rural and urban initiatives across the country.

Pre-apprentice students participate in skills training as part of the Electrical Lineworker Program at NLC’s Idaho campus.

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