Pre-Apprenticeship Training

CONNECTING THE CLASSROOM TO THE REAL-WORLD
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About ABC of Iowa and ABC of Iowa Apprenticeship & Training Trust

ABC of Iowa is a non-profit construction trade association that fosters the principles of freedom of choice through the merit shop philosophy. Our merit contractors and ABC are dedicated to providing Iowa with high-quality, low-cost, safe, on-time construction. ABC of Iowa also provides Apprenticeship training through the ABC of Iowa Apprenticeship & Training Trust.

ABC of Iowa Apprenticeship & Training Trust provides Apprenticeship training to our member companies in five main trades: Electrical, HVAC, Insulation, Plumbing, and Sheet Metal. There were over 1,050 Apprentices enrolled in training during the 2014/15 school year and over 1,200 are expected to enroll during the 2015/16 school year.

ABC of Iowa Apprenticeship & Training Trust High School Partnerships

In addition to providing Apprenticeship training to its member companies, the ABC of Iowa Apprenticeship & Training trust is committed to building relationships with Iowa high schools in an effort to educate Administrators, Teachers, Counselors, parents and students about the benefits of Career and Technical Education (CTE), the construction industry, and the many opportunities it can provide students as a career option.

Some the opportunities available to high schools include Pre-Apprenticeship training and competing in the High School Carpentry, Welding, or Electrical Challenges held each fall in conjunction with the ABC of Iowa Craft Championships.
Did You Know?

- By December 2017 the state of Iowa will need more than 155,000 trained skilled professionals in the construction industry (BYF.org).
- By 2018, fields like construction and manufacturing will provide nearly 8 million job openings, 2.7 million of which will require a postsecondary credential. (Pathways to Prosperity, Harvard Graduate School of Education)
- For 5 years, skilled craft positions have remained the toughest job to fill in America (BYF.org).
- In the state of Iowa, a person wanting to pursue a career in Electrical, HVAC, Plumbing, or Sheet Metal must be licensed in order to complete work in the trade. In order to do that, a registered apprenticeship program must be completed in order to qualify for the state Journeyperson exam.
- 27% of those with postsecondary licenses/certificates will earn more than a bachelor’s degree recipient (BYF.org).
- $6,242 is the annual amount the average skilled craft professional makes over a recent college graduate (BYF.org).
- Occupations typically requiring apprenticeship training are projected to grow 22.2% from 2012-2022 (US Department of Labor’s 2013 Occupational Outlook Handbook).

Why Choose a Career in Construction?

The construction industry needs people from all different professions to make it work. They need skilled trade professionals, project managers, IT professionals, marketing professionals, accountants, and many more. The truth is, our country cannot operate or survive without people in the skilled trades industry.

Skilled trade professionals are the ones who build and maintain our buildings, houses, roads, water systems, and all of the things we have come to know and enjoy in everyday life. When you choose a career in construction you are not only joining an industry that is needed to maintain our way of life, but you are starting a journey in a rewarding industry. Careers in construction are fast-paced, in high demand, and high paying.
Top 5 Reasons to Choose a Career in Construction

1. **Start Working and Earning Right Away**
   Choosing a career in construction means you can begin working and earning a paycheck immediately. Jobs in the industry are in high demand and there are not enough people to fill the number of workers needed.

2. **Earn While You Learn**
   Apprenticeship programs like the ABC of Iowa Apprenticeship & Training Trust program provides students the opportunity to go to school while they work full time. While attending school, you will be supervised by a knowledgeable Journeyperson or Master that will help you build your skills and gain experience. Employed by an ABC of Iowa member company, students attend class for the equivalent of four (4) years while gaining valuable hands-on work experience. Most apprentices have little to no cost for their training.

3. **Opportunity to Grow Financially and Professionally**
   Careers in construction provide a steady income for those willing to work hard. It can also provide an individual with the opportunity for advancement as they learn the trade and show dedication and leadership on the job.

4. **Growing Industry**
   Jobs in the construction industry are in high demand and there are not enough people to fill them. This makes finding a job either right out of high school or after college much easier than other industries. While your friends might be out searching for a job you could already have one and be working and earning a paycheck.

