



TO: Apprenticeship Work Group – National Network for Business and Industry Associations

FROM: Don Whyte, National Center for Construction Education and Research (dba NCCER)

RE: NCCER's construction industry perspective on the issues surrounding the US. Apprenticeship System and "Apprenticeship Like" examples

OVERVIEW OF ISSUES PLAGUING REGISTERED CONSTRUCTION APPRENTICESHIP

The construction industry is the largest user of the apprenticeship system representing approximately 29% of all active registered apprentices in the United States. In 2016, that percentage equated to approximately 144,000 craft professionals which is less than 2% of the construction industry workforce. In an industry that is projecting a potential shortage of 2,000,000 skilled workers by 2020, the apprenticeship numbers fall woefully short. Unfortunately, the number of registered apprentices has not changed significantly for 30 years. In addition, unlike programs in many other countries, the U.S. apprenticeship system has little linkage with secondary schools and generally recruits adult workers. Only about one in five apprentices are under age 25 and the average age is about 30 (Lerman and Rauner 2012). Many administrations have attempted to improve the system, but significant regulatory and legislative reform is required for the apprenticeship system to become a viable employer resource for developing the current and future construction workforce.

In the past, apprenticeship was the predominant source of trade or craft training but for numerous reasons – including slow government response to new training approaches – it has seen little growth over the last two decades. The registered apprenticeship model dates back to 1937 and, while updates like increased focus on competency were added in 2008, the overall outdated model remains much the same. Since apprenticeship is a formal training program overseen by government agencies, there are several requirements imposed, such as stringent record keeping, maintaining a specified ratio of apprentices to skilled workers and compliance with equal opportunity selection procedures.

Employers, for the most part, avoid registered apprenticeship due to its complexity, bureaucracy, burdensome compliance and its ability to be easily politicized. Perhaps of even greater concern is that the apprenticeship system is not well understood by the U.S. general public. If you asked the average citizen to explain the process and how it works, we believe that very few could. Most parents and students intuitively know how to register for elementary school, high school or college but what percentage of the population knows how to enroll in a registered apprenticeship program or even what it means to be a registered apprentice?

As a model, apprenticeship is strong. However, the U.S. apprenticeship system is broken and outdated and needs to be brought into the modern age. Following are some additional details on apprenticeship system issues specific to the construction industry that will require focus to reform the system.

Apprenticeship System Issues Specific to Construction

The system is easily politicized

Labor has traditionally dominated most State Apprenticeship Councils (25 SAC states) and has wielded considerable influence over the US Department of Labor which oversees registered apprenticeship in the remaining states. Organized labor has politicized apprenticeship in an attempt to protect its interest and restrict construction workforce development competition.

Over the last five years, the State of California serves as a perfect example of this effort.

California State Apprenticeship Council

The California State Apprenticeship Council is dominated by organized labor. Approval of new (non-union) apprenticeship standards has proven to be extremely difficult as the state applies its “needs test” which basically says that new programs will not be approved in a region where a program already exists. The practical application of this rule is that a non-union program cannot be approved in a geographical region where a union sponsored program is already in place.

More examples of legislation sponsored by organized labor, to restrict workforce development / apprenticeship competition.

California Senate Bill 54 (2013)

Requires refineries to comply with modified prevailing wage, apprenticeship, and journey person qualifications and training requirements on private refinery construction. SB 54 requires payment of prevailing wages for private work. SB 54 requires certain percentages of a contractor’s workforce to have completed registered apprenticeship programs. (While the California Apprenticeship Council uses its needs test to restrict new program approval) It discriminates against out-of-state workers who do not have access to the California apprenticeship programs. Environmental law is being used to regulate private industry by requiring certain wages be paid to its workers.

California Assembly Bill 2288 (2016)

Requires that construction pre-apprenticeship programs in California federally funded by Workforce Innovation and Opportunity Act (WIOA) use only organized labor’s Multi Craft Core Curriculum (MC3). NCCER’s proven and widely used Core Curriculum would be prohibited in these programs.

California Assembly Bill 1111 (2017)

Requires that all state or federally funded construction pre-apprenticeship programs in California use only organized labor’s Multi Craft Core Curriculum (MC3). NCCER’s proven and widely used Core Curriculum would be prohibited in these programs.

