

NACTF

NORTH ALABAMA CRAFT TRAINING FOUNDATION

2017-2018 CATALOG

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The North Alabama Craft Training Foundation (NACTF) is a U. S. Department of Labor Registered Apprenticeship Program. It is a four-year training course with each apprentice required to complete 2,000 hours of OJT each year for a total of 8,000 OJT hours. NACTF is an accredited training program of the National Center for Construction Education and Research (NCCER). The Contren Learning Series provided through (NCCER) is the curriculum of the NACTF. Each apprentice receives 144 hours of theory training each year in accordance with government regulations. NACTF is a non-profit organization.

This catalog contains policies, procedures and guidelines adopted by the NACTF Board of Directors. There may be changes in policies, procedures and guidelines from time to time; therefore, users must take this into consideration. The information provided in the catalog is not a contract between the NACTF and the apprentice. NACTF will make every effort to maintain the integrity of the catalog and notify apprentices of any changes that may occur. The NACTF has the right to change any provision in this publication without notifying a student individually.



Accredited Training Program

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NORTH ALABAMA CRAFT TRAINING FOUNDATION

2017-18 Board of Directors

Mr. Sean Lee, Chairman

Lee Builders, Inc. (Huntsville, AL)

Mr. Jason Lindsey

Madison Electric, Inc. (Madison, AL)

Mr. Jay Stutts

Jesse Stutts, Inc. (Huntsville, AL)

Mr. Will Mitchell

Stewart Electric Company, Inc. (Huntsville, AL)

Mr. Britt McCormick

Wells & Tate Electric Company, Inc. (Meridianville, AL)

Mr. Alan Schollian

M & D Mechanical Contractors, Inc. (Decatur, AL)

Mrs. Kathy Pigg

Brindley Construction, LLC (Pulaski, TN)

2017-18 Instructors

Mr. Rex Tucker, Consolidated Construction Company, (Huntsville, AL).....Carpentry 1-4
Mr. Roger Thompson, Jesse Stutts, Inc. (Huntsville, AL).....Electrical 1
Dan Williams, Limestone Career Technical Center (Huntsville, AL).....Electrical 1
Michael Rice, ACW Electric., (Tanner, AL).....Electrical 2
Mr. Michael McCoy, AMRDEC, RSA, (Huntsville, AL).....Electrical 3
Mr. Barry Barley, Apache Fabrication, (Ryland, AL).....Electrical 3
Mr. Doug Halbrooks, Inline Electrical Supply, (Huntsville, AL).....Electrical 4
Mr. John Barnard, M & D Mechanical Contractors, Inc. (Decatur, AL).....Plumbing 1-4
Mr. Brian Matlock, M & D Mechanical Contractors, Inc. (Decatur, AL).....Pipefitting 1-4
Mr. Tim Anders, M & D Mechanical Contractors, Inc. (Decatur, AL).....Sheet Metal 1-4
Shea Thomas, Lee Builders, Inc. (Decatur, AL).....Project Management 1-4

Administrator: Mr. Wade Thompson

Message from the Chairman

Welcome to the North Alabama Craft Training Foundation. Thank you for reviewing our information and we hope that you will continue your education with us.

Through the NACTF, both the employer and the student (apprentice) have opportunities to enhance our community. Training future craftspeople is one of the biggest challenges employers face. NACTF offers you an opportunity to help our industry grow!

The student (apprentice) has the opportunity to better himself/herself by learning a new trade: Carpentry, Electrical, Pipefitting, Plumbing, and/or Sheet Metal.

We invite you to help make our program successful by assisting us in improving the image of our industry.

- Sean Lee, Chairman 2017-18

Mission Statement

North Alabama Craft Training Foundation was organized to promote, provide for and operate an apprenticeship and training program. This program shall be registered with and approved by the Bureau of Apprenticeship and Training with the United States Department of Labor. The primary program objective is to ensure the existence of a quality local workforce in various crafts related to the building industry.

Core Values

- Intellect
- Diversity
- Ingenuity
- Teamwork
- Diligence

Vision Statement

To ensure that each apprentice is successful in his/her chosen trade.

2017-2018 Calendar

This calendar is a tentative schedule. If an instructor meets on Mondays there may be some weeks that they choose to meet on Tuesday, Wednesday, or Thursday to make up missed days due to weather, holidays, or other unforeseen events. This schedule is based on Madison City Schools Calendar.

FALL SEMESTER

REGISTRATION	M	Aug 7 (Bob Jones Cafeteria)
	M-Th	Aug 14-17
	M-Th	Aug 21-24
	M-Th	Aug 28- Aug 31
	M-Th	Sept 4-7 (4 th Labor Day)
	M-Th	Sept 11-14
	M-Th	Sept 18-21
	M-Th	Sept 25-28
	M-Th	Oct 2-5
	M-Th	Oct 9-12 (Fall Break)
	M-Th	Oct 16- 19
	M-Th	Oct 23-26
	M-Th	Oct 30- Nov 2
	M-Th	Nov 6-9
	M-Th	Nov 13-16
	M-Tue	Nov 20-21 (23 rd Thanksgiving)
	M-Th	Nov 27- Nov-30
	M-Th	Dec 4- Dec 7
	M-Th	Dec 11-14
	M-Tue	Dec. 18-19 (Christmas Break Bob Jones Dec-20-Jan4)

SPRING SEMESTER

	M-Th	Jan 8-11
	M-Th	Jan 15-18 (January 15 th Martin Luther King Day)
	M-Th	Jan 22-25
	M-Th	Jan 29- Feb 1
	M-Th	Feb 5-8
	M-Th	Feb 12-15
	M-Th	Feb 19-22 (Feb 19 Presidents Day)
	M-Th	Feb 26-Mar 1
	M-Th	Mar 5- 8
	M-Th	Mar 12-15 (Spring Break Bob Jones)
	M-Th	Mar 19-22
	M-Th	Mar 26-29
	M-Th	Apr 2-5
	M-Th	Apr 9-12
	M-Th	Apr 16-19
	M-Th	Apr 23-26
	M-Th	April 30-May 3
	M-Th	May 7-10
GRADUATION	Tues	May 15

General Information

What is Apprenticeship Training?

Apprenticeship training is a defined period of on-the-job training (OJT) supplemented by trade related theory instruction. Each apprentice receives 2,000 hours of OJT and 144 hours of theory training each year in accordance with government regulations.

Wages of an Apprentice

Apprentices shall be paid on a progressively increasing schedule of wages based on a percentage of wages paid to a journeyman. The Apprenticeship Committee may grant credit for prior experience and thereby affect the beginning wage of a new apprentice. Applicants may also be granted credit for related trade theory training upon submission of satisfactory proof.

Equal Employment Opportunity

The recruitment, selection, employment and training of apprentices during their apprenticeship shall be without discrimination because of race, color, religion, national origin or sex. The North Alabama Craft Training Foundation shall take and actively promote affirmative action to provide equal opportunity in apprenticeship and will operate the program as required under Title 29 of the Code of Federal Regulations, Part 30 as amended.

Enrollment Prerequisites

- NACTF Enrollment Application/Department of Labor Registration Form
- NACTF Release of Liability
- NCCER Application and Release Form
- Copy of:
 - (1) Driver's License
 - (2) High School Diploma or GED
- Three Reference Letters

Registration Dates

Registration is announced in the spring and mid-summer. At those times the registration place, time and date will be announced. At registration the apprentice will be informed of their meeting time and place for the upcoming school year. Each class will meet a total of 36 times per year (including registration and graduation nights.) There are several locations for training and they are listed on the next page. For more information on registration call (256) 355-1168 or email info@nactf.org.

General Information (Continued)

Tuition

Tuition for the 2017-18 school year is \$1150.00 per student (ABC Member) and \$1500.00 per student (Non-ABC Member). Tuition is reviewed annually by the Board of Directors. NACTF is a non-profit organization and makes every effort to keep tuition rates reasonable.

ABC MEMBER PRICING	NON-ABC MEMBER PRICING
Tuition - \$700	Tuition - \$900
Registration Fee - \$300	Registration Fee - \$450
Book Fee - \$150	Book Fee - \$150
Total: \$1150	Total: \$1500

Tuition is payable within (30) days of invoicing, unless other arrangements have been made at the time of registration. Registration and textbooks fees are non-refundable. Tuition may ONLY be refunded if the apprentice does not attend school within the first 45 days.

This contract will remain in effect for the full term of the apprenticeship. The North Alabama Craft Training Foundation reserves the right to change the amount of any fee at the beginning of any school year.

EVEN THOUGH THE EMPLOYER MAY HAVE AN AGREEMENT WITH THE APPRENTICE TO PAY THE APPRENTICE'S FEES, IT IS UNDERSTOOD THAT THE APPRENTICE IS RESPONSIBLE FOR PAYMENT IN THE EVENT THE EMPLOYER, FOR ANY REASON, DOES NOT PAY THE FEES. IN ADDITION, THE APPRENTICE AGREES TO PAY ALL COSTS OF COLLECTION INCLUDING A REASONABLE ATTORNEY'S FEE.