5. **Challenge Yourself**
   A career in construction is hard work but it’s also an opportunity for you to challenge yourself as you learn a new skill and experience new situations every day. Each day you spend in the construction industry will be different from the day before.
A Pre-Apprenticeship Program is designed to prepare high school students to enter a Registered Apprenticeship program after graduation. Pre-Apprenticeship programs have a partnership with a Registered Apprenticeship program sponsor such as ABC of Iowa.

The Pre-Apprenticeship Program designed by ABC of Iowa Apprenticeship & Training Trust partners with existing Career and Technical Education programs to enhance what is already happening in the classroom and provides the NCCER curriculum developed by the construction industry. The NCCER Curriculum combines classroom training with hands-on training or labs to reinforce what is being taught in the classroom and to give students the chance for real-world learning opportunities. By incorporating the NCCER curriculum, students who successfully complete the Pre-Apprenticeship program in their high school can receive one (1) year of credit in the corresponding ABC of Iowa Apprenticeship Program trade if they go to work for an ABC of Iowa Member after graduation. In addition, schools offering the Pre-Apprenticeship Program may choose to credential their students though NCCER which provides students with industry recognized credentials that can be taken anywhere in the country.

The Need for Pre-Apprenticeship Programs in High School

The state of Iowa will need over 155,000 skilled workers by the end of 2017. This large number of vacancies that need to be filled requires us to take action now to start closing the gap between the number of skilled workers needed and the number available and properly trained. Education and collaboration with Iowa High Schools is where this starts.

Over the years, CTE classes and careers in the trades have earned a bad reputation for being classes and careers only suited for students who are lost and have no other options. It’s time to change that mentality. As leaders of your school it’s important to educate your staff, students, and parents about the many different opportunities available after graduation. Long gone are the days where the only path after graduation is to pursue a traditional 2 or 4 year degree. With the high cost of education students today are racking up massive amounts of student loan debt for a degree they may never use. Graduating high school and pursuing a career in the trades provides students with the opportunity to earn while they learn, often times earning more money than a student who will graduate with a bachelor’s degree.
Benefits to Pre-Apprenticeship Programs

- Explore and learn about different trades within the construction industry.
- Provide real-world training in a supervised environment.
- Get started on a career path for a specific trade with viable opportunities for advancement.
- Teach needed employment skills needed upon graduation, making the transition to higher education or employment easier.
- Higher graduation rates for pre-apprenticeship students.
- Quality classroom and hands-on training through the nationally recognized NCCER curriculum.
- Receive post-secondary credit for training completed in the Pre-Apprenticeship Program (must work for an ABC of Iowa Member to receive the credit).
- Shorten the length of a registered apprenticeship program by as much as a year, saving the student and company time and money.

Starting a Pre-Apprenticeship Program at Your School

Starting a Pre-Apprenticeship Program in partnership with ABC of Iowa Apprenticeship & Training trust is easy. There’s no need to re-invent the wheel. If you have existing Career and Technical Education (CTE) courses you can start your pre-apprenticeship program out of those classes. If you have more than one program you may consider starting two pre-apprenticeship programs. For example if you have electrical classes and building trades or carpentry classes then you might see a need to teach both the electrical and carpentry curriculum.

Pre-Apprenticeship programs are usually a one or two year program for juniors and seniors. However, some schools have decided to begin teaching the Core Curriculum to their sophomores as a pre-requisite for the Level 1 curriculum.

The curriculum provided by NCCER includes written module (chapter) exams and Performance Profiles. The module exams cover the written material covered in the chapter while the Performance Profile is designed to test the students on the specific hands-on tasks associated with that module and the concepts studied.

By teaching the NCCER curriculum you have the option of credentialing your students. Students that successfully complete the Core Curriculum and Level 1 Curriculum are eligible to receive industry credentials through NCCER that provide verification of their training for current and future employers. If a school chooses to credential their students there is a fee of $25.00/student for ABC of Iowa to submit the required paperwork to NCCER for verification. Upon verification, students will receive a transcript and initial wallet card that can be used to verify their training.
NCCER Teacher Qualifications

Finding a qualified teacher for your classes is as simple as looking at who you already have on staff that would be able to teach the classes. Often this is the person who is already teaching the CTE classes.