These bills are clear examples of the politicization of the construction registered apprenticeship system and organized labor’s efforts to restrict competition. In a 2003 article by Charles W. Baird titled *California’s Apprenticeship Scam*, he noted “In a free society there would be no National Apprenticeship Act. Apprenticeship programs would compete to obtain market share. They would attempt to build reputational capital, and competitive private quality evaluators would emerge to lower consumers’ information costs in the apprenticeship market. The contractors who hire the journeymen and apprentices of the construction trades would be keen to sort the wheat from the chaff and would produce their own quality rating services. The California dispute exists only because government is involved where it ought not to be.”

Davis Bacon Wage Requirements

The Davis-Bacon Act applies to contractors and subcontractors performing on federally funded or assisted contracts in excess of \$2,000 for the construction, alteration, or repair (including painting and decorating) of public buildings or public works. The Davis-Bacon Act requires contractors and subcontractors must pay their laborers and mechanics employed under the contract no less than the locally prevailing wages and fringe benefits for corresponding work on similar projects in the area. The Davis-Bacon Act directs the Department of Labor to determine such locally prevailing wage rates. Registered construction apprentices are paid fractions of these prevailing wages which escalate as they progress through training milestones. Only registered apprentices are permitted to participate in the wage progression scale established in accordance with the percentages outlined in an apprentice wage schedule. Some states, under the Davis-Bacon Act, require that contractors donate funds for apprenticeship training on a cents-per-hour model. These funds go to state and local apprenticeship offices, or to local association chapters and/or unions who provide the training. No other registered apprenticeship sector (other than construction) is subject to these restrictive wage issues.

OVERVIEW OF THE NATIONAL CENTER FOR CONSTRUCTION EDUCATION AND RESEARCH (dba NCCER)

NCCER is a 501 (c)(3) not for profit education foundation that provides a comprehensive, competency based workforce development system for craft, safety and management professionals in the construction and maintenance industries. Since our founding in 1996, NCCER's workforce development system of accreditation, instructor certification, standardized curriculum, registry, assessment and certification has served as a key resource in the construction industry's workforce development efforts. 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 outside of the formal apprenticeship system.

As the workforce development leader for our industry, NCCER administers its apprenticeship-style system by providing third party accreditation for industry training programs. There are over 700 NCCER Accredited Training Sponsors (ATS) nationwide, which include nearly 6,000 active training locations. NCCER's standardized, competency-based, modular curricula provide a framework for craft development and career pathway progression. NCCER's National Craft Assessment and Certification Program (NCACP) further compliments development efforts with industry-driven Journey-level, knowledge and performance based assessment tools, which validate competence and/or provide development plans to narrow or eliminate their skills gaps.

In addition to traditional industry users, the NCCER system is highly valued in other education and training arenas. Career and Technical Education (CTE) programs at the secondary and post-secondary level use NCCER to leverage federal funding by employing a competency-based, industry driven curricula with industry recognized credentials. NCCER's system provides the opportunity for articulation between secondary to post-secondary programs, dual credit degree alignments, and direct transfer to industry-based craft training or registered apprenticeship. NCCER accredited training is also found in many state and federal correctional systems, as well as government sponsored programs like, Youth Build and Job Corps. In 2004, Texas legislation related to electrical licensing formally recognized programs like NCCER's Accredited Training system as equivalent to approved apprenticeship programs. These numerous applications of NCCER resources represent a viable pathway for thousands of new entrants into industry each year.

In today's rapidly evolving and demanding construction workplace, the traditional registered apprenticeship model is not always flexible, timely and efficient enough to meet all of industry's training needs. Nonetheless, many construction contractors and trade associations have developed unique training systems that mirror the registered apprenticeship model. 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 equivalent classroom instruction hours and length requirements to their apprenticeship program counterparts. 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 or other prevailing wage laws. An NCCER accredited craft training program also provides flexibility in instructional approaches and curriculum that helps better meet the needs of the trainee, the contractor and the training organization. Using traditional craft training, a contractor might combine crafts like carpentry and concrete finishing, or structural ironwork and rebar, to develop a cross-skilled worker that performs work for a longer portion of the project or throughout the life of the project. This benefits the worker and the contractor. NCCER accredited craft training programs use online training, simulation and other training methodologies to accelerate or compliment classroom instruction or supplement hands-on experience. A NCCER accredited craft training program provides contractors, training organizations and trainees with the flexibility to create a program that best fits their needs.

