



PHCC EDUCATIONAL FOUNDATION CERTIFICATION ASSESSMENT BLUEPRINT

PHCC Educational Foundation Plumbing Year 2

Test Code: 7662

Version: 01

Specific Competencies and Skills Tested in this Assessment:

Mathematics

Measure and calculate linear distances, circles, angles, and radii
Identify common geometric shapes and compute volumes using basic geometry
Calculate end-to-end and center-to-center measurements

Communication Skills

Communicate with customers
Display professionalism

Related Science

Define goals of plumbing, water sources and waste disposal
Understand and apply basic principles of matter, mass, and weight

General Safety Procedures

Understand and apply OSHA regulations that cover plumbing practices
Understand and apply EPA and DOT regulations that cover water quality and venting
Apply OSHA ladder, scaffold, and man lift safety and maintenance procedures
Apply PPE including safety glasses, electrical protection, shoes, hardhat, and other practices
Use safe methods for lifting/moving materials and equipment to prevent personal injury/property damage
Apply brazing and soldering safety procedures to prevent fires and personal injury
Apply safety requirements for working in confined spaces

Join Pipe and Connections

Describe and apply proper procedures for measuring and fabricating copper pipe
Describe and apply proper procedures for measuring and fabricating and testing
Describe and apply proper procedures for steel pipe joined with thread sealant
Describe and apply proper procedures for measuring, fabricating, and testing cast iron pipe
Describe and apply proper procedures for measuring, fabricating, and testing flexible gas pipe

Plumbing Drawings, Plans and Charts

Interpret symbols, dimensions and placement of plumbing fixtures and piping on isometric drawing
Sketch plan view and isometric drawings using standard plumbing fixture and piping symbols
Read plan view and isometric drawings using standard plumbing fixture and piping symbols

Plumbing Year 2 continued

Install Drainage, Waste, and Vent Systems

- Layout and size the drainage systems
- Excavation and grade
- Install building drains
- Change of directions/fitting uses
- Soil and waste stacks, vent stacks, and stack vents
- Fixture venting
- Traps, cleanouts, and interceptors
- Floor drains
- Air admittance valves
- Fixture supports
- Testing drainage systems
- Building sewer and public tie-ins (at curb)
- Diagnosing and repairing drainage and vent systems

Install Water Supply and Distribution Systems

- Sizing the water supply systems
- Roughing-in for water supply and distribution systems
- Cross connections
- Water hammer arrestors
- Water and hydrostatic pressure testing
- Diagnosing and repairing water distribution systems

Install Domestic Water Heaters

- Domestic water heater components and operation
- Gas water heaters
- Electric water heaters
- Oil water heaters
- Point-Of-Use water heaters
- Tankless water heaters and systems
- Solar water heaters
- Domestic hot water boilers
- Indirect fired water heaters

Hot Water Distribution Systems

- Mixing and tempering valves

Hydronic Systems

- Principles of hydronic systems
- Install hydronic heating systems
- Test integrity of hydronic heating water circuits

Code

- Administration and basic principles, plumbing code definitions and general regulations
- Materials
- Joints and connections, fittings and appurtenances
- Plumbing fixtures and minimum fixture requirements
- Hangers and supports, indirect waste piping and special waste
- Water supply and distribution
- DWV and storm drain systems
- Tests and maintenance
- Individual sewage disposal systems
- Potable water supply systems

Backflow

- Define backflow
- Describe mechanical equipment for cross-connection control

Productivity

- Identify factors that enhance productivity

Plumbing Year 2 continued

Written Assessment:

Administration Time: 3 hours

Number of Questions: 200

Areas Covered:

6%	Mathematics
4%	Communication Skills
5%	Related Science
10%	General Safety Procedures
9%	Join Pipe and Connections
5%	Plumbing Drawings, Plans, and Charts
23%	Install Drainage, Waste, and Vent Systems
7%	Install Water Supply and Distribution Systems
12%	Install Domestic Water Heaters
1.5%	Hot Water Distribution Systems
2%	Hydronic Systems
12%	Code
3%	Backflow
.5%	Productivity

Sample Questions:

Primary treatment uses the _____ process to remove solid material.

- A. filtration
- B. aeration
- C. sedimentation
- D. disinfection

What is the main reason for the taper on a pipe thread?

- A. eliminate use of couplings
- B. insure progressively tighter fit
- C. allow for tolerance on length
- D. simplify assembly

When backfilling a trench, the soil should be

- A. shoveled only
- B. combined with sand
- C. compacted in layers
- D. free of any rocks

The preferred method to join galvanized steel to copper is

- A. dielectric union
- B. Teflon tape
- C. iron pipe adapter
- D. copper adapter

A plumbing permit is required in order to

- A. replace faucet washers
- B. clear drain line stoppages
- C. clean hot water tanks
- D. replace plumbing fixtures