North Alabama Craft Training Foundation

Training Locations:

Bob Jones High School

650 Hughes Road
Madison, AL 35758

ABC of North Alabama

26670 Success Drive
Madison, AL 35756
(256) 355-1168

M & D Mechanical Facility

1813 Sherman Street
Decatur, AL
(256) 350-6568
(256) 351-9677 Fax

Mister Sparky Electric

2410 8th Street
Huntsville, AL 35805
(256) 513-6461

Policies and Rules for Students/Apprentices

CLASS SCHEDULE

Apprenticeship classes begin at the discretion of the instructor, Monday through Thursday evening. Most classes start at 4:00 p.m. or 5:00 p.m. and will end at 8:00 p.m. or 9:00 p.m.

ATTENDANCE

Classes will begin promptly at the scheduled time. You need to be in your seat at the scheduled time with text, tools and materials. Being tardy can be disruptive to the education process. Being absent can create many problems. Roll call will be made each class night. Your employer/sponsor will be notified if you are tardy or absent. A total of three unexcused absences will be allowed during the course year. Three late arrivals will constitute an absence. In the event you have in excess of three unexcused absences, you have to appear before the apprenticeship committee.

GRADING SYSTEM

During the course of your training you will be required to take written and skill tests. To pass the written tests, you must meet the following numerical scores:

90 –100	EXCELLENT
80 –89	ABOVE AVERAGE
70 –79	AVERAGE (PASS)
0–69	REPEAT COURSE

FIREARMS, CONTROLLED SUBSTANCES / DRUGS, ALCOHOL

The use, possession, concealment, sale of, or being under the influence of, drugs or alcohol and/or having paraphernalia, alcoholic beverages or firearms on the premises of the training site, its parking lots, or roads of entry is strictly forbidden. Any person found to be in violation of the above will be immediately terminated from the apprenticeship program.

BEHAVIOR

The North Alabama Craft Training Foundation is an adult education program. Therefore, the chapter expects no discipline problems. The instructor is responsible for classroom discipline. You are expected to act as an adult. You will be expected to conduct yourself in a manner so that you will not disrupt other students in their learning process or affect the safety and well-being of your fellow students and you. Should unwarranted interruption of normal classroom procedure take place, the individual involved will

be dealt with immediately. Action in this regard may be grounds for immediate suspension or other action deemed appropriate by the sponsor representative in consultation with the instructor. The trainee may appeal the disciplinary action with the Craft Training Committee.

SAFETY

All apprenticeship students are expected to adhere to the North Alabama Craft Training Foundation safety policies. You will be required to abide by all federal, state and local codes and regulations, to recognize industry practices and standards while in the classrooms and/or workshops. If a trainee engages in any unsafe training practices and/or violates any known and accepted safety practices, rules or laws, he/she will be subject to disciplinary action up to and including termination from the program. The trainee may appeal to the Craft Training Committee.

SMOKING/TOBACCO PRODUCTS

Smoking and any tobacco products are not allowed in the buildings.

CARE OF TOOLS AND EQUIPMENT

Use the equipment and tools as if they were your own. Remember, "*Thou shall not steal.*" Lost, damaged, broken tools, supplies and machines will be replaced or repaired at your expense.

BOOKS AND INSTRUCTIONAL MANUALS

Once sold to students, books become used and the student cannot receive a refund from The North Alabama Craft Training Foundation.

JOB HOPPING POLICY

You cannot move from company to company without first abiding by one of the following:

- A. Get permission from both companies.
- B. Get permission from apprenticeship committee.

DISCIPLINARY ACTIONS

Any apprentice or trainee enrolled in The North Alabama Craft Training Foundation training program found to have committed, or participated in, any of the following misconduct will be subject to disciplinary action determined by the sponsor representative and the trade committee:

- ✓ Acts of dishonesty.
- ✓ Excessive absenteeism or tardiness.

- ✓ Classroom disruption.
- ✓ Physical/verbal abuse or harassment of any type.
- ✓ Theft, misuse or willful damage of property.
- ✓ Possession, consumption or sale of controlled substance, alcoholic beverages, or firearms while participating in training or training related activities on or near the training facility to include parking areas.
- ✓ Being late for or missing class.
- ✓ Being under the influence of any controlled substance or alcoholic beverages.
- ✓ Use of electronic devices such as cell phones, beepers, headsets, etc., during classroom hours.

GRIEVANCE

The Craft Training Committee will appoint a trainee Grievance Committee. You have the right to file a grievance, however, try to settle the problem between yourself and the other person. If the problem cannot be resolved then contact the Education Director. If he can't resolve the problem, the apprenticeship committee will review the problem. No grievance will be reviewed unless all proper steps and channels have been followed. A trainee may appeal any adverse decision or act directly to the Grievance Committee. The appeal will be in writing to the committee within 30 days. The committee shall have the right to ask the trainee to appear in person. The trainee may also appeal to the National Center within 60 days from written notice of the adverse decision.

EQUAL EMPLOYMENT OPPORTUNITY AFFIRMATIVE ACTION STATEMENT OF POLICY

It is the policy of this chapter to provide equal training opportunity in full compliance with the Civil Rights Act of 1964, as amended, the Age Discrimination in Employment Act of 1967, provisions of the Rehabilitation Act of 1973, the Veterans Readjustment Act of 1974, the Presidential Executive Orders and the regulations of the office of Federal Contract Compliance Programs. This provides for equal employment without regard to race, color, religion, sex, national origin, marital status, age, disability and veteran status.

The North Alabama Craft Training Foundation has made a commitment to: (1) take affirmative action in our recruiting, training, upgrading, advertising and promotion practices to seek women and other minorities for our training program, (2) further the principle of equal training opportunity, (3) stand by that principle in our promotional selection and training decisions by measuring all candidates in a fair and equal manner, (4) ensure that all opportunities are administered equally regardless of race, sex, color, national origin, age, religion, marital status, physical or mental disability, or veteran status. Sexual harassment whether physical, mental or verbal will not be condoned under any circumstances.

ABSENTEE POLICY

The Apprenticeship Committee approved the following. For the apprentice who is sincere about learning his trade, this policy will not be an obstacle. The apprentice wants to be in class and learn as much as he/she possibly can, so he/she can become a more valuable employee for his company.

The policy is simple!

There are three (3) excusable absences:

1. Letter from employer stating you worked.
2. Death in family.
3. Doctor's excuse.

It is very important that ALL classes are attended!! Should you miss more than one-half of a class, this will constitute an absence. Please be at class on time – if you are tardy three times, this will constitute an absence.

If an apprentice accumulates three (3) UNEXCUSED absences in a school year, he **WILL** have to appear before the committee. If an apprentice accumulates six (6) EXCUSED absences, the apprentice **and** his employer **WILL** have to appear before the committee.

The Committee will review the reasons for the absences and make a determination as to whether or not the student shall be allowed to complete the school year. ALL class work missed due to an absence MUST be made up prior to the next test!!

The North Alabama Craft Training Foundation will notify the contractor of every absence for each of their apprentices. It is the responsibility of the employer to forward a letter stating the reason for the absence directly to Wade Thompson by email at info@nactf.org or by fax at (256) 355-1409 or by mail at P.O. Box 6145, Huntsville, AL 35813. We ask that the employer respond as soon as possible after notification of absence has been received. Please do NOT forward doctors' excuses, etc. An email or letter from the employer is required to excuse an absence.

Apprentices may NOT turn in absence excuses to their instructor – these must be turned in to the employer! Should you have any questions, please call Jason Lindsey at (256) 772-0803 or Wade Thompson at (256) 690-1677.

JOB HOPPING POLICY

An apprentice employed by Contractor No. 1 cannot up and leave that contractor and go to work for Contractor No. 2, without first abiding by one of the following courses of action:

1. Get written permission from both contractors stating that they approve the job transfer.
2. Request to come before the Committee of your trade and explain why they want to move from one contractor to another. The Committee will function as a neutral party and make a ruling in accordance with the Standards of Apprenticeship formulated by The North Alabama Craft Training Foundation in cooperation with the Bureau of Apprenticeship and Training, U.S. Department of Labor.

Should the apprentice **not** follow one of the above courses of action, and decide to change jobs on his own, he will leave the committee no choice but to dismiss him from his opportunity to learn his/her trade.

Should you have any questions, you may call one of your committee members, Jay Stutts (256) 533-7730 or Jason Lindsey (256) 772-0803.

MONTHLY ON-JOB-TRAINING REPORTS

As specified in our Apprenticeship Standards, it is necessary that all apprentices are trained in accordance with, but not limited to, the attached schedule of major on-job-training work processes for your trade. The training does not have to be in the order listed, nor do the hours of training have to be continuous.