APPRENTICESHIP AND APPRENTICESHIP STYLE PROGRAMS USING NCCER SYSTEM RESOURCES

The following examples demonstrate the variety of ways NCCER resources are used to fulfill industry's workforce development needs. These organizations represent 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.

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Apprenticeship Training Program



Program Overview

The Wayne J. Griffin Electric, Inc. in-house 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 twenty-five years and is fully accredited by the National Center for Construction Education and Research (NCCER) and designated as an approved training site by the Department of Veterans Affairs. The NCCER accreditation is an important achievement that ensures that the program is continually reviewed and revised to remain current with the changing trends of the construction industry.

All Griffin Electric apprentices are required to complete a minimum of 600 hours of classroom instruction and 8,000 hours of on-the-job learning throughout the program. The teaching team is comprised of a combination of Griffin Electric licensed field craft professionals and local vocational school teachers. All program instructors are certified to teach the electrical curriculum by the National Center for Construction Education and Research (NCCER). 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 our 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 in our program. Acquiring this important credential is the key to an apprentice's professional development and enhances his/her ability to contribute to the future growth of the company as well as the strength of the construction industry.

Commitment to Training

The Company invests over \$1.5 million annually in the education and training of its employees. The largest component of this investment is our Apprenticeship Training Program, which annually trains on average over 300 apprentices. Griffin Electric's dedication to the education and training of our employees is further evidenced by the 17,500-square-foot of space dedicated to training in the company's headquarters in Holliston, MA. This state-of-the-art training facility consists

Apprenticeship Training Program

of ten classrooms, a computer lab, and a hands-on training area where apprentices can demonstrate and perfect the techniques they learn in the classroom.

State Approvals

The Wayne J. Griffin Electric, Inc. in-house apprenticeship training program is approved and registered by the Department of Labor's Apprenticeship and Training Bureaus in the following regions we serve: Massachusetts, Maine, Vermont, New Hampshire, Rhode Island, North Carolina, Georgia, and Alabama. We also offer an in-house telecommunications apprenticeship training program in Massachusetts.

Veterans Administration Approved Training Site

Because we are a state licensed apprenticeship training program in good standing, we have also sought and obtained approval by the Department of Veterans Affairs to serve as an approved training site for veterans and eligible persons receiving veteran's benefits. As such, we work with our eligible apprentices to ensure they can obtain the VA benefits they have earned through participation in our program.

Apprentice Competition

To celebrate the end of the Apprenticeship Training Program school year, we offer students an escape from the classroom with a friendly competition between our four levels of apprentices, throughout all New England and Southeast offices. The event not only reinforces teamwork and dedication, but awards students for their efforts in successfully advancing towards completion of the training program.





Cianbro is an open shop construction company which self performs work in multiple markets in over 40 US states, and includes 4000+ team members in craft, management, safety, equipment operations and support services. Cianbro serves customers in: Transportation/Infrastructure, Institutional, Gas/Oil, Industrial, Manufacturing, Power and Energy.

To support the continuous need for craft, supervisory and leadership development, along with safety and compliance training, Cianbro moved all of its educational programs into the Cianbro Institute in 2007. With a full time staff of approximately twenty instructors and training administrators, the Institute supports operations through development and delivery of the following programs and classes: Equipment operator certification, OSHA 10 and 30 hour classes, new hire orientation, electrical safety, crane and rigging certification, welder certification, front line supervisory training and development, leadership, construction boot-camp for interns and CTE graduates. Additionally, the Institute has developed and delivers long-term programs to support the development of journey level crafts workers. Cianbro is accredited by, and enlists the resources of NCCER for all of its training programs.

Our craft developmental program presently includes five programs registered with the Maine DOL and reciprocated with other states in which we work. Those programs include:

- Electrical - 4 year traditional program including 567+ hours of classroom training and 8000 hours of OJT
- Pipefitting 1-2 year "hybrid" program including 576+ hours of classroom training (min 2000 hours OJT)
- Millwright 2-3 year "hybrid" program including 576+ hours of classroom training (min 2000 hours OJT)
- Line Worker 3-5 year "hybrid" program including 576+ hours of classroom training (Min 6000 hours OJT)
- Substation Technician (Pending registration) 2-4 year "hybrid" program including 400+ hours of classroom training (Min 6000 hours of OJT)

"Hybrid" is a term used by Apprenticeship (DOL) which classifies a program as requiring some minimum OJT hours in specific work areas while also requiring that the apprentice display competency in various skill areas.

