

ABC Apprenticeship Plumbing Curriculum

Level One

Introduction to the Plumbing Trade Introduces the trainee to plumbing, starting with the history of plumbing from ancient times to current plumbing training programs. Also covers professional practices, career opportunities, and some basic safety information.

Plumbing Tools Covers the tools that plumbers use in their daily work and need in their toolboxes, including measuring tools, leveling tools, wrenches, pliers, hammers, screwdrivers, vises, saws, pipe cutters, drills, threaders, and soldering equipment.

Introduction to Plumbing Math Reviews basic math principles and then moves on to plumbing-specific math problems, including calculating pipe lengths, runs, and offsets for 45-degree angles.

Introduction to Plumbing Drawings Reviews the blueprints that are included in a building's plans and then moves on to specific plumbing drawings such as isometric and oblique pictorial drawings, orthographic drawings, and schematic drawings. Also covers drawings of fixtures, assembly drawings, and cutaway drawings.

Plastic Pipe and Fittings Describes the various types of plastic piping and fittings; what each is used for; and the measuring, cutting, and joining techniques for each type. Also covers the hangers and supports used with plastic pipe.

Copper Pipe and Fittings Describes the various types of copper piping and fittings; what each is used for and the measuring, cutting, and joining techniques for each type. Also covers hangers and supports used with copper pipe.

Cast-Iron Pipe and Fittings Describes the two types of cast-iron pipe (hub and no hub); what fittings are used with each; and how each is measured, cut, joined, and assembled. Also covers the hangers and supports used with cast-iron pipe.

Carbon Steel Pipe and Fittings Describes carbon steel pipe; fittings used with it; and how it is measured, cut, threaded, joined, and assembled. Also covers the hangers and supports used with carbon steel pipe.

Fixtures and Faucets Covers the various types of fixtures that plumbers install, including sinks and lavatories, bathtubs and showers, water closets and urinals, garbage disposals and dishwashers, and laundry trays and mop basins. Also covers compression and noncompression faucets for sinks and lavatories.

Introduction to Grain, Waste and Vent (DWV) Systems Provides an overview of the drain, waste and vent (DWV) system from inside the building where the liquid drains into pipes, to the sewer and waste treatment facilities. Covers the basics of traps, drains, vents, DWV fittings, and cleanouts.

Introduction to Water Distribution Systems Provides an overview of the water distribution system from its source - a municipal water system or a private well - to water treatment distribution to buildings. Also covers the water distribution system within buildings as well as the basics of valves, fixtures, and faucets.

Level Two

Intermediate Math Explains the techniques for calculating simple, rolling, and parallel offsets.

Reading Commercial Drawings Teaches trainees how to interpret and use civil, architectural, structural, mechanical, plumbing and electrical drawings when installing plumbing systems.

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

Installing Roof, Floor and Area Drains Covers the proper techniques for locating, installing, and connecting roof, floor, and area drains according to code.

Types of Valves Reviews the many types and uses of valves, and introduces trainees to valve repair and replacement.

Installing and Testing Water Supply Piping Teaches the trainee how to locate, install, connect, and test water supply piping while observing safety guidelines.

Installing Fixtures, Valves, and Faucets Covers the installation of basic plumbing fixtures, including bathtubs, shower stalls, lavatories, sinks, water closets, and urinals, as well as their valves and faucets.

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Installing Water Heaters Teaches trainees about gas-fired, electric, solar and indirect water heaters, and reviews the proper installation and testing techniques.

Fuel Gas Systems Introduces trainees to the techniques for handling fuel gas and fuel oil safely, and for installing and testing gas and oil systems.

Servicing Fixtures, Valves, and Faucets Covers the troubleshooting and repair of fixtures, valves, and faucets in accordance with safety guidelines.

Level Three

Reading Commercial Plumbing Drawings, Part II

Teaches trainees how to read commercial plumbing drawings by working from a sample set of drawings and specifications.

Introduction to Regional & Local Plumbing Codes

Reviews model codes and introduces the trainee to the organization and details of the local plumbing code.