You, as an apprentice, are responsible for filling out the monthly OJT forms, reporting your work and then returning the forms to your employer or The North Alabama Craft Training Foundation.

It is necessary for you to make these reports because no apprentice can complete the Apprenticeship Program and be certified as a Journeyman with the Department of Labor, Bureau of Apprenticeship and Training until he/she has accumulated the necessary OJT hours for graduation. Of further importance to you is the fact that apprentice wages are based upon the number of OJT hours accumulated.

The forms that you send in will be presented to the Department of Labor and the Veterans Administration (if you are a veteran) to certify and validate your OJT hours. In addition we will use these forms to keep your employer fully informed of your progress as an apprentice.

Be sure and send the forms in promptly as our reports to the above named agencies will be based solely on the records we have received from you. **The forms should be turned in to your employer/The North Alabama Craft Training Foundation office no later than the 5th of the month for the previous month's training.**

Monthly OJT reports are not complete until they have been signed and graded by your supervisor. If the report is not TOTALED, graded and signed, it will be returned.

OJT forms will not be accepted over 90-days old. These should be turned in monthly!

North Alabama Craft Training Foundation Curriculum

Note: The NACTF uses the NCCER curriculum. The curriculum modules may be revised and updated in the future. As the modules are updated and changed, NACTF will update with NCCER. The first five digits of any module defines the specific training of the module, the last two digits define the year the module was published.

Core Curriculum

This curriculum is the prerequisite to most Level 1 completions. It will be taught in conjunction with Level 1 Courses.

(Total Level Hours: 72.5 Mandatory, 15 Elective/ Optional)

00101-09 Basic Safety (12.5 Hours)

Complies with OSHA-10 training requirements. Explains the safety obligations of workers, supervisors, and managers to ensure a safe workplace. Discusses the causes and results of accidents and the impact of accident costs. Defines safe work procedures, proper use of personal protective equipment, and working with hazardous chemicals. Identifies other potential construction hazards, including hazardous material exposures, welding and cutting hazards and confined spaces.

00102-09 Introduction to Construction Math (10 Hours)

Reviews basic mathematical functions and explains their applications to the construction trades. Explains how to use and read various length measurement tools, including standard and metric rulers and tape measures, and the architect's and engineer's scales. Explains decimal-fraction conversions and the metric system, using practical examples. Also reviews basic geometry as applied to common shapes and forms.

00103-09 Introduction to Hand Tools (10 Hours)

Introduces trainees to hand tools that are widely used in the construction industry, such as hammers, saws, levels, pullers, and clamps. Explains the specific applications of each tool and shows how to use them properly. Also discusses important safety and maintenance issues related to hand tools.

00104-09 Introduction to Power Tools (10 Hours)

Provides detailed descriptions of commonly used power tools, such as drills, saws, grinders, and sanders. Reviews applications, proper use, safety, and maintenance. Many illustrations show power tools used in on-the-job settings.

00105-09 Introduction to Construction Drawings (10 Hours)

Familiarizes trainees with basic terms for construction drawings, components, and symbols. Explains the different types of drawings (civil, architectural, structural, mechanical, plumbing/piping, electrical, and fire protection) and instructs trainees on how to interpret and use drawing dimensions. Four oversized drawings are included.

00106-09 Basic Rigging (15 Elective Hours)

Explains how ropes, chains, hoists, loaders, and cranes are used move material and equipment from one location to another on a job site. Describes inspection techniques and load-handling safety practices. Also reviews American National Standards Institute (ANSI) hand signals.

00107-09 Basic Communication Skills (7.5 Hours)

Provides trainees with techniques for communicating effectively with co-workers and supervisors. Includes practical examples that emphasize the importance of verbal and written information and instructions on the job. Also discusses effective telephone and e-mail communication skills.

00108-09 Basic Employability Skills (7.5 Hours)

Identifies the roles of individuals and companies in the construction industry. Introduces trainees to critical thinking and problem solving skills and computer systems and their industry applications. Also reviews effective relationship skills, effective self-presentation, and key workplace issues such as sexual harassment, stress, and substance abuse.

NEW! 00109-09 Introduction to Materials Handling (5 Hours)

Recognizes hazards associated with materials handling and explains proper materials handling techniques and procedures. Also introduces materials handling equipment, and identifies appropriate equipment for common job-site tasks.

North Alabama Craft Training Foundation Curriculum

Carpentry Level 1

(Total Level Hours: 225; includes 72.5 of Core Curriculum)

27101-06 Orientation to the Trade (2.5 Hours)

Reviews the history of the trade, describes the apprentice program, identifies career opportunities for carpentry and construction workers, and lists the responsibilities and characteristics a worker should possess.

27102-06 Building Materials, Fasteners, and Adhesives (7.5 Hours)

Provides an overview of the building materials used in construction work, including lumber, sheet materials, engineered wood products, structural concrete, and structural steel. Also describes the various fasteners and adhesives used in construction work.

27103-06 Hand and Power Tools (10 Hours)

Provides detailed descriptions of the hand tools and portable power tools used by carpenters. Emphasis is on safe and proper operation of tools, as well as care and maintenance.

27104-06 Reading Plans and Elevations (20 Hours)

Builds upon the basic information presented in the Introduction to Blueprints module studied in the Core Curriculum. Trainees will learn the techniques for reading and using blueprints and specifications with an emphasis placed on those drawings and types of information that are relevant to the carpentry trade. Introduces the subject of quantity takeoffs.

27105-06 Floor Systems (25 Hours)

Covers framing basics as well as the procedures for laying out and constructing a wood floor using common lumber as well as engineered building materials.

27106-06 Wall and Ceiling Framing (20 Hours)

Describes the procedures for laying out and framing walls and ceilings, including roughing-in door and window openings, constructing corners and partition T's, bracing walls and ceilings, and applying sheathing.

27107-06 Roof Framing (37.5 Hours)

Describes the various kinds of roofs and contains instructions for laying out rafters for gable roofs, hip roofs, and valley intersections. Coverage includes both stick-built and truss-built roofs.

27108-06 Introduction to Concrete, Reinforcing Materials, and Forms (5 Hours)

Describes the ingredients of concrete, discusses the various types of concrete, and describes how to mix concrete. The module also covers basic job-built footing, edge, and wall forms and form ties and describes the types and uses of concrete reinforcing materials.

27109-06 Windows and Exterior Doors (12.5 Hours)

Describes the various types of windows, skylights, and exterior doors, and provides instructions for installing them. Also includes instructions for installing weather-stripping and locksets.

27110-06 Basic Stair Layout (12.5 Hours)

Introduces the trainee to the various types of stairs and the common building code requirements related to stairs. The module focuses on the techniques for measuring and calculating rise, run, and stairwell openings, laying out stringers, and fabricating basic stairways.

Carpentry Level 2

(Total Level Hours: 215; Optional Residential Path Only: 165, Optional Commercial Path Only: 145)

27201-07 Commercial Drawings (25 Hours)

Elective for Residential Path

Describes the types and uses of drawings prepared for commercial structures. Provides information about the format and content of commercial drawings and their use in conveying specific construction requirements. Describes the standard format for specifications.

27202-07 Roofing Applications (25 Hours)

Elective for Commercial Path

Covers the common materials used in residential and light commercial roofing, along with the safety practices and application methods for these materials. Includes shingles, roll roofing, shakes, tiles, metal, and membrane roofs, as well as the selection and installation of roof vents.

27203-07 Thermal and Moisture Protection (7.5 Hours)

Covers the selection and installation of various types of insulating materials in walls, floors, and attics. Also covers the uses and installation practices for vapor barriers and waterproofing materials.

27204-07 Exterior Finishing (35 Hours)

Elective for Commercial Path

Covers the various types of exterior siding used in residential construction and their installation procedures, including wood, metal, vinyl, and cement board siding.

27205-07 Cold-Formed Steel Framing (15 Hours)

Describes the types and grades of steel framing materials and includes instructions for selecting and installing metal framing for interior walls, exterior nonbearing walls, and partitions.

27206-07 Drywall Installation (15 Hours)

Describes the various types of gypsum drywall, their uses, and the fastening devices and methods used to install them. Contains detailed instructions for installing drywall on walls and ceilings using nails, drywall screws, and adhesives. Also covers fire- and sound-rated walls.

27207-07 Drywall Finishing (12.5 Hours)

Covers the materials, tools, and methods used to finish and patch gypsum drywall. Includes coverage of both automatic and manual taping and finishing tools.

27208-07 Doors and Door Hardware (20 Hours)

Covers the installation of metal doors and related hardware in steel-framed, wood-framed, and masonry walls, along with their related hardware, such as locksets and door closers. Also covers the installation of wooden doors, folding doors, and pocket doors.

27209-07 Suspended Ceilings (15 Hours)

Elective for Residential Path

Includes the materials, layout, and installation procedures for many types of suspended ceilings used in commercial construction, as well as ceiling tiles, drywall suspension systems, and pan-type ceilings.