Cianbro also conducts NCCER accredited, non-registered, apprenticeship-style craft training programs of varying lengths including Iron Worker, Concrete Finisher, Instrumentation, Pipefitter, Structural Welder and Boilermaker. The majority of Cianbro's programs are paid training, in which team members are paid their normal wages and per diems for the time spent in class. Apprenticeship and craft training programs are delivered at our facilities in Pittsfield, Maine and Baltimore. Class sessions including classroom and lab work are generally held in 40 hour blocks. 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). Cianbro connects with other educational institutions as well by offering tuition re-imbusement 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 (CTE) students out of secondary and post-secondary programs. This has allowed Cianbro to continue to rely on our own labor force to self-perform work in the many markets and geographic areas in which we work.



The Associated Builders and Contractors (ABC) Pelican Chapter represents the Baton Rouge and Lake Charles areas of Louisiana, which grew from the initial Louisiana State ABC chapter headquartered in New Orleans. ABC chapters across the country have a long-standing commitment to NCCER accreditation standards, curriculum and craft training programs, and the Pelican Chapter is no exception. Accredited as a 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. Contractors who are members of the ABC Pelican Chapter rely on NCCER credentials to validate skill progression and is often times a requirement of construction users who employ contractors.

As of August 2013, the ABC Pelican Chapter employed over 100 NCCER certified instructors. Its NCCER sponsor representative estimates that 75% of all craft trainees who enroll in a program graduate with NCCER credentials. Specific apprenticeship-style craft training is offered for the following crafts:

- Electrical
- Instrumentation
- Millwright
- Pipefitting
- Carpentry
- NCCER Core
- Heavy Equipment Operations
- Mobile Crane Operations

The Pelican Chapter's state-registered electrical apprenticeship program is a 4 year, 8,000 hour program. It uses NCCER's electrical curriculum levels 1-4 and all training is submitted to NCCER for credit.

The Pelican Chapter's other NCCER accredited, non-registered, apprenticeship-style craft training programs use NCCER curricula and all training is submitted to NCCER for credit. Area contractors advise on all training that occurs at the chapter and hire graduates if not already employed. As 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.



TIC-The Industrial Company, Inc. began training craft professionals informally in the 1970's. In 1991, TIC opened its first Craft Training Center in Steamboat Springs, CO. TIC's first classes were held in the concrete disciplines (formwork, finishing, and rebar), then expanded to include pipefitting, welding, electrical, and millwright.

In 1996, TIC and several major industrial contractors in the U.S. supported the organization of the National Center for Construction Education and Research (NCCER). NCCER, in collaboration with industry, then developed organizational accreditation standards, instructor certification, standardized curricula, hands-on performance testing and a registry database to track individual training credentials. Using NCCER's curricula and multi-year apprenticeship-style training model, TIC expanded its craft classes to include structural steel, surveying, instrumentation, and rigging.

In 2016, TIC moved its Craft Training Center from Steamboat Springs, CO to Aurora, CO. TIC built a new \$15 million dollar facility with 26,000 sq. ft. of state-of-the-art classrooms and cafeteria space, 27,000 sq. ft. of lab space, and 100,000 sq. ft. of outdoor working space. This facility has been recognized with national awards by the Associate Builders and Constructors, American Institute of Architects, and Engineering News Record.

TIC offers all expenses paid training in 3-week blocks to all active employees. Trainees are nominated by their jobsite managers to enter the program as laborers or helpers. After 4 years, the goal is to attain NCCER Certified Plus status or to earn a state license in their chosen craft.

TIC uses a 3-week academy model to complete each NCCER Level. The company pays to fly the 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.

The three weeks contain 150 hours of instructor led training. About half is in the classroom and half is in our 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.

At present, TIC's only registered Apprenticeship Program with the US Department of Labor is in the electrical craft. TIC does not see a business need to register its other craft training programs.

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.



