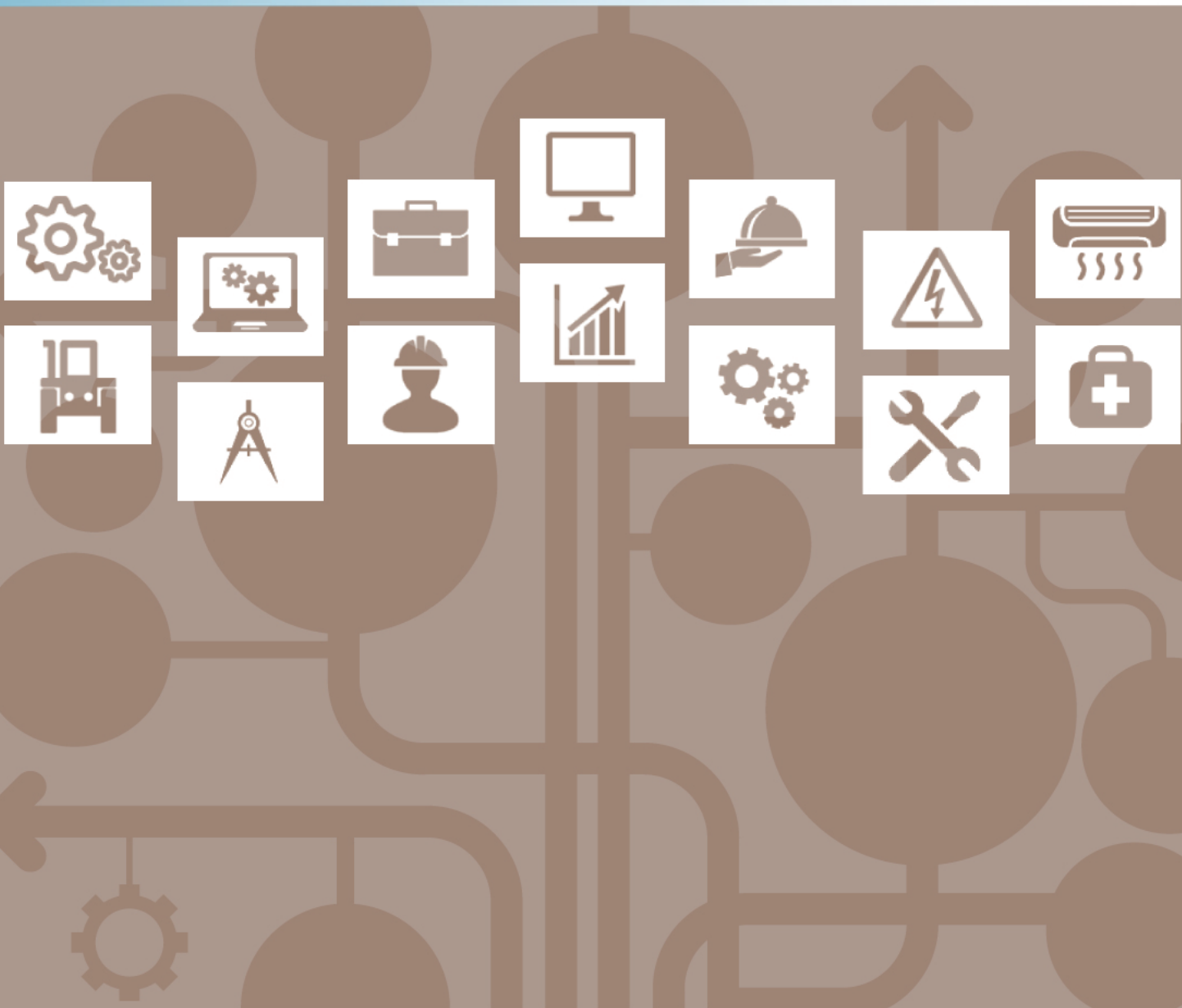




## Entry Level Assessment Blueprint

## Building Construction Occupations



*Test Code: 4011 / Version: 01*

## **Specific Competencies and Skills Tested in this Assessment:**

### **Safety and General Knowledge**

- Recognize and adhere to worksite safety issues (housekeeping and health related)
- Utilize appropriate personal protective equipment (PPEs)
- Demonstrate understanding of ladder and scaffold safety
- Recognize and adhere to governmental regulations (OSHA, MSDS, etc.)
- Demonstrate safe and appropriate use of hand tools
- Demonstrate safe and appropriate use of power tools



### **Carpentry**

- Identify carpentry materials
- Describe, lay out, and construct wood floor framing
- Calculate, lay out, and construct stairs
- Identify, lay out, and construct wood wall framing
- Describe, calculate, and construct ceiling and roof framing
- Identify and install roofing materials (shingles, fasteners, and flashing)
- Differentiate various styles of roofs
- Identify, estimate, and install exterior windows and doors
- Identify, measure, and apply exterior finishes (siding and trim)
- Describe and install interior finishes (e.g., drywall, doors, trims)

### **Masonry**

- Identify, calculate quantities, and install footings and foundations
- Identify, calculate quantities, and install brick and block
- Identify, calculate quantities, and install various types of tile
- Identify, calculate quantities, place/pour, and finish concrete applications (e.g., sidewalks, steps)

