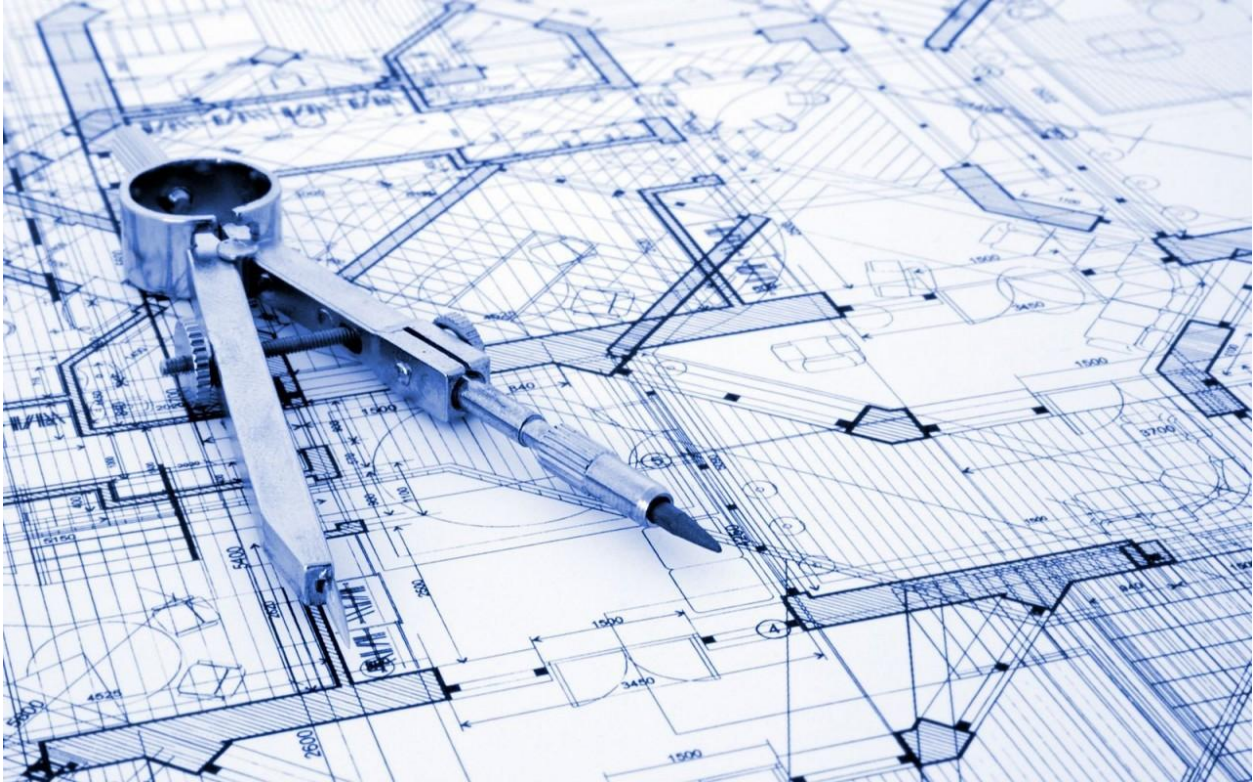


SQUARE ROOT TRADE CENTER

Program Information Packet



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Thank you for your interest in Square Root Trade Center. We are pleased to share our vision with all that are interested in the future of our youth and young people in urban areas across the Atlanta Metropolitan Area.

The idea for Square Root Trade Center was born from the interaction that the founder Andre Wideman has had with youth and young adults through his business Blueprint Plumbing. Over the years, he has come in contact with young people that need assistance in finding alternatives to crime and illegal income and direction in finding a career that can provide stability and sustainability for themselves and their families. It became apparent that students and young adults are looking for training in a trade that will lead to employment and even opportunity to start and operate their own business.

The Square Root program is a system based on training standards developed by the Construction Education Foundation of Georgia; these standards have been tested and proven to lead to a successful education in the construction trade.

We are looking for a location to house the program and well as financial resources to help operate. In addition, partnerships with local plumbing companies, construction companies and leaders in the community will be vital to the success of the program and the students.

Enclosed you will find information about the structure of the program. However; the passion for developing and nurturing the program is best communicated through the program's founder Andre Wideman. We welcome the opportunity to talk to you in depth about our vision for Square Root Trade Center as well as our needs.

Please contact Andre Wideman at info@blueprintplumbing.com to arrange a time to talk to us about the program and how you can help.

Square Root Trade Center
Empowering our Youth through Leadership, Education & Opportunity

Program Description

Square Root trade Program is a three quarter (36 week) technical training program that focuses on preparing youth for a career in plumbing. The program offers basic knowledge and skills similar to parts of the first year of an apprentice's training. Consequently, as a Square Root Trade Program graduate, students will be able to demonstrate their commitment to the plumbing trade.