THE TRAINING CENTER FACT SHEET

Beginning in June 2016, TIC – The Industrial Company hosts craft and staff training in a new indoor and outdoor space totaling more than 150,000 square feet in Aurora, Colo. The Training Center is one-of-a-kind in the construction industry and a reflection of our continuous commitment to the development of our employees and our organization.

Facility

The Training Center combines indoor and outdoor classroom and lab space to provide our employees with access to the best training opportunities in the industry.

Indoor space totaling 53,000 square feet includes:

- Five craft classrooms
- Four management classrooms
- Five craft labs totaling 27,000 square feet
 - Three bridge cranes
 - 18 welding booths
 - 10 electrical booths
- Conference room
- Cafeteria (indoor and outdoor seating)

Outdoor space totaling 100,000 square feet includes:

- Crane course
- Steel erection and rigging structures
- Concrete and formworks yard

Attendees

Craft and staff employees can complete training at the facility. The training center has the capacity to host up to 3,400 learners annually.

Courses Available

On average, the training center will host 70 craft academy courses annually, ranging anywhere from two to three weeks in length. Craft academies include:

- Electrical
- Pipe
- Welding
- Carpentry/concrete
- Millwright
- Structural Steel
- Instrumentation
- Rigging/bull rigging
- Survey
- Crane Operator

In addition, the training center will host a variety of technical and management courses, ranging from one day to one week in length. These courses include:

- Field engineering and operations
- Quality basics and management*
- Welding management*
- Equipment management
- QA/QC
- Pipe, mechanical, electrical and structural steel
- Formworks

**May qualify for continuing education credits*



Instructors

Our courses are taught by instructors with extensive years of experience in our industry. Craft academy courses are staffed by five full-time instructors.

Full-time craft instructors must meet the following qualifications:

- Five or more years in their respective disciplines
- NCCER-master or ICTP-certified trainer

Our technical and management courses are taught by various levels of operations and guest facilitators employed by our organization.

Guest facilitators must meet the following qualifications:

- Subject matter expert in the topic taught
- Five or more years of operations experience
- Completed an internal presentation and learning design program

Certifications Offered

- NCCER Certified Plus
- NCCCO Crane Operator
- Electrical State License
- Crosby Rigger Certificate
- ASNT Level II for VT, PT, MT, RTFI
- MSHA and OSHA Certificates

NCCER Requirements

The National Center for Construction Education Research (NCCER) is a highly respected nonprofit education foundation focused on developing a safe and productive workforce.

NCCER credentials, curriculum and training resources have raised expectations for the professional craft workforce. In our experience, craft professionals who complete NCCER credentials are better prepared to work safely and productively. These credentials also help define a career path for those entering craft professions.

All craft academy courses completed at The Training Center are NCCER-accredited. The Training Center will also provide NCCER-accredited craft skills assessment services.





Across the U.S. industrial construction industry, there remains a significant shortage of skilled craft workers to meet current and future demands. Since the 1960s, Irving, TX based Fluor has invested in the future of the craft workforce, by providing training opportunities to current and future craft professionals. Fluor is one of the country's largest construction employers and is committed to developing the next generation of skilled craft workers. By expanding pre-employment training to include multiple disciplines, Fluor can better address the industry-wide demand for skilled craft workers.

With the inauguration of its U.S. Gulf Coast Craft Training Center in 2016, Fluor's key objective is 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.

Backed by the company's 100+-year legacy, Fluor's U.S. Gulf Coast Craft Training Center offers tuition-free, pre-employment training in welding, electrical, instrumentation, millwright and pipefitting 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 some of the industry's most 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. Craft superintendents and foremen have found these graduates very well trained and prepared to be productive as soon as they are on the jobsite.

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. Topics addressed as part of this curriculum include: Teamwork, Giving and Receiving Criticism, Sexual Harassment and Diversity, Conflict Resolution and Managing Your Career.

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. All graduates are credentialed in NCCER's Core Curriculum: Introductory Craft Skills and have completed NCCER Level 1 and Level 2 in their chosen craft. Since opening the training center in 2016, nearly 300 trainees, logging almost 110,000 training hours, have graduated from the program, with most graduates successfully transitioning to the jobsite, either with Fluor or another major contractor, where they can complete their training to journey-level.