CURRICULUM FOR PLUMBING LEVEL - 1

For ABC, Inc. - Northern Ohio Chapter, Training Program

OSHA 10 Hour Training

Core – 72.5 Mandatory Hours; 15 Elective/Optional Hours*: - Covers basic safety, construction math, hand and power tools, blueprint reading, basic rigging, communication & employability skills.*

Introduction to the Plumbing Profession – 5hrs: Provides a history of plumbing and discusses the current technology, industries, and associations that make up the modern profession, and review safety skills.

Plumbing Safety – 22.50hrs: Discuss causes of accidents and their consequences. Reviews the types and proper use of personal protective equipment (PPE) also covers confined-space safety, and reviews safety issues related to hand and power tools.

Plumbing Tools – 10hrs: Instruct trainees on the care and use of the different types of hand and power tools. Gives them the information they need to select the appropriate tools for different tasks, and reviews tool maintenance and safety issues.

Introduction to Plumbing Math – 12.5hrs: Reviews basic math concepts, such as whole numbers, fractions, decimals, and squares, and demonstrates how they apply to the job. Teaches trainees how to measure pipe using fitting tables and framing squares and how to calculate 45-degree offsets

Introduction to Plumbing Drawings – 17.5hrs: 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 – 12.5hrs: Explains the different types of plastic pipe and fittings used in plumbing applications, including ABS, PVC, CPV, 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 – 12.50hrs: 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.

CURRICULUM FOR PLUMBING LEVEL - 1
Continued

Cast-Iron Pipe and Fittings – 12.5hrs: Introduction to hub-and-spigot and no-hub cast-iron pipe and fittings and their applications in DWV systems it also reviews material properties, storage & handling requirements, fittings and valves, also covers joining methods, installation and testing.

Carbon Steel Pipe and Fittings – 12.50hrs: Discusses threading, labeling, & sizing of carbon steel pipe & reviews the differences between domestic and imported pipe and covers proper techniques for measuring, cutting, threading, joining, and hanging carbon steel pipe.

Introuduction to Plumbing Fixtures – 7.5hrs: Discusses the proper application sof 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.

Fixtures and Faucets – 5hrs: Proper applications of code-approved fixtures and faucets in plumbing installations. Review different types of fixtures & faucets, and the materials used in them. Also covers storage, handling & code requirements.

Introduction to Drain, Waste, and Vent (DWV) Systems – 10hrs: 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 how building sewers and sewer drains connect the DWV system to the public sewer system.

Introduction to Water Distribution Systems – 10hrs: 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.

Total Hours Level 1: 217.5

CURRICULUM FOR PLUMBING LEVEL - 2

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Plumbing Math Two – 15hrs: Explains the Pythagorean Theorem and reviews methods for finding angles. Discusses the techniques used to calculate simple and rolling offsets, as well as offsets on parallel runs of pipe.

Reading Commercial Drawings – 20hrs: Teaches how to interpret and use civil, architectural, structural, mechanical, plumbing, and electrical drawings when installing plumbing systems. Covers how to create and use isometric drawings, material takeoffs, and approved submittal data.

Hangers, Supports, Structural Penetrations, and Fire Stopping – 10hrs: Methods for attaching and running DWV and water supply piping in relation to structural elements, including pipe hangers and supports, modifications to structural members, and fire-stopping.

Installing and Testing DWV Piping – 25hrs: Explains how to locate, install, connect, and test a complete drain, waste, and vent (DWV) system.

Installing Roof, Floor, and Area Drains – 5hrs: Covers proper techniques for locating, installing, and connecting roof, floor, and area drains according to code. Also discusses waterproof membranes & flashing, drain components, & proper drain applications.

Types of Valves – 5hrs: Reviews types of valves, their components, and valve applications, along with, valve repair and replacement.

Installing and Testing Water Supply Piping – 20hrs: Explores the proper techniques of locating, installing, and testing complete water supply systems, including piping, meters, water heaters, water softeners, and hose bibs. Review common code requirements for water supply systems.

Installing Fixtures, Valves, and Faucets – 20hrs: Covers installation of basic plumbing fixtures, including bathtubs, shower stalls, lavatories, sinks, water closets, and urinals. Also reviews the installation of associated valves, faucets, and components.

