



Assessment Blueprint

Building Construction Technology Advanced



8194- Online Version
8195- 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 Arkansas, Kentucky, Maryland, Nebraska, Missouri, Tennessee, and Washington.



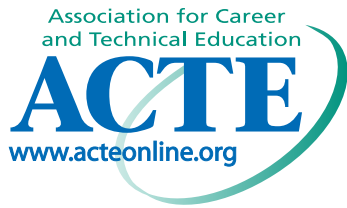
46.0401 – Building/Property
Maintenance



Career Cluster 1 - Architecture
and Construction



49-9071.00 – Maintenance and
Repair Workers, General



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

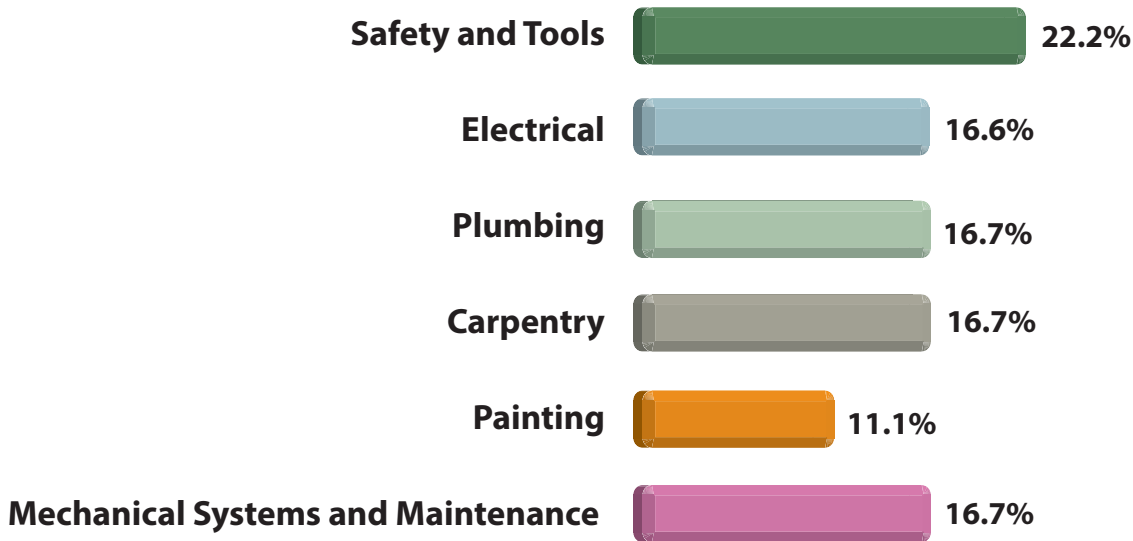
This written assessment consists of questions to measure an individual's factual theoretical knowledge.

Administration Time: 90 minutes

Number of Questions: 90

Number of Sessions: This assessment may be administered in two sessions.

Areas Covered



Specific Competencies and Skills Tested in This Assessment

Safety and Tools

- OSHA, Electrical Cords Safety, Fire Safety, Fall Protection Equipment, Safety, Personal Protective Equipment, HAZMAT, Measurements, Hand Tools, and Power Tools

Electrical

- Theory, Meters, Concepts, Resistance, Switch, Circuits, Smoke Detectors, Electrical Box, Outlet, GFCI, and Safety

Plumbing

- Fittings, Tools, Supplies, Maintenance, Safety, Solder, and Heaters

Carpentry

- Fasteners, Measurements, Maintenance, Roof, Siding, Locks, Molding, Fastener, Cabinet, Solvents, and Frames

Painting

- Paint, Brushes, Rollers, Drywall, Application, Finishing, Spray, Ladders/OSHA, and Fall Protection

Mechanical Systems and Maintenance

- Heater, HVAC, Furnaces, Boilers, Elevators, Appliance Repair, Grounds, Pests, Gas, Oil, Dishwasher, Dryer, Small Engine, Irrigation, and Trash Compactors



Sample Questions

Which of these illustrates conduction?

- A. Heat transferred from a hot water baseboard heater
- B. Heat transferred by the sun's rays
- C. Heating water in a pot
- D. Heating air by forcing it through an evaporator coil

After cutting and reaming the sections of a joint to be soldered, which of these is the next step?

- A. Apply flux.
- B. Clean the joint with sand cloth or steel wool.
- C. Set the regulator on the tank to the low range.
- D. Insert the male end of the joint into the female end.

A heat pump that starts the defrost cycle by temperature is most likely equipped with which of these?

- A. Thermistor
- B. Pressure-sensing switch
- C. Defrost timer
- D. Time delay relay

A single phase motor has which of these windings?

- A. Run
- B. Start
- C. Run and start
- D. Common

Which of these is used to seal fiberboard duct systems?

- A. Canvas collars
- B. Self-tapping screws
- C. S-type connectors
- D. Reinforced foil tape



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: 2 hours and 45 minutes

Number of Jobs: 5

Areas Covered:

31% Carpentry: Construct Frame

Selection and use of tools, cutting, techniques for assembly, accuracy of measurements, appearance of frame, and time to complete Job 1.

21% Plumbing: Sweat Piping

Use of tools, joining and soldering techniques, accuracy of measurements, piping support, leak testing, and time to complete Job 2.

17% Electricity: Rough Wiring

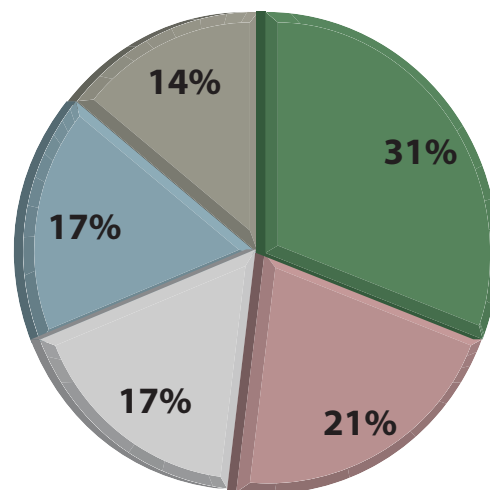
Mount electrical boxes, install nonmetallic cable, preparation of wires in box, and time to complete Job 3.

17% Dry Wall

Accuracy of measurements and cuts, installation of drywall, finishing techniques, and time to complete Job 4.

14% Electricity: Finish Wiring

Installation of switching device, installation of light fixture, testing of installation, and time to complete Job 5.



Sample Job

Electricity: Finish Wiring

Maximum Time: 15 minutes

Participant Activity: The test participant will use the rough wired frame with the drywall installed from the previous job, finish wiring the switch and light according to code, install cover plate, connect test leads and test, and install fixture to box.

