



Assessment Blueprint

Plumbing Advanced



8067- Online Version
8068- Paper/Pencil Version
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General Assessment Information

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Test Type: This Residential Construction Academy certification assessment is a customized assessment for the Home Builders Institute. This assessment measures technical skills at the occupational level and includes items which gauge factual and theoretical knowledge. This assessment offers both a written and performance component and can be used at the secondary level and post-secondary level. This assessment can be delivered in an online or paper/pencil format.

Revision Team: The assessment content is based on input from secondary, post-secondary, and business/industry representatives from the state of Arizona, California, Indiana, Maryland, North Carolina, Pennsylvania, South Carolina, Tennessee, and Washington.



46.0503 – Plumbing
Technology/Plumber



Career Cluster 1 - Architecture
and Construction



47-2152.02 – Plumbers



The Association for Career and Technical Education (ACTE), the leading professional organization for career and technical educators, commends all students who participate in career and technical education programs and choose to validate their educational attainment through rigorous technical assessments. In taking this assessment you demonstrate to your school, your parents and guardians, your future employers and yourself that you understand the concepts and knowledge needed to succeed in the workplace. Good Luck!



Home Builders Institute (HBI), an affiliate of the National Association of Home Builders (NAHB), is a national leader for career training in the building industry. HBI's educational materials are designed to be relevant in today's rapidly changing environment, bringing increased professionalism, competency and effectiveness to those entering the residential construction workforce.

HBI/NAHB assessments are based on national skill standards set by NAHB industry professionals and educators as are the materials contained in the Residential Construction Academy Series. Participants passing the assessments are eligible for certification through HBI/NAHB at the entry, semi-skilled or skilled levels.

Written Assessment

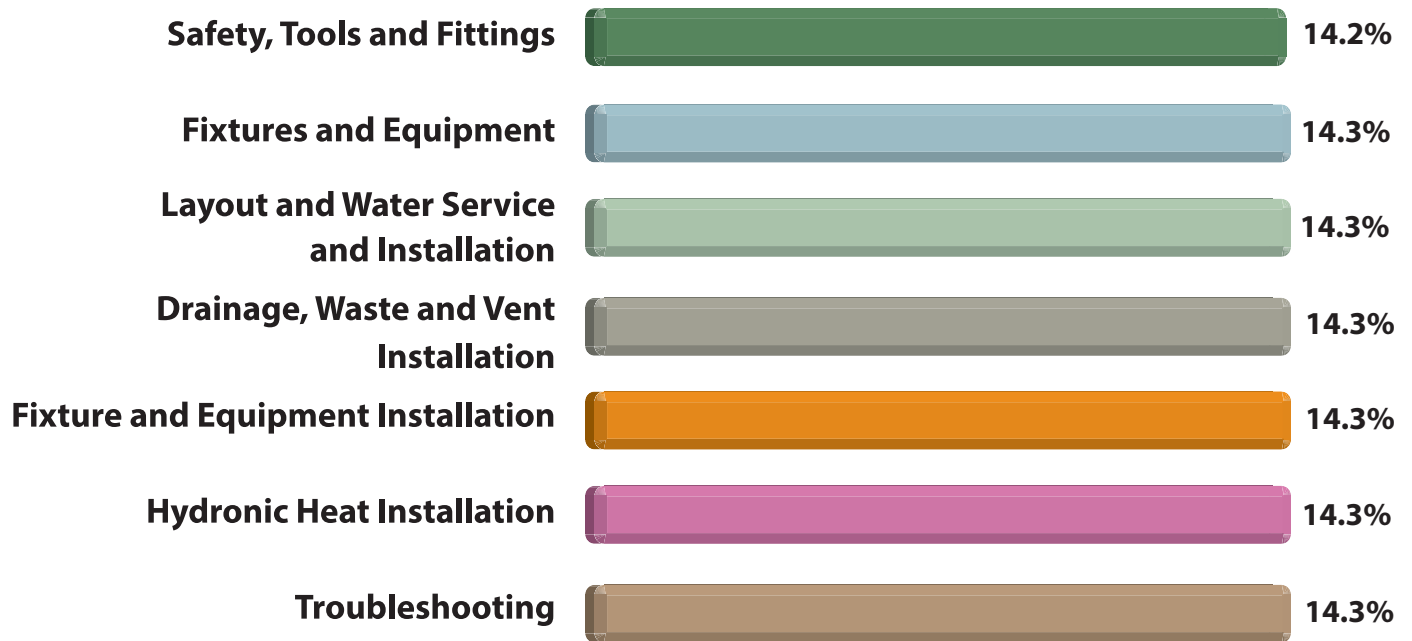
This written assessment consists of questions to measure an individual's factual theoretical knowledge.