Course work includes sketching diagrams, interpretation of blueprints, and practices in plumbing assembly. Students will also gain knowledge of state codes and requirements.

Graduates should qualify for employment with plumbing contractors, maintenance companies and supply houses.

Program Learning Outcomes

- Identify various piping materials and fittings
- Effectively utilize hand tools and power tools related to the trade
- Follow directions related to the trade
- Calculate various piping offset dimensions
- Sketch and read simple plumbing systems drawings

Overall Program Outcome

Students will exit the program with a Plumbing diploma signifying completed course work in the plumbing field equivalent to two years of hands on experience credited towards the achievement of a plumbing journeyman license (**pending approval from the Georgia Construction Industry Licensing Board – Plumbing Division**). Job placement assistance will be offered through partnerships with area plumbing companies and job placement centers and programs.

Occupational Outlook

Nationwide the skilled workforce industry is in a shortage crisis. For more than twenty years, the construction and pipeline industry has recognized the emerging and growing shortages of skilled craftworkers. The industry is facing staggering growth while simultaneously wrestling with significant workforce challenges. The construction industry used to take pride in a tradition of craftsmanship. Today, while many of our craft professionals still hold this pride, the industry no longer instills this pride in young people searching for career opportunities. According to the Bureau of Labor Statistics, Occupational Outlook Handbook, job opportunities are expected to be excellent in the plumbing field in the coming years as the demand for this skilled trade is expected to outpace the supply of trained workers.

The construction industry is rebounding from the recession and is expected to rank among the economy's top 10 largest sources of employment growth through 2020. In fact, with an annual projected growth rate of 2.9%, the construction industry is projected to have the largest growth rate of all industries. It is estimated that the industry will have to recruit more than 240,000 new

craft professionals each year to keep up with growth and demand. Projected job growth for plumbers, pipefitters and steamfitters is 21% from 2012-2022.

Today, sixty six percent of high school graduates go to college, but only sixty percent of these students earn a degree. The result is 60 percent of our high school students are looking for jobs that do not require a college degree. 30 percent of high school students will drop out, and 10 percent of students that do finish high school will lack the skills needed for employment, leaving 40 percent of our youth searching for jobs that require minimum skills for employment, jobs that are only 15% of the overall labor force. It is essential to our future that we reach out to our young people and expand career-training opportunities to them through programs such as Square Root Training Program.

Careers in Plumbing

State law requires that only properly licensed plumbers be permitted to install and repair plumbing systems in dwellings, structures and businesses. As such, there is a demand for the services of these tradespersons. Contractors need plumbers for new construction, and to repair and remodel existing buildings. Licensed plumbers are thorough and skilled mechanics versed in the theory and practice of installing hot and cold water supplies, drainage, venting and plumbing appliances in accordance with the state plumbing code and local ordinances.

Learning the plumbing trade will lead to a career in one of several fields including; plumber, pipe fitter, inspector, consultant, supply house manager and entrepreneur to name a few. Usually plumbers gain a general knowledge of trades, especially in new construction, as plumbers are the first on a new construction job site installing the underground system and are usually one of the last trades to leave, installing the fixtures.

Admissions Requirements:

- Attainment of 16 years of age
- A high school diploma or GED or currently enrolled in high school or GED program
- Completion of application and all related procedures
- Basic understanding of the plumbing profession as outlined in the questions associated with the application
- A desire to learn the trade and pursue a career in plumbing or a plumbing related field
- Ability to drive and a valid driver's license

Aptitudes and skills important in the program are: good mechanical comprehension, spatial visualization, reading and math skills, physical strength, and the ability to work with others.

Class Structure

Classes will meet two days per week and every other Friday and Saturday (alternating) during the month and a shop class will be held twice a month. Friday classes are reserved for field trips and field work, project inspections and tests. Saturday classes will be held to conduct workshops

based on the current topic and visits from subject matter experts. Schedules for Friday and Saturday classes will be posted prior to the beginning of each semester.

Classes are held in the evening starting no later than 6:30 p.m. and on Saturdays starting no later than 9:00 a.m. Classes are 2-3 hours per session depending on the current module or assignment, workshops and field trips will be no longer than 5 hours. Students will receive hands on training no less than four times per month (including the two shop classes). Students will be given weekly tests/inspections dependent on current module. Evaluations will be given every four weeks during each quarter to ensure that students understand their progress and problem areas if any. More severe cases of failure will be evaluated sooner upon the instructor's discretion to meet the student's needs. Active class participation is encouraged.

