

Craft Training Courses



NCCER Core

All ABC Training begins with learning the Core Skills of the industry. However, before beginning your craft training, taking such high school courses as English, Algebra, Geometry, Mechanical Drawing, and Blueprint Reading would be great benefit.

At ABC, your craft training will begin with learning the core skills that provide the foundation needed to work for all the other crafts in the NCCER curriculum. These skills include: Math, Basic Communication, Introduction to Blueprint Reading, the proper use of Power Tools, and Especially Safety. Once you've mastered the Core Skills, it's time to begin the courses related to your specific craft. All the courses combine learning in the classroom with hands-on training, and most will require a commitment to learning in the future-or what we call "Lifelong Learning." The following is a look at some of the most popular construction crafts across the country.

NCCER Electrical

Electricians deliver electricity to our apartments, condominiums, and homes we live in. They install the electrical systems required for stores, restaurants, schools, churches, doctor's offices, hospitals, airports, factories, and industrial plants. They also repair and upgrade these systems in existing buildings or those being remodeled. Electricians work closely with other construction craft professionals, and together, build the infrastructure to make our community a better place to live.

Electricians need to have a good mechanical ability, work well with other craft professionals, interpret Blueprints, bend and install conduit systems, install and terminate wiring systems, install lighting fixtures, install motors or motorized equipment, install emergency generator systems, understand electrical circuitry, understand Power Distribution systems, test Electrical systems, diagnose and repair electrical problems, direct and train future electricians.

NCCER Instrumentation

Instrumentation is the monitoring and controlling of temperature, flow, level and pressure as it relates to controlling a process. These system controls are found in chemical plants, refineries, paper mills, power plants, and manufacturing facilities. Instrumentation consists of installation of control devices and systems, calibration and check out of instruments, and finally startup of instrument control systems. There are two careers paths in the instrumentation field, which are Instrument Fitters and Instrument Technicians. Instrument Fitters are responsible for the installation of the instruments, instrument air piping and supports supplied to the instruments and instrument and process tubing from the instruments to the process piping. Instrument Technicians are responsible for calibrating the instruments to the desired set points define in the process, checking the instruments back to the control room and assisting in starting up each process control system. The majority of today's instrumentation process is electronic, instrument fitters and instrument technicians must work closely with the electricians as it relates to the installation, wiring and checkout of these devices.

Instrument Fitters need to have good mechanical ability, work well with other craft professionals, interpret Blueprints and Piping & Instrument Drawings (P&ID's), install instruments as they relate to the control process, install instrument air piping and supports, and bend and install instrument tubing,

Instrument Technicians need to have good mechanical ability, work well with other craft professionals, interpret Loop Sheets and Piping & Instrument Drawings (P&ID's), receive, inspect, calibrate and store process instruments, terminate instrument wiring at the instrument and in junction boxes, test instrument wiring installations, utilize instrument calibration devices and meters, and assist in starting up process systems.

NCCER Heavy Equipment Operator (excavation)

Heavy Equipment Operators (HEOs) use machinery to move construction materials, earth and other heavy materials at construction sites, offshore oil rigs and in the mining industry. Heavy Equipment Operators, HEO is divided into dirt and hook. Dirt work refers to the operation of a variety of specialized equipment to excavate, grade and prepare land for building roads, structures, and bridges or for digging trenches to lay/repair pipelines. Dirt HEOs also spread asphalt and concrete for road construction or for building of foundations.

Hook or Crane work refers to the operation of a variety of specialized equipment capable of lifting hundreds of tons of materials (hanging from a hook) to heights of several hundred feet. Modern cranes are computerized and utilize joysticks to control movement. HEOs must set up and inspect their equipment, make adjustments to improve job safety and machinery performance, and make minor repairs to the equipment at times. The equipment is operated by moving levers, foot pedals, switches or joysticks.

Technology, in the form of computerized controls, improved hydraulics and electronics, requires highly-skilled operators, (As an example, Global Positioning Systems are used for grading and leveling work.) HEOs work outdoors, in all types of climates and conditions. The weather or stage of the project may require equipment operators to work irregular hours (around the clock/very early in morning or late at night).