Introduction to Electricity – 15hrs: Introduces the principles of electricity, including voltage, current, resistance, and power also includes important electrical formulas, circuitry, and common plumbing related electrical applications.

Installing Water Heaters – 5hrs: Discusses gas-fired, electric, solar, instantaneous and indirect water heaters, components, and applications. Reviews proper installation and testing techniques and covers the latest federal guidelines that apply them.

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CURRICULUM FOR PLUMBING LEVEL - 2 CONTINUED

Fuel Gas Systems – 20hrs: Introduces the techniques for safe handling of natural gas, liquefied petroleum gas, and fuel oil. Reviews fuel gas and fuel oil applications, system installation, and testing.

Servicing of Fixtures, Valves, and Faucets – 5hrs: Covers troubleshooting and repair of fixtures, valves, and faucets in accordance with code and safety guidelines.

Total Hours Level 2: 165.0

CURRICULUM FOR PLUMBING LEVEL - 3

For ABC, Inc. - Northern Ohio Chapter, Training Program

Applied Math – 17.5hrs: Introduces the trainees to the math concepts they will use on the job, including weights and measures, area and volume, temperature, pressure and force and also reviews the six simple machines: planes, levers, pulleys, wedges, screws, and wheels and axles.

Sizing Water Supply Piping – 17.5hrs: Teaches techniques for sizing water supply systems, including calculating system requirements & demand, developed lengths, & pressure drops, and reviews factors that can reduce efficiency of water supply piping.

Portable Water Supply Treatment – 15hrs: 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 portable water plumbing system.

Backflow Preventers – 20hrs: Introduces the different types of backflow prevention devices and discusses how they work, where they are used, and how they are installed.

Types of Venting – 20hrs: Reviews different types of vents that can be installed in a DWV system and how they work. Also teaches design and installation techniques.

Sizing DWV and Storm Systems – 20hrs: Explains how to calculate drainage fixture units for waste systems and reviews how to size drain, waste, and vent (DWV) systems; storm drainage systems; and roof storage and drainage systems.

Sewage Pumps and Sump Pumps – 17.5hrs: Discusses the installation, diagnosis, and repair of pumps, controls, and sumps in sewage and storm water removal systems.

Corrosive-Resistant Waste Piping – 7.5hrs: 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 – 10hrs: Explains the principles of compressed air systems and describes their components and accessories and reviews installation and periodic servicing of air compressor systems.

Total Hours Level 3: 145

CURRICULUM FOR PLUMBING LEVEL - 4

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Business Principles for Plumbers – 15hrs: Introduces trainees to concepts and practices that are essential for competitive, successful plumbing businesses and covers basic business accounting and project estimating, as well as, techniques for cost control.

Introductory Skills for the Crew Leader – 16hrs: Along with the principles of project planning, scheduling, estimating, and management, teaches the basic skills required for supervising personnel.

Water Pressure Booster and Recirculation Systems – 17.5hrs: Builds on trainees' previous experience with pumps, storage tanks, controls, and pipes and fittings by teaching them to assemble those components into systems that boost water pressure and provide hot water.

Indirect and Special Waste – 12.5hrs: Explains the code requirements and installation procedures for systems that protect against contamination from indirect and special wastes.

Hydronic and Solar Heating Systems – 15hrs: Introduces the basic types of hydronic and solar heating systems and their components and reviews hydronic and solar heating system layout and installation. Also covers methods for inhibiting corrosion in solar heating systems.

Codes – 7.5hrs: Discusses the different types of codes used by plumbers across the country and explains how those codes are written, adopted, modified, and implemented.

Servicing Piping Systems, Fixtures, and Appliances – 22.50hrs: Explains how to diagnose and repair water supply and drainage piping, water heaters, and other appliances and fixtures.

Private Water Supply Well Systems – 10hrs: 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 – 10hrs: 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 and covers percolation tests and sewage system planning and layout.

Swimming Pools and Hot Tubs – 10hrs: Introduces trainees to plumbing systems in swimming pools, hot tubs, and spas.

Plumbing for Mobile Homes and Mobile Home Parks – 10 Hrs.: Location & layout of plumbing systems for mobile homes & travel trailer parks. How to design & layout a system, connect water & sewer lines and how to estimate materials and costs for the park.

Total Hours Level 4: 146