27210-07 Window, Door, Floor, and Ceiling Trim (25 Hours)

Covers the different types of trim used in finish work. Focuses on the proper methods for selecting, cutting, and fastening trim to provide a professional finished appearance.

27211-07 Cabinet Installation (10 Hours)

Provides detailed instructions for the selection and installation of base and wall cabinets and countertops.

27212-07 Cabinet Fabrication (10 Elective Hours)

Provides an introduction to the materials, tools, and methods used in cabinetmaking. Practice projects help the trainee learn the various joining techniques, while providing practice on stationary power tools.

Carpentry Level 3

(Total Level Hours: 172.5)

27301-07 Rigging Equipment (10 Hours)

Describes the use and inspection of basic equipment and hardware used in rigging, including slings, wire rope, chains, and attaching hardware such as shackles, eyebolts, and hooks, as well as rigging knots. Explains sling angles. Also covers tuggers, jacks, hoists, and come-along.

27302-07 Rigging Practices (15 Hours)

Describes basic rigging and crane hazards and related safety procedures, provides an overview of personnel lifting and lift planning, and introduces crane load charts and load balancing. Includes instructions for rigging and lifting pipe.

27303-07 Properties of Concrete (10 Hours)

Describes the properties, characteristics, and uses of cement, aggregates, and other materials that, when mixed together, form different types of concrete. Covers procedures for estimating concrete volume and testing freshly mixed concrete, as well as methods and materials for curing concrete.

27304-07 Reinforcing Concrete (15 Hours)

Explains the selection and uses of different types of reinforcing materials. Describes requirements for cutting, bending, splicing, and tying reinforcing steel and the placement of steel in footings, columns, walls, and slabs.

27305-07 Handling and Placing Concrete (22.5 Hours)

Covers tools, equipment, and procedures for handling, placing, and finishing concrete. Also covers joints made in concrete structures, the use of joint sealants, and form removal procedures. Emphasizes safety procedures for handling, placing, and finishing concrete.

27306-07 Trenching and Excavating (10 Hours)

Prepares the trainee for working in and around excavations, particularly in preparing building foundations. It covers types and bearing capacities of soils; procedures used in shoring, sloping, and shielding trenches and excavations; trenching safety requirements, including recognition of unsafe conditions; and mitigation of groundwater and rock when excavating foundations.

27307-07 Foundations and Slab-On-Grade (20 Hours)

Covers basic site layout tools and methods; layout and construction of deep and shallow foundations; layout and forming of slabs-on-grade; and forms used for curbing and paving.

27308-07 Vertical Formwork (27.5 Hours)

Covers the applications and construction methods for various types of forming and form hardware systems for walls, columns, and stairs, as well as slip forms, climbing forms, and shaft forms. The module also provides an overview of the assembly, erection, and stripping of gang forms.

27309-07 Horizontal Formwork (22.5 Hours)

Covers the types of elevated decks and the formwork systems and methods used in their construction. It covers joist, pan, metal deck, and flat slab systems and provides instructions for the use of flying forms, as well as shoring and reshoring systems.

27310-07 Tilt-Up Wall Panels (20 Hours)

Describes how tilt-up concrete construction is used and how tilt-up panels are formed, erected, and braced. It covers the installation of rebar and the types of embedment's used to lift and brace the panels. Methods used to achieve architectural and decorative finishes are also covered.

Carpentry Level 4

(Total Level Hours: 186; 161 required, 25 elective)

27401-08 Site Layout One — Distance Measurement and Leveling (22.5 Hours)

Covers the equipment, principles, and methods used to perform distance measurement and leveling. Also covers the layout responsibilities of surveyors, field engineers, and carpenters; interpretation and use of site/plot plan drawings; and methods used for on-site communication.

27402-08 Site Layout Two — Angular Measurement (30 Hours)

Covers the principles, equipment, and methods used to perform site layout tasks that require making angular measurements. Tasks include laying out building foundation lines and determining elevations by trigonometric leveling. The use of laser instruments, transits, theodolites, electronic distance measurement, and total stations are covered. Reviews trade mathematics, including geometry and right-angle trigonometry, needed to perform the calculations related to angular measurements.

27403-08 Advanced Roof Systems (20 Hours)

Covers commercial roofing materials and structures and describes the procedures for installing commercial roofing such as standing seam, lap seam, and built-up roofs.

27404-08 Advanced Wall Systems (25 Hours)

Covers installation of a variety of finishing materials, including paneling, and wainscoting. Also covers installation of curtain walls and fire-rated commercial construction.

27405-08 Advanced Stair Systems (25 Hours)

Provides extensive coverage of the materials and techniques used in finishing wooden staircases. Also covers a variety of stair systems used in commercial construction.

27406-08 Introduction to Light Equipment (10 Hours)

Introduces various pieces of light construction equipment commonly used at a construction site, including the aerial lift, skid steer loader, trencher, electric power generator, compressor, compactor, and forklift. Provides an overview of general safety, operation, and maintenance procedures is given for each type of equipment covered.

27407-08 Welding (25 Elective Hours)

Introduces the equipment, procedures, and safety practices used in cutting steel with oxyfuel equipment, as well shielded metal arc welding, gas-tungsten arc welding, and gas metal arc welding. Labs include practice in cutting and welding techniques.

27408-08 Commercial Finish Work (5 Hours) New!

Introduces the variety of specialized finish materials used on interior and exterior walls, ceilings, and floors of commercial buildings.

27409-08 Site Preparation (7.5 Hours) New!

Covers the planning process that precedes the start of work on a construction site, including environmental considerations, personnel issues, access roads, traffic control, permits, site safety, utilities, and crane-related concerns.

27410-08 (MT101) Introductory Skills for the Crew Leader (16 Hours)

Along with the principles of project planning, scheduling, estimating, and management, introduces the basic skills required for supervising personnel. Several case studies are included.

Note: This module is from the Contren® Management Learning Series. Students may be eligible to receive craft and management transcripts from NCCER's National Registry.

North Alabama Craft Training Foundation Curriculum

Electrical Level 1

185 Hours (Includes 72.5 hours of Core Curriculum which is a prerequisite for completion.)

Orientation to the Electrical Trade (2.5 Hours)

Module ID 26101-14 Provides an overview of the electrical trade and discusses the career paths available to electricians.

Electrical Safety (10 Hours)

Module ID 26102-14 Covers safety rules and regulations for electricians, including precautions for electrical hazards found on the job. Also covers the OSHA-mandated lockout/tag out procedure.

Introduction to Electrical Circuits (7.5 Hours)

Module ID 26103-14 Introduces electrical concepts used in Ohm's law applied to DC series circuits. Covers atomic theory, electromotive force, resistance, and electric power equations.

Electrical Theory (7.5 Hours)

Module ID 26104-14 Introduces series, parallel, and series-parallel circuits. Covers resistive circuits, Kirchhoff's voltage and current laws, and circuit analysis.

Introduction to the National Electrical Code® (7.5 Hours)

Module ID 26105-14 Provides a road map for using the NEC®. Introduces the layout and the types of information found within the code book. Allows trainees to practice finding information using an easy-to-follow procedure.

Device Boxes 10 Hours

Module ID 26106-14 Covers the hardware and systems used by an electrician to mount and support boxes, receptacles, and other electrical components. Also covers NEC® fill and pull requirements for device, pull, and junction boxes under 100 cubic inches.

Hand Bending (10 Hours)

Module ID 26107-14 Introduces conduit bending and installation. Covers the techniques for using hand-operated and step conduit benders, as well as cutting, reaming, and threading conduit.

Raceways and Fittings (20 Hours)

Module ID 26108-14 Introduces the types and applications of raceways, wire ways, and ducts. Stresses the appropriate NEC® requirements.

Conductors and Cables (10 Hours)

Module ID 26109-14 Focuses on the types and applications of conductors and covers proper wiring techniques. Stresses the appropriate NEC® requirements.

Basic Electrical Construction Drawings (7.5 Hours)

Module ID 26110-14 Describes electrical prints, drawings, and symbols, and the types of information that can be found on schematics, one-lines, and wiring diagrams.

Residential Electrical Services (15 Hours)

(Module ID 26111-14) Covers the electrical devices and wiring techniques common to residential construction and maintenance. Allows trainees to practice making service calculations. Stresses the appropriate NEC® requirements.

Electrical Test Equipment (5 Hours)

Module ID 26112-14 Covers proper selection, inspection, and use of common electrical test equipment, including voltage testers, clamp-on ammeters, ohmmeters, multimeters, phase/motor rotation testers, and data recording equipment. Also covers safety precautions and meter category ratings.

Electrical Level 2

MODULES (145 Hours)

All of the modules listed below are included in the Trainee and Instructor Guide(s). The following ISBN and pricing information is for ordering individual modules only.