Craft Instructors, as they are called by NCCER, must meet the following criteria in order to be certified to teach the curriculum.

- Experience at a minimum journey or technician level in their area of expertise OR
- A minimum of three years experience as a certified teacher in a vocational/technical construction or maintenance-related training program

A potential teacher that meets this criteria then needs to be trained and certified by an ABC of Iowa Master Trainer. The training can be completed in as little as one day. Once the training has successfully been completed the teacher will receive his/her credentials and be qualified to teach the NCCER curriculum in their field of expertise.

Cost

The costs associated with starting a Pre-Apprenticeship program mainly involve the cost of the books needed to teach the NCCER Curriculum. Each student in the Pre-Apprenticeship program would need access to a copy of the Core Curriculum and the Level 1 book of the trade you choose to teach.

As with other text books used in your school, the initial investment you would make would be the most costly, but then you would be able to use these books each year after for other students in the program. Currently, the cost of textbooks for Level 1 (Core Curriculum and Level 1 Trade book) is $118.00. The other expense you might have in starting your program is that of any lab materials you may need for the Performance Profiles that are part of the curriculum. If you plan to credential your students then the Performance Profiles are mandatory and the students would need to demonstrate they are able to do all of the tasks on the list. This means you would either need to have the materials and equipment available or you would need to be able to get the necessary items to use when it comes time for the testing. However, if you do not plan to credential the students then you would not need to have all of the equipment and materials on hand. Instead, you could take field trips to see how to perform certain tasks and how equipment is used or you could show a video from YouTube for example of how it works.

If the cost of the books or lab items seems too much for your budget, consider asking the community to help with the initial start-up cost of buying the books and materials. Local businesses are always looking for ways to be involved with schools and students. Asking them to donate to your program is a perfect partnership for you and them. Consider reaching out to ABC of Iowa Members in your area to let them know you are starting a Pre-Apprenticeship program and how they can be involved with your program. If you
need assistance with this, ABC of Iowa Apprenticeship & Training trust would be happy to facilitate an introduction.

There may also be start-up funds available through the ABC of Iowa Apprenticeship & Training Trust. Schools wishing to ask for assistance from the Trust should contact Mindy Ver Steeg, Apprenticeship Coordinator for more information.

Recruiting Students

The best students for a Pre-Apprenticeship program are students already involved in CTE classes. However, if you make being a part of CTE classes and the Pre-Apprenticeship program as appealing and rewarding as sports, music, or other popular programs at your school you will attract students from all different disciplines.

As you start recruiting students for the pre-apprenticeship program it’s important to look for a particular type of student, as this may not be for everyone. When recruiting students looks for those that are self-starters, hands-on-learners, creative thinkers, and problem solvers. These are the students that you want involved in your program, and these are the students who are more likely to have an interest in pursuing a career in the trades after graduation.

Students today want to know “What's in it for me?” and you have to be ready to answer that question as you talk to students about the Pre-Apprenticeship program. Here are some things to think about as you prepare to answer that question.

- Make it worth their time. Have projects they can display and show to administration, staff, parents, and the community.
- Provide credit towards graduation or duel credit with a local community college if possible.
- Promote the post-secondary education opportunities available in the construction industry and how pre-apprenticeship can help.
- Promote the industry recognized credentials students can receive through NCCER.
- Network with industry professionals through projects and involvement with ABC of Iowa Apprenticeship & Training Trust.
- Provide field trips and job shadowing opportunities.
- Participate in the ABC of Iowa Apprenticeship & Training Trust High School Carpentry, Welding, and Electrical competitions each fall.
There are several options available for Pre-Apprenticeship programs at the high school level. The key to choosing a program for your school is determining which program will best fit the needs of your school and your community.

All programs will include the required Core Curriculum. In order to receive credit for any Level 1 program, students must successfully complete not only the Core Curriculum but the Level 1 program curriculum.

The next few pages will provide you with information on a few of the most popular pre-apprenticeship programs
Electricians install electrical systems in structures; they install wiring and other electrical components, such as circuit breaker panels, switches, and light fixtures, and they follow blueprints, the National Electrical Code® and state and local codes.