Advanced Math for Plumbers

Concentrates on figuring rolling offsets and includes additional practice in figuring angles.

Types of Vents and Venting Installation

Describes the many types of venting arrangements and explains the requirements for the correct installation of each.

Indirect and Special Waste

Presents the code requirements and installation requirements for indirect and special waste installation.

Sewage Pumps and Sump Pumps

Introduces trainees to the equipment necessary for installing lift stations and sump pumps. Covers the installation requirements in detail.

Locating Buried Sewer and Water Lines

Discusses and demonstrates the equipment and procedures for locating buried water lines.

Installing Pressure-Reducing Valves

Introduces the basic types of pressure reducers, and discusses and demonstrates the appropriate installation procedures.

Water Pressure Booster Systems

Explains the function and operation of water pressure booster systems and the installation requirements for this equipment.

Installing Shock Arrestors

Explains the function of shock arrestors. Selection, location and installation are studied and demonstrated.

Backflow Preventers

Explains the operation and purpose of backflow preventers. Installation procedures and code requirements are studied and demonstrated.

Installing Recirculation Systems

Presents the basic types of recirculation systems along with the installation requirements for each.

Filtering and Softening Water

Introduces the basic equipment used for filtering and softening water and the installation requirements.

Cleaning and Disinfecting Potable Water Systems

Presents the procedures for sanitizing water supply piping before putting into service.

Thawing Frozen Water Pipes

Introduces the equipment and techniques for thawing frozen water pipes.

Installing Water Supply Piping

Focuses on locating, supporting, assembling, and securing water supply piping. Local plumbing code requirements will be presented by the instructor.

Fixture Rough-In

Covers locating fixtures, installing the waste piping and providing supports for the fixtures.

Plumbing for Solar Heating Systems

Presents the types of solar systems along with the basic requirements for their installation.

Sizing, Piping, and Venting Natural Gas Systems

Presents piping for gas-fired heating units and the venting of this equipment.

Level Four

Plumbing Theory

Presents the scientific principles which explain why water supply and sewage system function and relate them to the plumbing code.

On the Job Task Organization

Stresses the importance of personal responsibilities, task organization, safety, and quality control.

Sizing Storm Drainage Systems

Covers the methods for sizing horizontal and vertical storm drainage.

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Sizing Vents

Presents methods for sizing drainage piping.

Sizing Drainage Systems

Presents the procedures for sizing drainage and waste piping. Trainees will apply these procedures to common plumbing problems.

Combination Waste and Vent Systems

Describes the basic types of combination waste and vent installation along with the plumbing code requirements which control their installation.

Servicing Traps and Interceptors

Provides procedures for servicing traps and interceptors in detail.

Sizing Water Supply Piping

Outlines procedures for sizing water supply piping based on fixture demand and code requirements.

Servicing Plumbing Fixtures

Explains procedures for servicing plumbing fixtures along with suggestions for troubleshooting typical plumbing problems.

Installing Swimming Pools and Hot Tubs

Describes the functions of the components of swimming pool and hot tub installation. Code requirements and installation procedures are studied in more detail.

Installing Compressed Air Piping Systems

Presents the components and installation procedures for compressed air piping systems.

Installing Hydronic Heating Systems

Covers installation procedures and code requirements for hydronic heating systems.

Installing Corrosive Resistant Waste Piping

Presents the various types of corrosive resistant piping materials and fittings along with the appropriate installation procedures.

Installing Medical Gas Systems

Presents the basic components and installation methods of medical gas piping systems. Health and safety requirements as well as inspection procedures are discussed.

Plumbing for Mobile Homes & Mobile Home Parks

Describes standard types of plumbing systems for mobile home parks along with the unique components of these systems.

Installing Private Waste Disposal Systems

Covers the basic requirements of common types of private waste disposal systems in detail.

Installing Private Water Supply Systems

Explains the components of private water supply systems including the well casing, pump, cap and pressure tank.