Some equipment can be noisy, shake, and jolt the operator. Operating the equipment can be dangerous, making the adherence to safety procedures imperative for the operator's safety as well as all personnel on site.

Working in this field requires a basic knowledge of engine mechanics; courses in science and mechanical drawing are also helpful. HEOs often obtain a commercial driver's license (CDL) to haul equipment to the various job sites.

NCCER Millwright

Millwrights install, repair, replace and dismantle machinery and heavy equipment used in many industries. Millwrights may work in a variety of manufacturing industries, or in the construction industry, usually for a construction contractor. Millwrights are responsible for machinery from the time it arrives at a jobsite, through the stages of unloading and inspection, through moving it into position for installation. Millwrights use rigging and hoisting devices (pulleys and cables) to lift and move light machinery, or hydraulic lift-trucks or cranes for heavier equipment. Since millwrights often decide which device to use for moving machinery, they must know the load-bearing properties of rope, cables, hoists, and cranes.

Millwrights consult with managers and others to determine the optimal placement of machinery. In cases where a new foundation is needed, millwrights either prepare the foundation themselves, or supervise its construction. Millwrights must know how to read blueprints and work with a variety of building materials. In assembling machinery, millwrights fit bearings, align gears and wheels, attach motors, and connect belts, all according to the manufacturer's blueprints and drawings. Alignment and leveling must be precise in the assembly process, so millwrights measure angles, material thickness, and small distances using squares, calipers and micrometers. When a high degree of precision is required, millwrights use lasers and ultrasonic measuring alignment tools.

Other tools commonly used by the millwright are hand and power tools such as cutting torches, welding machines, hydraulic torque wrenches, and hydraulic stud tensioners, soldering guns, and lathes and grinding machines. As machines become more technologically advanced, millwrights must also continue their training. Courses in science, math, mechanical drawing, computers, machine shop, blueprint reading, hydraulics, electricity and electronics are important in preparing for this career.

AWS Welding

Welding is the most common way of permanently joining metal parts. In this process, heat is applied to metal pieces, melting and fusing them to form a permanent bond. Because of its strength, welding is used in shipbuilding, manufacturing and repair, aerospace applications, construction, and maintenance.

There are several different types of welding, from arc welding to semi-automatic welding to fully-automated welding. Training is necessary, as the welder works with equipment which carries a strong electrical current, and safety is an important issue. In addition, some understanding of the basic concepts of metallurgy, blueprint reading, and specifications are important to know. A welder's work is commonly reviewed by non-destructive testing, as these tests can determine the quality of the weld and the welder's skill and competency level.

NCCER Pipefitting

Pipefitting involves measuring, cutting, bending, and joining lengths of pipe to lay out, assemble, install, and maintain pipe systems, pipe supports, and related hydraulic and pneumatic equipment for steam, hot water, heating, cooling, lubricating, sprinkling, and industrial production and processing systems. Working in this field requires the ability to read blueprints, knowledge of building code requirements, and general construction knowledge so as to prevent obstructions with electrical wiring and insure that the piping systems will operate correctly when construction is complete. Saws, pipe cutters, pipe-bending machines, soldering tools, and pressure gauges are power tools used to create piping systems from plastic, glass, steel, or copper.

Specialty Training Courses

NCCER Construction Site Safety Technician (CSST)

Safety Technology - Provides instruction on how to implement and administer a company's safety program. This manual is designed for field managers, safety directors, safety committees, owner safety representatives, and insurance/loss control representatives.

Field Safety - To help prevent accidents, a safety program must be in place. This five-volume curriculum will provide you with the rules and safeguards you need to work safely on any job site. Safety must be incorporated into all phases of the job and involve all employees at every level, including management. Field Safety is one of three titles in the NCCER Safety Learning Series, covering topics such as Hazard Communication, Fall Protection, and Forklift Safety