Alternating Current (17.5 Hours)

(Module ID 26201-14) Describes forces that are characteristic of alternating-current systems and the application of Ohm's law to AC circuits.

Motors: Theory and Application (20 Hours)

(Module ID 26202-14) Covers AC and DC motors, including the main components, circuits, and connections.

Electric Lighting (15 Hours)

(Module ID 26203-14) Introduces principles of human vision and the characteristics of light. Focuses on the handling and installation of various types of lamps and lighting fixtures.

Conduit Bending (15 Hours)

(Module ID 26204-14) Covers bends in conduit up to 6 inches. Focuses on mechanical, hydraulic, and electrical benders.

Pull and Junction Boxes (12.5 Hours)

Module ID 26205-14 Explains how to select and size pull boxes, junction boxes, and hand holes.

Conductor Installations (10 Hours)

Module ID 26206-14 Covers the transportation, storage, and setup of cable reels; methods of rigging; and procedures for complete cable pulls in raceways and cable trays.

Cable Tray (7.5 Hours)

Module ID 26207-14 Focuses on NEC® installation requirements for cable tray, including cable installations.

Conductor Terminations and Splices (7.5 Hours)

Module ID 26208-14 Describes methods of terminating and splicing conductors, including preparing and taping conductors.

Grounding and Bonding (15 Hours)

Module ID 26209-14 Focuses on the purpose of grounding and bonding electrical systems. Thoroughly covers NEC® requirements.

Circuit Breakers and Fuses (12.5 Hours)

Module ID 26210-14 Describes fuses and circuit breakers along with their practical applications. Also covers sizing.

Control Systems and Fundamental Concepts (12.5 Hours)

Module ID 26211-14 Gives basic descriptions of various types of contactors and relays along with their practical applications.

Electrical Level 3

MODULES (155 hours)

Load Calculations — Branch and Feeder Circuits (17.5 Hours)

(Module ID 26301-14) Explains how to calculate branch circuit and feeder loads for residential and commercial applications.

Conductor Selection and Calculations (15 Hours)

(Module ID 26302-14) Covers the factors involved in conductor selection, including insulation types, current-carrying capacity, temperature ratings, and voltage drop.

Practical Applications of Lighting (12.5 Hours)

(Module ID 26303-14) Describes specific types of incandescent, fluorescent, and HID lamps, as well as ballasts. Also covers troubleshooting and various types of lighting controls.

Hazardous Locations (15 Hours)

(Module ID 26304-14) Presents the NEC® requirements for equipment installed in hazardous locations.

Overcurrent Protection (25 Hours)

(Module ID 26305-14) Explains how to size and select circuit breakers and fuses for various applications. Also covers short circuit calculations and troubleshooting.

Distribution Equipment (12.5 Hours)

(Module ID 26306-14) Discusses switchboards and switchgear, including installation, grounding, and maintenance requirements. This module includes blueprints.

Transformers (12.5 Hours)

(Module ID 26307-14) Discusses transformer types, construction, connections, protection, and grounding.

Commercial Electrical Services (10 Hours)

(Module ID 26308-14) Covers the components, installation considerations, and NEC® requirements for commercial services.

Motor Calculations (12.5 Hours)

(Module ID 26309-14) Covers calculations required to size conductors and overcurrent protection for motor applications.

Voice, Data, and Video (10 Hours)

(Module ID 26310-14) Covers installation, termination, and testing of voice, data, and video cabling systems.

Motor Controls (12.5 Hours)

(Module ID 26311-14) Provides information on selecting, sizing, and installing motor controllers. Also covers control circuit pilot devices and basic relay logic.

Electrical Level 4

MODULES (180 hours)**Load Calculations – Feeders and Services (20 Hours)**

(Module ID 26401-14) Topics include basic calculation procedures for commercial and residential applications.

Health Care Facilities (10 Hours)

(Module ID 26402-14) Covers the installation of electric circuits in health care facilities, including the requirements for life safety and critical circuits.

Standby and Emergency Systems (10 Hours)

(Module ID 26403-14) Explains the NEC® requirements for electric generators and storage batteries.

Basic Electronic Theory (10 Hours)

(Module ID 26404-14) Explains the function and operation of basic electronic devices, including semiconductors, diodes, rectifiers, and transistors.

Fire Alarm Systems (15 Hours)

(Module ID 26405-14) Covers fire alarm control units, Digital Alarm Communicator Systems (DACS), wiring for alarm initiating and notification devices, and alarm system maintenance.

Specialty Transformers (10 Hours)

(Module ID 26406-14) Covers various types of transformers and their applications. Also provides information on

selecting, sizing, and installing these devices.

Advanced Controls (20 Hours)

(Module ID 26407-14) Discusses applications and operating principles of solid-state controls, reduced-voltage starters, and adjustable frequency drives. Also covers basic troubleshooting procedures.

HVAC Controls (15 Hours)

(Module ID 26408-14) Provides a basic overview of HVAC systems and their controls. Also covers electrical troubleshooting and NEC® requirements.

Heat Tracing and Freeze Protection (10 Hours)

(Module ID 26409-14) Covers heat tracing systems along with their applications and installation requirements.

Motor Operation and Maintenance (10 Hours)

(Module ID 26410-14) Covers motor cleaning, testing, and preventive maintenance. Also describes basic troubleshooting procedures.

Medium-Voltage Terminations/Splices (10 Hours)

(Module ID 26411-14) Offers an overview of the NEC® and cable manufacturers' requirements for medium-voltage terminations and splices.

Special Locations (20 Hours)

(Module ID 26412-14) Describes NEC® requirements for selecting and installing equipment, enclosures, and devices in special locations including places of assembly, theaters, carnivals, agricultural buildings, marinas, temporary installations, wired partitions and swimming pools.

Fundamentals of Crew Leadership (20 Hours)

(Module ID 46101-11) Industry today, Gender and Cultural Issues, Business Organizations, Leadership Skills, Communication, Motivation, Team Building, Problem Solving & Decision Making, Safety, Safety Regulations, Promoting Safety, Project Control, Project Delivery, Cost & Estimating, Planning & Scheduling.

North Alabama Craft Training Foundation Curriculum

Pipefitting Level 1

(Total Level Hours: 150; includes 72.5 of Core Curriculum)

08101-06 Orientation to the Trade (5 Hours)

Provides a comprehensive overview of work performed by the pipefitter, as well as pipefitter responsibilities, career opportunities, and safety principles associated with the pipefitting trade.

08102-06 Pipefitting Hand Tools (20 Hours)

Covers general hand tool safety as well as procedures for selecting, inspecting, using, and maintaining hand tools used by pipefitters. Coverage includes pipe wrenches, pipe stands, pipe vises, levels, pipe fabrication tools, pipe bending tools, and pipe joining tools.

08103-06 Pipefitting Power Tools (15 Hours)

Covers general power tool safety as well as procedures for selecting, inspecting, using, and maintaining power tools used by pipefitters. Provides guidelines for using electrical and pneumatic tools, including pipe threading machines.

08104-06 Oxyfuel Cutting (17.5 Hours)

Explains the safety requirements for oxyfuel cutting. Identifies oxyfuel cutting equipment and provides instructions for setting up, lighting, and using the equipment. Includes straight line cutting, piercing, beveling, washing, and gouging.

08105-06 Ladders and Scaffolds (10 Hours)

Covers hazards and safety procedures governing the use of stepladders, extension ladders, fixed scaffolds, and rolling scaffolds. Includes general procedures for scaffold assembly and use.

08106-06 Motorized Equipment (10 Hours)

Explains the safety factors, operator maintenance, and operating procedures associated with motorized equipment used on job sites, including electrical generators, air compressors, aerial lifts, pumps, forklifts, and hydraulic cranes.

Pipefitting Level 2

(Total Level Hours: 162.5)

08201-06 Piping Systems (5 Hours)

Introduces chemical, compressed air, fuel oil, steam, and water systems. Explains how to identify piping systems according to color codes.

08202-06 Drawings and Detail Sheets (15 Hours)

Introduces the trainee to plot plans, structural draw elevation drawings, as-built drawings, equidrawings, P&IDs, isometric drawings, spool sheets, and datasheets.

08203-06 Identifying and Installing Valves (20 Hours)

Identifies and provides installation methods for different types of valves. Also covers valve storage and handling.

08204-06 Pipefitting Trade Math (15 Hours)

Explains how to use ratios and proportions, solve basic algebra, area, volume, and circumference problems, and solve for right triangles using the Pythagorean Theorem.

08205-06 Threaded Pipe Fabrication (15 Hours)

Describes the materials used in threaded piping systems. Explains how to determine pipe lengths between threaded pipe fittings, prepare the pipe and fittings for fit-up, and assemble the piping system.

08206-06 Socket Weld Pipe Fabrication (25 Hours)

Describes the materials used in socket weld piping systems. Explains how to determine pipe lengths between sockets weld fittings, prepare the pipe and fittings for fit-up, and fabricate socket weld fittings.