Administration Time: 60 minutes

Number of Questions: 70

Number of Sessions: This assessment may be administered in one session.

Areas Covered



Specific Competencies and Skills Tested in This Assessment

Safety, Tools and Fittings

- Safety, Power Tools, Tools, and Materials

Fixtures and Equipment

- Faucets and Drains, Fixture Types, and Appliances

Layout and Water Service and Installation

- Blueprint, Water Supply, and Water Distribution

Drainage, Waste and Vent Installation

- Drainage, Waste and Vent Installation, Vents, Sizing, Traps, and Installation

Fixture and Equipment Installation

- Fixtures and Equipment, Appliances, and Faucets/Drains

Hydronic Heat Installation

- Fundamentals, Installation/Startup, Piping, and Radiant Heat

Troubleshooting

- Water Heater-Electric, Water Heater-Gas, Well pump and Toilets



Sample Questions

Which of these is an example of fall protection equipment?

- A. Ladder tie-ins
- B. Safety shoes
- C. Sky hooks
- D. Safety harness

A thermocouple senses the heat from which of these?

- A. Burner assembly
- B. Pilot flame
- C. BTU
- D. Flue pipe

Which of these must be installed at the base of every waste stack?

- A. A relief vent
- B. A branch vent
- C. A fixture drain
- D. A cleanout

Where does a loop vent terminate?

- A. A branch vent
- B. A waste stack
- C. A stack vent
- D. A relief vent

Which of these occurs when the pressure in the boiler drops too low?

- A. The water-regulating valve opens.
- B. The pressure relief valve opens.
- C. The supply feed valve closes.
- D. The balancing valve closes.



Performance Assessment

This performance assessment allows individuals to demonstrate their acquired skills by completing actual jobs using the tools, materials, machines, and equipment related to the technical area.

Administration Time: 3 hours

Number of Jobs: 2

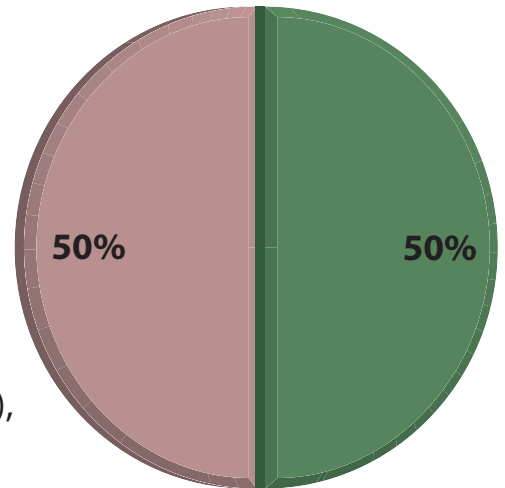
Areas Covered:

50% Install and Prepare to Leak Test a DWV System

Selection of tools/materials, safe handling of tools and equipment, rough-in: lavatory #1 (vertical and horizontal), rough-in lavatory #2 (vertical and horizontal), techniques for joining pipe and fittings, installation techniques, accuracy of fittings chosen, workstation left in good condition, adhere to local plumbing code, leak test, and time to complete Job 1.

50% Install and Prepare to Leak Test a Water Supply System

Selection of tools/materials, safe handling of tools and equipment, rough-in: lavatory #1 (vertical and horizontal), rough-in lavatory #2 (vertical and horizontal), techniques for joining pipe and fittings, installation techniques, accuracy of fittings chosen, workstation left in good condition, adhere to local plumbing code, leak test, and time to complete Job 2.



Sample Job

Install and Prepare to Leak Test a Water Supply System

Maximum Time: 1 hour and 30 minutes

Participant Activity: The participant will study a rough-in sketch and drawings to install a water supply system, measure and cut the pipe to correct size, connect all pipe and fittings per rough-in dimensions, install appropriate nail plates, and prepare the system for leak testing.