An Electrical pre-apprenticeship program will consist of the Core Curriculum book and the Level 1 Electrical book.

In the Core Curriculum, students will be lead through 9 modules designed to introduce them to the necessary skills needed to be successful in the construction industry. Topics include:

- Basic Safety
- Introduction to Construction Math
- Introduction to Hand Tools
- Introduction to Power Tools
- Introduction to Construction Drawings
- Introduction to Basic Rigging (optional)
- Basic Communication Skills
- Basic Employability Skills
- Introduction to Material Handling

In Electrical Level 1, the students will study 12 modules that will introduce them to the basics of becoming a journeyperson electrician. Topics include:

- Orientation to the Electrical Trade
- Electrical Safety
- Introduction to Electrical Circuits
- Electrical Theory
- Introduction to the National Electrical Code®
- Device Boxes
- Hand Bending
- Raceways and Fittings
- Conductors and Cables
- Basic Electrical Construction Drawings
- Residential Electrical Services
- Electrical Test Equipment
Carpentry

Carpenters make up the largest building trades occupation in the industry and those with all-around skills are in high demand. Carpenters are involved in many different kinds of construction activities, from building highways and bridges to installing kitchen cabinets. Carpenters construct, erect, install, and repair structures and fixtures made from wood and other materials.

A Carpentry pre-apprenticeship program will consist of the Core Curriculum book and the Level 1 Carpentry book.

In the Core Curriculum, students will be lead through 9 modules designed to introduce them to the necessary skills needed to be successful in the construction industry. Topics include:

- Basic Safety
- Introduction to Construction Math
- Introduction to Hand Tools
- Introduction to Power Tools
- Introduction to Construction Drawings
- Introduction to Basic Rigging (optional)
- Basic Communication Skills
- Basic Employability Skills
- Introduction to Material Handling

In Carpentry Level 1, students will study 9 modules. Topics include:

- Orientation to the Trade
- Building Materials, Fasteners, and Adhesives
- Hand and Power Tools
- Introduction to Construction Drawings, Specifications, and Layout
- Floor Systems
- Wall Systems
- Ceiling Joist and Roof Framing
- Basic Stair Layout
- Introduction to Building Envelope Systems
Plumbing

Plumbers install, maintain, and repair many different types of pipe systems. For example, some systems move water to a municipal water treatment plant and then to residential, commercial, and public buildings. Other systems dispose of waste, provide gas to stoves and furnaces, or supply air conditioning. Pipe systems in power plants carry the steam that powers huge turbines. Pipes also are used in manufacturing plants, such as wineries, to move material through production processes.

A Plumbing pre-apprenticeship program will consist of the Core Curriculum book and the Level 1 Plumbing book.

In the Core Curriculum, students will be lead through 9 modules designed to introduce them to the necessary skills needed to be successful in the construction industry. Topics include:

- Basic Safety
- Introduction to Construction Math
- Introduction to Hand Tools
- Introduction to Power Tools
- Introduction to Construction Drawings
- Introduction to Basic Rigging (optional)
- Basic Communication Skills
- Basic Employability Skills
- Introduction to Material Handling

In Plumbing Level 1, students will study 12 modules that will introduce them to the basics of becoming a journeyperson plumber. Topics include:

- Introduction to the Plumbing Profession
- Plumbing Safety
- Tools of the Plumbing Trade
- Introduction to Plumbing Math
- Introduction to Plumbing Drawings
- Plastic Pipe and Fittings
- Copper Pipe and Fittings
- Cast-Iron Pipe and Fittings
- Carbon Steel Pipe and Fittings
- Introduction to Plumbing Fixtures
- Introduction to Drain, Waste, and Vent (DWV) Systems
- Introduction to Water Distribution Systems
For More Information Contact:

Ginny Shindelar
Vice President of Education & Training
ABC of Iowa Apprenticeship & Training Trust
3100 SE Enterprise Dr.
Grimes, IA 50111
Phone: 515.985.1175
Cell: 515.777.9537
Fax: 515.986.1479
Email: ginny.shindelar@abciowa.org