08207-06 Butt Weld Pipe Fabrication (37.5 Hours)

Describes the materials used in butt weld piping systems. Explains how to determine pipe lengths between butts weld fittings, prepare the pipe and fittings for fit-up, and fabricate butt weld fittings. Also describes how to select and install backing rings, fabricate channel iron welding jigs, and use and care for welding clamps.

08208-06 Excavations (10 Hours)

Explains the use of shoring materials per OSHA standards and covers shoring systems, installing a hydraulic vertical shore, determining the overall fall of a sewer line, setting the grade and elevation of a trench, and backfilling.

08209-06 Underground Pipe Installation (20 Hours)

Explains pipe installation procedures and guidelines, including the procedures for cast iron, ductile iron, concrete, carbon steel, fiberglass and thermoplastic pipe. Includes an introduction to horizontal directional drilling for pipe installation.

Pipefitting Level 3

(Total Level Hours: 132.5)

08301-07 Rigging Equipment (10 Hours)

Describes the use and inspection of basic equipment and hardware used in rigging, including slings, wire rope, chains, and attaching hardware. Explains sling angles. Describes the use of tuggers, jacks, hoists, and come-alongs.

08302-07 Rigging Practices (10 Hours)

Describes basic rigging and crane hazards and related safety procedures. Provides an overview of personnel lifting and lift planning. Introduces crane load charts and load balancing. Includes instructions for rigging and lifting pipe.

08303-07 Standards and Specifications (7.5 Hours)

Explains how to read and interpret pipefitting standards, codes, and specifications. Describes how to identify pipe and components according to specifications.

08304-07 Advanced Trade Math (20 Hours)

Discusses the use of equivalent and conversion tables. Explains how to use right angle trigonometry to calculate take-outs.

08305-07 Motorized Equipment II (10 Hours)

Covers the applications and safety requirements of drain cleaners, man lifts, and cable lifts.

08306-07 Introduction to Aboveground Pipe Installation (20 Hours)

Identifies various types of pipe, flanges, gaskets, and bolts. Includes step-by-step procedures for installing pipe sleeves and floor penetrations.

08307-07 Field Routing and Vessel Trim (10 Hours)

Explains how to secure the work area and determine field run specifications, load weights for erection equipment, and support needs. Covers how to erect vessel trim.

08308-07 Pipe Hangers and Supports (25 Hours)

Explains how to identify, select, and install pipe hangers and supports, including spring can supports.

08309-07 Testing Piping Systems and Equipment (20 Hours)

Explains how to perform pretests, service flow tests, head pressure tests, hydrostatic tests, and steam blow tests.

Pipefitting Level 4

(Total Level Hours: 192.5)

08401-07 Advanced Blueprint Reading (50 Hours)

Explains how to derive necessary construction information from P&IDs, general arrangement drawings, ISOs, and spool sheets. Includes nine 11 x 17 blueprints.

08402-07 Advanced Pipe Fabrication (50 Hours)

Covers the skills needed to layout and fabricate mitered bends, laterals, wyes, and ninety-degree intersections with tables of ordinates or by calculating ordinates with a calculator. These skills are necessary when specialty bends and intersections are required.

08403-07 Stress Relieving and Aligning (15 Hours)

Teaches the nature of inaccuracy, misalignment and pipe strain, and addresses the methods of correcting them. Includes methods of effective communication to reduce these errors.

08404-07 Steam Traps (15 Hours)

Describes the types of traps, their functions and advantages, and the basic methods of troubleshooting steam traps.

08405-07 In-Line Specialties (10 Hours)

Describes the various devices that appear in pipelines, including bleed rings, ball and expansion joints, steam traps, drip legs, desuperheaters, and measuring devices for temperature, level, flow rate, and pressure.

08406-07 Special Piping (25 Hours)

Introduces copper and plastic pipe and tubing. Addresses brazing, soldering, and the differences between the two methods. Also describes the methods of assembling plastic pipe and tubing, compression and flared fittings, and joining methods for grooved and compression formed fittings.

08407-07 Hot Taps (10 Hours)

Teaches the hot tap technique for attaching fittings to the pipeline. Includes line stopping, freeze stopping, and adding connections to the line.

08408-07 Maintaining Valves (10 Hours)

Discusses the safest ways to maintain valves. Teaches how to replace packing and O-rings, as well as how to open and close a valve's bonnet. Introduces general trouble shooting and maintenance of several types of valves.

08409-07 Introduction to Supervisory Roles (7.5 Hours)

Provides an introductory explanation of cultural and gender differences in work scenarios. Covers the basic requirements for movement into supervisory roles, and legal and ethical issues of supervisory roles.

North Alabama Craft Training Foundation Curriculum

Plumbing Level 1

(Total Level Hours: 217.5- Includes 72.5 hours of Core Curriculum)

Introduction to the Plumbing Profession *(5 Hours)*

Introduces trainees to the many career options available in today's plumbing profession. Provides a history of plumbing and also discusses the current technology, industries, and associations that make up the modern plumbing profession. Also reviews human relations and safety skills. (Module ID 02101-12)

Plumbing Safety *(22.5 Hours)*

(Module 02102-12) Discusses the causes of accidents and their consequences and repercussions in terms of delays, increased expenses, injury, and loss of life. Reviews the types and proper use of personal protective equipment (PPE). Instructs trainees in the use of critical safety information conveyed in hazard communication (HazCom), safety signs, signals, lockout/tag out, and emergency response. Covers confined-space safety, and reviews safety issues related to hand and power tools.

Tools of the Plumbing Trade *(10 Hours)*

(Module 02103-12) Instructs trainees in the care and use of the different types of hand and power tools they will use on the job. Gives trainees the information they need to select the appropriate tools for different tasks, and reviews tool maintenance and safety issues.

Introduction to Plumbing Math *(12.5 Hours)*

(Module 02104-12) Reviews basic math concepts, such as whole numbers, fractions, decimals, and squares, and demonstrates how they apply to on-the-job situations. Teaches trainees how to measure pipe using fitting tables and framing squares and how to calculate 45-degree offsets.

Introduction to Plumbing Drawings *(17.5 Hours)*

(Module 02105-12) Introduces trainees to the different types of plumbing drawings they will encounter on the job and discusses how to interpret and apply them when laying out and installing plumbing systems. Discusses the symbols used in plumbing and mechanical drawings and reviews isometric, oblique, orthographic, as well as schematic drawings. Requires trainees to render plumbing drawings and to recognize how code requirements apply to plumbing drawings.

Plastic Pipe and fittings *(12.5 Hours)*

(Module 02106-12) Introduces trainees to the different types of plastic pipe and fittings used in plumbing applications, including ABS, PVC, CPVC, PE, PEX, and PB. Describes how to measure, cut, join, and support plastic pipe according to manufacturer's instructions and applicable codes. Also discusses pressure testing of plastic pipe once installed.

Copper Pipe and Fittings *(12.5 Hours)*

(Module 02107-12) Discusses sizing, labeling, and applications of copper pipe and fittings and reviews the types of valves that can be used on copper pipe systems. Explains proper methods for cutting, joining, and installing copper pipe. Also addresses insulation, pressure testing, seismic codes, and handling and storage requirements.

Cast-Iron Pipe and Fittings (12.5 Hours)

(Module 02108-12) Introduces trainees to hub-and-spigot and no-hub cast-iron pipe and fittings and their applications in DWV systems. Reviews material properties, storage and handling requirements, and fittings and valves. Covers joining methods, installation, and testing.

Carbon Steel Pipe and Fittings (12.5 Hours)

(Module 02109-12) Discusses threading, labeling, and sizing of steel pipe and reviews the differences between domestic and imported pipe. Covers the proper techniques for measuring, cutting, threading, joining, and hanging steel pipe. Also reviews corrugated stainless steel tubing.

Introduction to Plumbing Fixtures (7.5 Hours)

(Module 02110-12) Discusses the proper applications of code-approved fixtures in plumbing installations. Reviews the different types of fixtures and the materials used in them. Also covers storage, handling, and code requirements.

Introduction to Drain, Waste, and Vent (DWV) Systems (10 Hours)

(Module 02111-12) Explains how DWV systems remove waste safely and effectively. Discusses how system components, such as pipe, drains, traps, and vents work. Reviews drain and vent sizing, grade, and waste treatment. Also discusses how building sewers and sewer drains connect the DWV system to the public sewer system.

Introduction to Water Distribution Systems (10 Hours)

(Module 02112-12) Identifies the major components of water distribution systems and describes their functions. Reviews water sources and treatment methods and covers supply and distribution for the different types of systems that trainees will install on the job.

Plumbing Level 2

(Total Level Hours: 165)

Plumbing Math Two (15 Hours)

(Module ID 02201-13) Explains the Pythagorean Theorem and reviews methods for laying out square corners. Discusses the techniques used to calculate simple and rolling offsets, as well as offsets on parallel runs of pipe.