Attendance is essential to success in the program. If a student misses three or more classes consecutively, the student will automatically be dismissed from the program. In instances where the student has a legitimate excuse (as decided by the instructor) the student will be allowed to re-enroll in the program when the scheduled semester class offerings are available. Students that miss more than four classes for any given quarter will also be evaluated to ensure that they can complete the class successfully. Five or more absences for any given quarter also results in an automatic dismissal from the program.

All classes, workshops and field trips will be in locations accessible by Marta for those students that do not have their own transportation. Under special circumstances, when locations are not accessible by Marta, other transportation arrangements will be made.

The Plumbing Diploma course will be instructed by Andre Wideman, Licensed Master Plumber – Unrestricted Class II, State of Georgia. Andre Wideman has worked in the plumbing field for nearly 20 years and holds several certifications including Certified Green Plumber through Green Plumbers USA, septic tank contractor, trenching and shoring, track pipe installation and specialty water heater installation to name a few. Mr. Wideman is also the owner of Blueprint Plumbing Company Inc., a full service plumbing contractor.

Program Cost:

Fees will be assessed per quarter. Fees are to include course instruction, books and materials. The estimated quarterly fee will be \$4,500

Required Tools:

- 1 – 25' Tape Measure
- 1 – Pocket Level
- 2pr – Channel Locks
- 1 – Hand Saw
- 1 – Hack Saw
- 2pr – Copper Cutter ½" to 1" minimum
- 1pr – CPVC Cutters
- 1 set – Screw Drivers
- 1 – Sheet Rock Saw
- 1 – Pipe Wrench

1 – Hard Hat
1pr – Steele Toe Boots
1 pr – Dickies Work Wear Jeans/Pants
1 – Tool Bag or Box

Books:

Plumbing Instruction Textbooks – as specified by instructor
Georgia Plumbing Code

Curriculum

Plumbing I – 12 Weeks

Introduction to the Plumbing Profession

- Describe the history of the plumbing profession
- Identify the responsibilities of a person working in the construction industry
- Overview of plumbing administration and its applicability in the various stages of the plumbing process
- Review of plumbing related terms and vocabulary
- General regulations regarding the installation of plumbing

Safety

- Describe the common unsafe acts and unsafe conditions that cause accidents
- Describe how to handle unsafe acts and unsafe conditions
- Explain how the cost of accidents and illnesses affects everyone on site
- Demonstrate the use and care of appropriate personal protective equipment
- Identify job-site hazardous work specific to plumbers
- Demonstrate the proper use of ladders.
- Demonstrate how to maintain power tools safely
- Explain how to work safely in and around a trench
- Describe and demonstrate the lockout/tagout process.

Tools & Equipment

- Identify the basic hand and power tools used in the plumbing trade
- Demonstrate the proper use of plumbing tools
- Demonstrate the ability to know when and how to select the proper tool(s) for tasks
- Demonstrate the proper maintenance for caring for hand and power tools
- Demonstrate how to prepare a surface for tool use
- Describe the safety requirements for using plumbing tools

Plumbing Math

- Add, subtract, multiply, and divide: whole numbers, fractions and decimals
- Convert decimals to percentages and vice versa
- Convert fractions to decimals and vice versa
- Explain what the metric system is and how it is important in the plumbing trade

- Square various numbers and take square roots of numbers, with and without a calculator.
- Identify the parts of a fitting and use common pipe-measuring techniques
- Use fitting dimension tables to determine fitting allowances and thread makeup.
- Calculate end-to-end measurements using fitting allowances and thread makeup.

Fixtures and Faucets and Valves (Types, Installation and Servicing)

- Identify the basic types of materials used in the manufacture of plumbing fixtures
- Discuss common types of sinks, lavatories, and faucets
- Identify and discuss common types of bathtubs, bath-shower modules, shower stalls, and shower baths
- Discuss common types of toilets, urinals and bidets
- Identify and describe common types of drinking fountains and water coolers
- Discuss common types of garbage disposals and domestic dishwashers
- Identify the basic types of valves
- Describe the differences in pressure ratings for valves
- Demonstrate the ability to service various types of valves
- Describe the general procedures you should follow before installing any fixture
- Install bathtubs, shower stalls, valves and faucets
- Install water closets and urinals
- Install lavatories, sinks, and pop-up drains
- Protect fixtures
- Identify common repair and maintenance requirements for fixtures, valves, and faucets
- Identify the proper procedures for repairing and maintaining fixtures, valves, and faucets.

Introduction to Plumbing Drawings

- Identify pictorial (isometric and oblique), schematic, and orthographic drawings, and discuss how different views are used to depict information about objects.
- Identify basic symbols used in schematic drawings of pipe assemblies
- Explain the types of drawings that may be included in a set of plumbing drawings and the relationship among the different drawings
- Interpret plumbing-related information from a set of plumbing drawings
- Sketch orthographic and schematic drawings
- Use an architect's scale to draw lines to scale and to measure lines drawn to scale
- Discuss how code requirements apply to certain drawings

Plumbing II – 12 Weeks

Installing Water Heaters

- Describe the basic operation of water heaters
- Identify and explain the functions of the basic components of water heaters
- Install an electric water heater
- Install a gas water heater
- Describe the safety hazards associated with water heaters.