Reading Commercial Drawings (25 Hours)

(Module ID 02202-13) Explains how to identify and interpret civil, architectural, structural, HVAC/mechanical, plumbing, and electrical drawings. Discusses how to ensure accurate dimensions, generate RFIs, and locate plumbing entry points, as well as how to establish piping routes and fixture locations. Isometric drawings, material takeoffs, approved submittal data, and Building Information Management (BIM).

Structural Penetrations, Insulation, and Fire Stopping (15 Hours)

(Module ID 02203-13) Introduces methods for adjusting structural members, insulating pipe, and installing fire stopping. Covers reinforcement techniques for modified structural members; how to measure, cut, and install fiberglass and flexible foam insulation; and how to identify walls, floors, and ceilings that require fire-stopping.

Installing and Testing DWV Piping (30 Hours)

(Module ID 02204-13) Explains how to locate, install, connect, and test a complete drain, waste, and vent (DWV) system. Discusses how to develop material takeoffs, set up and use levels, locate building sewers and building drains, locate fixtures, and test a DWV system.

Installing Roof, Floor, and Area Drains (5 Hours)

(Module ID 02205-13) Covers the proper techniques for locating, installing, and connecting roof, floor, and area drains and floor sinks according to code. Also discusses waterproof membranes and flashing, drain components, shower pans, trap primers, and proper drain applications.

Installing and Testing Water Supply Piping (20 Hours)

(Module ID 02206-13) Explores the proper techniques for locating, installing, and testing complete water service and distribution systems, including meters, water heaters, water softeners, and hose bibs. Introduces trainees to basic backflow prevention and water hammer prevention, and discusses the installation of shower and tub valves, ice maker and washing machine boxes, and pipe stub outs and supports.

Types of Valves (5 Hours)

(Module ID 02207-13) Reviews types of valves, their components, and applications. Also covers valve servicing.

Installing Fixtures and Valves (20 Hours)

(Module ID 02208-13) Covers the installation of basic plumbing fixtures, including bathtubs, shower stalls, lavatories, sinks, water closets, and urinals. Reviews the installation of associated valves, faucets, and components. Also discusses

how to connect appliances such as dishwashers, food-waste disposers, refrigerators and ice makers, and washing machines.

Installing Water Heaters (10 Hours)

(Module ID 02209-13) Discusses gas-fired, electric, tank less, heat pump, and indirect water heaters, components, and applications. Reviews proper installation and testing techniques and covers the latest code requirements for water heaters.

Basic Electricity (10 Hours)

(Module ID 02210-13) Introduces electrical safety and the principles of electricity including voltage, current, resistance, and power. Includes important electrical formulas, circuitry, and common plumbing-related electrical applications.

Fuel Gas and Fuel Oil Systems (20 Hours)

(Module ID 02211-13) Introduces techniques for safe handling of natural gas, liquefied petroleum gas, and fuel oil. Reviews fuel gas and fuel oil safety precautions and potential hazards, applications, systems installation, and testing.

Plumbing Level 3

(Total Level Hours 160)

Applied Math (17.5 Hours)

(Module ID 02301-14) Reviews math concepts, including weights and measures, area and volume, temperature, pressure, and force. Also describes the six simple machines: inclined planes, levers, pulleys, wedges, screws, and wheels and axles.

Sizing and Protecting the Water Supply System (30 Hours)

(Module ID 02312-14) Teaches techniques for sizing water supply systems, including calculating system requirements and demand, developed lengths, and pressure drops. Reviews the factors that can reduce efficiency of water supply piping. Introduces different backflow prevention devices and explains how they work, where they are used, and how they are installed in water supply systems.

Potable Water Supply Treatment (15 Hours)

(Module ID 02303-14) Explains how to disinfect, filter, and soften water supply systems. Discusses how to troubleshoot water supply problems, flush out visible contaminants from a plumbing system, and disinfect a potable water plumbing system.

Types of Venting (20 Hours)

(Module ID 02305-14) Reviews the different types of vents that can be installed in a DWV system and explains how they work. Also teaches design and installation techniques.

Sizing DWV and Storm Systems (20 Hours)

(Module ID 02306-14) Explains how to calculate drainage fixture units for waste systems. Reviews how to size drain, waste, and vent (DWV) systems; storm drainage systems; and roof storage and drainage systems.

Sewage Pumps and Sump Pumps (12.5 Hours)

(Module ID 02307-14) Discusses the installation, diagnosis, and repair of pumps, controls, and sumps in sewage and storm water removal systems.

Corrosive-Resistant Waste Piping (7.5 Hours)

(Module ID 02308-14) Discusses corrosive wastes and reviews related safety issues and hazard communications. Discusses how to determine when corrosive-resistant waste piping needs to be installed, as well as how to correctly select and properly connect different types of piping.

Compressed Air (10 Hours)

(Module ID 02309-14) Explains the principles of compressed air systems and describes their components and accessories. Reviews installation and periodic servicing of air compressor systems.

Service Plumbing (27.5 Hours)

(Module ID 02311-14) Covers the troubleshooting and repair of fixtures, valves, and faucets in accordance with code and safety guidelines. Explains how to diagnose and repair water supply and drainage piping, water heaters, and other appliances and fixtures. Describes the effects of corrosion, freezing, and hard water on plumbing systems.

Plumbing Level 4

(Total Level Hours 146)

Business Principles for Plumbers (15 Hours)

(Module ID 02401-06) Introduces concepts and practices that are essential for competitive, successful plumbing businesses. Covers basic business accounting and project estimating, as well as techniques for cost control and task organization.

Introductory Skills for the Crew Leader

(16 Hours)

(Module ID 02402-06) Introduces trainees to the knowledge and skills required for team leadership. Covers practical information about today's construction industry; basic leadership skills; safety responsibilities of a supervisor; and a detailed survey of project control techniques.

Water Pressure Booster and Recirculation

Systems *(17.5 Hours)*

(Module ID 02403-06) Builds on trainees' previous experience with pumps, storage tanks, controls, and pipes and fittings by explaining how to assemble those components into systems that boost water pressure and provide hot water.

Indirect and Special Waste *(12.5 Hours)*

(Module ID 02404-06) Explains the code requirements and installation procedures for systems that protect against contamination from indirect and special wastes.

Hydronic and Solar Heating Systems *(15 Hours)*

(Module ID 02405-06) Introduces basic hydronic and solar heating systems and their components. Reviews hydronic and solar heating system layout and installation. Also discusses methods inhibiting corrosion in solar heating systems.

Codes *(7.5 Hours)*

(Module ID 02406-06) Discusses the different codes used by plumbers across the country and explains how those codes are written, adopted, modified, and implemented.

Servicing Piping Systems, Fixtures, and Appliances *(22.5 Hours)*

(Module ID 02407-06) Explains how to diagnose and repair water supply and drainage piping, water heaters, and other appliances and fixtures. Describes the effects of corrosion, freezing, and hard water on plumbing systems.

Private Water Supply Well Systems *(10 Hours)*

(Module ID 02408-06) Explains the operation of pumps and well components. Reviews the qualities of good wells and how to assemble and disassemble pumps and components.

Private Waste Disposal Systems *(10 Hours)*

(Module ID 02409-06) Describes the types of private sewage systems, discusses the maintenance and replacement of these systems, and explains how to determine the local code requirements for these systems. Covers percolation tests and sewage system planning and layout.

Swimming Pools and Hot Tubs *(10 Hours)*

(Module ID 02410-06) Introduces plumbing systems in swimming pools, hot tubs, and spas. Trainees will learn how to install and troubleshoot water supply systems and drains.

Plumbing for Mobile Homes and Travel Trailers *(10 Hours)*

(Module ID 02411-06) Describes the location and layout of plumbing systems for mobile home and travel trailer parks. Explains how to design and lay out a system, how to connect water and sewer lines to a mobile home, and how to estimate materials and costs for the park.

North Alabama Craft Training Foundation Curriculum

Sheet Metal Level 1

(Total Level Hours: 175; includes 22.5 elective and 72.5 of Core Curriculum)

04101-08 Introduction to the Sheet Metal Trade (5 Hours)

Summarizes the history and development of the sheet metal trade, explains the benefits of apprenticeship training, and identifies career opportunities in the trade.

04102-08 Tools of the Trade (5 Hours)

Describes the hand and power tools used in the sheet metal trade, including layout tools and cutting, bending, and forming machines. Includes safety and maintenance guidelines.

04103-08 Introduction to Sheet Metal Layout and Processes (7.5 Hours)

Introduces parallel line development, radial line development, and triangulation. Covers selection and use of layout, hand, and machine tools. Discusses how to transfer patterns, and how to cut, form, and assemble parts.

04104-08 Trade Math One (20 Hours)

Builds on trainees' basic math skills to solve trade-problems. Covers calculations using denomiand volume calculations, English-metric system convers basic geometry, and calculation of stretch outs.