Water Supply & Distribution

- Describe the process in which water is distributed in municipal, residential, and private water systems
- Identify the major components of a water distribution system, and describe the function of each component
- Explain the relationship between components of a water distribution system.
- Identify the types of materials and schedules used with copper piping
- Identify the material properties, storage, and handling requirements of copper piping
- Identify the types of fittings and valves used with copper piping
- Identify the techniques used in hanging and supporting copper piping
- Properly measure, ream, cut and join copper piping
- Identify the hazards and safety precautions associated with copper piping

Sanitary Drainage

- Identify types of materials and schedules of plastic piping
- Identify proper and improper application of plastic piping
- Identify types of fitting and valves used with plastic piping
- Identify and determine the kinds of hangers and supports needed for plastic piping
- Identify the various techniques used in hanging and supporting plastic piping
- Properly measure, ream, cut and join copper piping
- Explain proper procedures for the handling, storage, and protection of plastic pipes

Indirect/Special Waste Systems

- Identify and install an indirect waste system
- Identify and install an interceptor
- Material, Joints, Connections

Types of Venting

- Describe the scientific principles of venting
- Design vent systems according to local code requirements
- Sketch the different types of vents
- Construct given vent configurations
- Install the different types of vents correctly
- Select correct fittings for vents

Caring For Our Water (Green Initiative)

- Develop skills in effectively managing resources
- Understand increasing sustainability through water and energy efficient products and practices
- Practice improving the management of the water cycle

Climate Care (Green Initiative)

- Understand what the greenhouse effect is and what the main gases are
- Learn about the impact household plumbing services on the greenhouse effect
- Apply techniques to reduce greenhouse gas emissions from hot water appliances and heating and cooling appliances

Reading Commercial Drawings

- Interpret information from given site plans
- Verify dimensions shown on drawings and generate a request for information (RFI) when you find discrepancies
- Locate plumbing entry points, walls and chases
- Create an isometric drawing
- Do a material takeoff for drainage, waste, and vent (DWV) and water supply systems from information shown on drawings
- Use approved submittal data, floor plans, and architectural details to lay out fixture rough-ins, to develop estimates, and to establish general fixture locations
- Recognize the need for coordination and shop drawings.

Advanced Plumbing – 12 Weeks

Traps, Interceptors and Separators

- Understanding Trap Requirements
- Defining different interceptors and identifying where they are required and approved
- Defining different separators and identifying where they are required and approved

Storm Drainage

- Understanding the materials, design, construction and installation of storm drainage
- Combining storm with sanitary drainage
- Size roof drainage systems
- Size conductors, leaders and storm drains
- Explain the functions, components, and operation of sewage and sump pumps
- Size a storm water sump by calculating the runoff from paved and unpaved land surfaces
- Size a sewage sump by calculating the sewage flow from a structure
- Install a sump pump
- Find local applicable code requirements for installation and use

Special Piping and Storage Systems

- Understanding the design and installation of piping and storage systems for non-flammable medical gas systems
- Understanding the design and installation of piping and storage systems for nonmedical oxygen systems

Water Efficient Technology (Green Initiative)

- Develop skills and knowledge in alternative water sources for urban application
- Understand the complex mechanical, physical and biological processes needed in developing an alternative water system

Solar Hot Water (Green Initiative)

- Develop skills in effectively managing existing resources
- Develop skills in increasing sustainability through water and energy efficient products and practices

- Gain a clear understanding of existing water efficient products, emerging technologies, best management practices and existing conservation programs

Inspection and Report Services (Green Initiative)

- Specify the skills required to develop and conduct both domestic and commercial water audits
- Identify water and energy saving opportunities through development and use of checklists and reporting
- Perform calculations for the purpose of identifying water and energy savings, as well as financial savings, that will help the end user make an educated choice
- Provide demonstrated knowledge of environmentally efficient products and practices

Business Principles for Plumbers

- Identify and interpret a balance sheet and profit and loss statement
- Prepare a material takeoff as part of an estimate
- Identify the business activities that affect profit and loss
- Understand starting and operating a business
- Identify the appropriate business structure for a plumbing business (sole proprietorship, LLC, Corporation etc.)
- Explain the importance of delegating and implementing policies and procedures

Top performing students will be offered a work-study opportunity with Blueprint Plumbing Inc; allowing students to work in the plumbing field during their last quarter of study in a paid entry-level position.