04105-08 Fabrication One – Parallel Line Development (22.5 Hours)

Covers the steps involved in using the parallel line development method to lay out fittings and includes step-by-step procedures for selected fittings.

04106-08 Installation of Ductwork (15 Hours) NEW!

Addresses ductwork assembly, use of different types of sealants, using lifts, and installation of ductwork. Describes the types of fasteners (screws, nuts, bolts, and rivets), and supports used in an air distribution system. Discusses proper spacing of hangers, load ratings, and installation of hangers and support systems.

04107-08 Installation of Air Distribution Accessories (5 Hours)

Describes how air distribution accessories, such as louvers, dampers, and access doors, function as part of an air distribution system. Includes installation guidelines and checklists.

04108-08 Insulation (7.5 Elective Hours)

Describes how to install fiberglass blanket, foam, and pipe insulation using approved adhesives and fastening techniques. Also includes the fabrication and installation of fitting covers and preformed fitting covers.

04109-08 Architectural Sheet Metal (15 Elective Hours)

Provides instruction in how to lay out and fabricate sheet metal components of a roof drainage system. Includes flashing, gutters, and downspouts.

Sheet Metal Level 2

(Total Level Hours: 165)

04201-08 Trade Math Two (20 Hours)

Demonstrates how to apply formulas to solve a variety of mathematical problems. Covers linear, area, volume, and angle measurement and percentage, ratio, and proportion. Provides practical instruction in using protractors, Vernier calipers, and micrometers and in solving field measuring problems.

04202-08 Plans and Specifications (20 Hours)

Reviews how to read and interpret section, elevation, and detail drawings. Also covers other specifications and other sources of project information. Includes 17 construction drawings.

04203-08 Fabrication Two – Radial Line Development (55 Hours)

Introduces trainees to radial line development principles that are used to determine layouts for sheet metal fittings. Includes practice layout and fabrication tasks that allow trainees to develop and demonstrate their skills.

04204-08 Sheet Metal Duct Fabrication Standards (7.5 Hours)

Explains how to determine the various requirements for a duct system, including operating pressures, metal gauges, connectors, reinforcements, tie rods, and seams. Also reviews how to use standards, codes, and ordinances to design a duct system.

04205-08 Air Properties and Distribution (15 Hours)

Explains the properties of air and how these properties relate to one another. Teaches how to use the gas laws, psychometric charts, and measuring instruments to evaluate air properties in an air distribution system.

04206-08 Bend Allowances (5 Hours)

Provides instruction and practice in determining proper bend allowances in sheet metal. Also reviews the interplay of different factors that affect the amount of bend allowance needed and the methods for calculating allowance.

04207-08 Soldering (15 Hours)

Identifies soldering tools, materials, and techniques. Also provides trainees with a wide range of soldering tasks for practice.

04208-08 Basic Piping Practices (7.5 Hours)

Reviews the methods for measuring, cutting, and joining selected types of pipe using fittings, hangers, and supports. Also reviews pipe materials and applications.

04209-08 Fiberglass Duct (20 Hours)

Reviews fiberglass duct as well as layout and fabrication methods. Also discusses closure, hanging, and support methods and how to repair major and minor damage to fiberglass duct.

Sheet Metal Level 3

(Total Level Hours: 157.5)

04301-09 Trade Math Three — Field Measuring and Fitting (15 Hours)

Describes the techniques used for field measuring and layout of duct runs and fittings. Also provides practice in solving field measuring problems.

04302-09 Air Systems (10 Hours)

Reviews the operating principles, components, and applications of common air systems. Discusses constant volume systems, variable volume systems, variable temperature (VVT) systems, variable air volume (VAV) systems, and dual VAV systems.

04303-09 Principles of Airflow (22.5 Hours)

Explains the basic principles of airflow and reviews how airflow is affected by duct size, shape, and fittings. Also reviews the components of an air distribution system.

04304-09 Louvers, Dampers, and Access Doors (20 Hours)

Discusses the different types of louvers, dampers, and access doors used in air distribution systems and reviews the standards that apply to them.

04305-09 Comprehensive Plan and Specification Reading (30 Hours)

Provides a case-study approach to learning how to use building plans and specifications to layout, fabricate, and install HVAC systems. Allows trainees to proceed through the module as if they were working on an actual building project. Includes construction drawings.

04306-09 Fabrication Three — Triangulation (47.5 Hours)

Describes the principles of triangulation and how it can be used to measure duct run fittings. Provides trainees with a variety of tasks to practice developing, laying out, and fabricating selected duct run fittings.

NEW! 04307-09 Advanced Architectural Sheet Metal (12.5 Hours)

Provides the opportunity to practice layout, fabrication, and installation of various architectural pieces. Makes use of items built in Fabrication Three—Radial Line Development.

Sheet Metal Level 4

(Total Level Hours 150)

04401-09 Shop Production and Organization (15 Hours)

Introduces trainees to the important production, organization, planning, and control functions that occur in a sheet metal shop. Emphasizes optimization of processes and accurate estimating for competitive bidding. Discusses project planning techniques, principles of efficient shop layout and materials flow, the critical path method, and the roles and relationships of shop personnel.

04402-09 Air Testing and Balancing *(25 Hours)*

Trainees learn how to balance an air distribution system so that the right amount of air is correctly distributed at the proper velocities and returned to the heating and cooling units. Reviews the tools and techniques used for adjusting fans, volume dampers, registers, and grilles. Provides proper techniques for duct leakage testing.

04403-09 Introduction to Welding, Brazing and Cutting *(25 Hours)*

Introduces trainees to the important techniques and proper operation of equipment used for welding, brazing, and cutting. Emphasizes safety and awareness of hazards involved. Students practice welds in a variety of positions and perform a basic braze.

04404-09 Fume and Exhaust System Design *(25 Hours)*

Reviews the codes and specifications pertaining to fume and exhaust system design for safe workspaces. Instructs trainees in selecting the appropriate materials for fume or exhaust system components and to identify the different types of hoods and applications for each.

04405-09 Fabrication Four — Comprehensive Review *(40 Hours)*

Provides a comprehensive review of parallel line, radial line, and triangulation development methods for laying out sheet metal patterns. Trainees practice laying out and fabricating selected sheet metal fittings using these methods.

04406-09 Introductory Supervisory Skills *(20 Hours)*

Teaches the basic skills required to supervise personnel, including leadership, team building, communication and motivation. Discusses gender and cultural issues. Emphasizes principles of project planning and management, including problem solving and decision making. Presents case studies for student participation.

NACTF
Participating
Companies

Company	Address	Phone	
Allied Electric	4830 Commercial Dr. Huntsville, AL 35816	256-837-770	Electrical
ACW Electrical,LLC	P. O. Box 321 Owens x Roads, AL 35763	256-323-4471	Electrical
Apache Electrical	115 Ryland Ridge Circle, Huntsville, AL 35811	256-623-6767	Electrical
Consolidated Construction	908 N. Memorial Parkway, Suite 2A Huntsville, AL 35801	256-534-2356	Carpentry
CR-Mechanical Contracting	P. O. Box 207, Tanner, AL 35671	256-233-6233	Pipefitting &Plumbing
Dixie Electric	107 Cloverleaf Drive, Athens, AL 35811	256-233-0015	Electrical
Fite Building	3116 Sexton Road, SE, Decatur, AL 35603	256-353-5759	Carpentry
Jesse Stutts Electrical	3414 9 th Ave, Huntsville, AL 35805	256-533-7730	Electrical
K Electric	4922 Moores Mill Road, Huntsville, AL 35811	256-527-5682	Electrical
Lee Builders	2049 Fisher Street, Huntsville, AL 35803	256-881-1778	Carpentry
Madison Electric	P. O. Box 217, Madison, AL 35758	256-772-0803	Electrical
Marathon Electric	1328 Southfield Drive, SE, Decatur, AL 35603	256-584-0038	Electrical
M & D Mechanical Contractors	1810 Sherman Street, Decatur, AL 35601	256-350-6568	Pipefitting, Plumbing & Sheet Metal
Mitchell Industrial Contractors	188 Westchester Drive, Madison, AL 35758	256-772-5554	Pipefitting, Plumbing & Electrical
Pro Electric	2012 Poole Drive, Madison, AL 35810	256-851-2041	Electrical
Stewart Electric	P. O. Box 14485, Huntsville, AL 35815	256-536-4375	Electrical
Stutts Corporation Electrical	3301 8 th Ave, Huntsville, AL 35807	256-536-8726	Electrical
Thomas Electric	161 Nick Fitchard Road, Huntsville, AL 35806	256-859-7040	Electrical
Turner Construction	336 James Record Road, Huntsville, AL 35814	256-461-6774	Carpentry
Veep Electric	26649 Nick Davis Road, Athens, AL 35613	256-874-0342	Electrical
Wells & Tate Electric	160 Wells Road, Meridianville, AL 35759	256-828-0761	Electrical