*Specific Competencies and Skills continued:*

**Electrical**

- Identify, estimate, and install rough electrical (including wire and cable)
- Identify, calculate quantities, and install finish electrical

**Plumbing**

- Identify, estimate, and install rough plumbing (PVC, ABS, copper, PEX)
- Identify, calculate quantities, and install finish plumbing fixtures



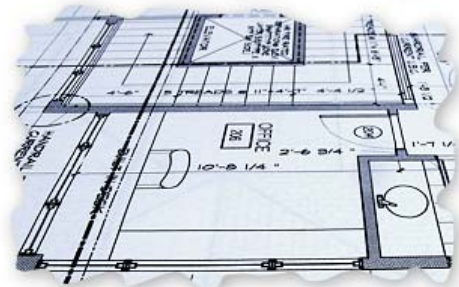
**Energy Efficiency**

- Identify, estimate, and install insulation and interpret R-values
- Recognize various ventilation applications
- Identify “green” construction technology (e.g., lighting, Energy Star®)



**Blueprints and Site Layout**

- Recognize blueprint terms, symbols, and abbreviations
- Interpret blueprints and calculate quantities
- Demonstrate use of architect’s scale
- Lay out building using various calculations, squaring, and leveling methods

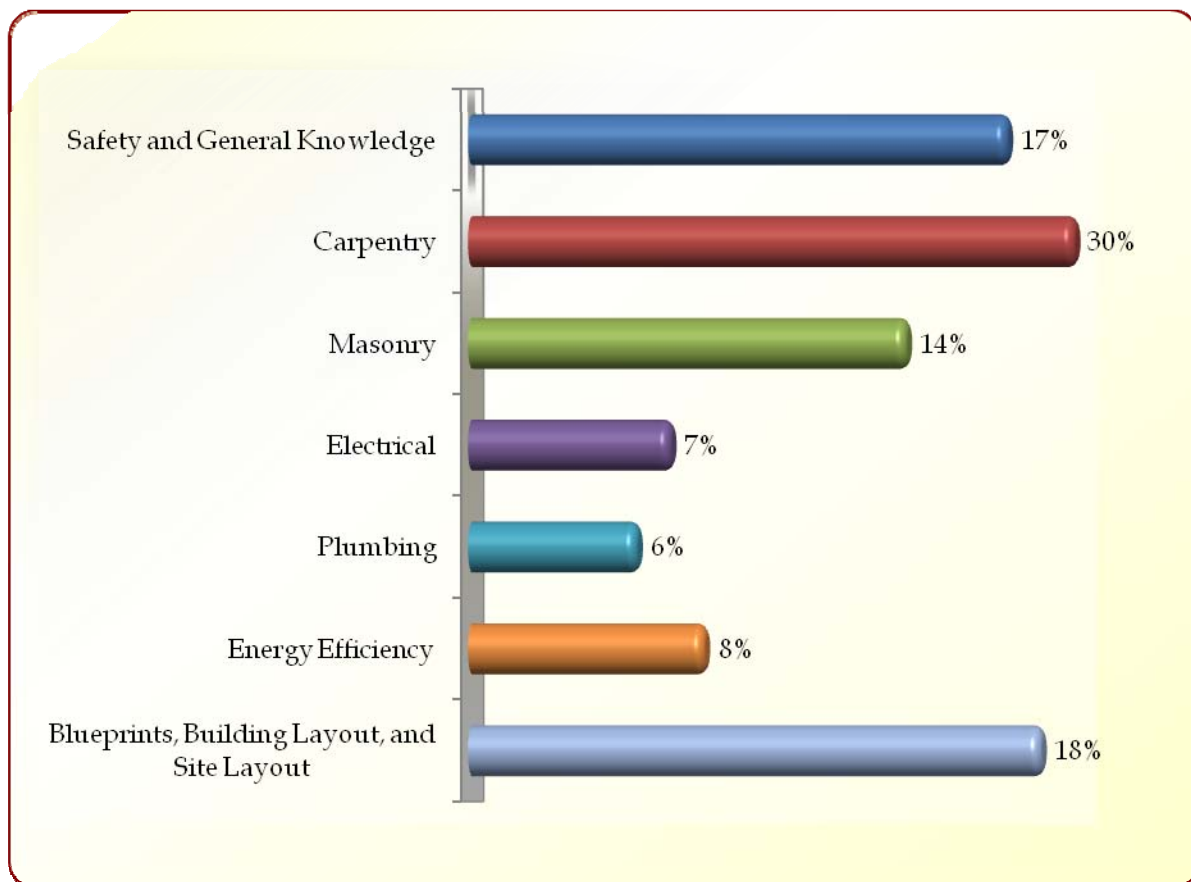


## Written Assessment:

**Administration Time:** 3 hours

**Number of Questions:** 151

## Areas Covered:



## **Sample Questions:**

According to OSHA regulations, when working on a multilevel construction site, workers should wear \_\_\_\_\_ at all times.

- A. face shields
- B. hearing protection
- C. knee pads
- D. hard hats

To protect an outside drywall corner, it may be reinforced with a corner

- A. board
- B. lath
- C. bead
- D. rite

How many courses of concrete block are needed for a wall 8 feet high?

- A. 12
- B. 14
- C. 16
- D. 17

The allowable number of conductors within an electrical box is determined by the \_\_\_\_\_ of the box.

- A. volume
- B. area
- C. length
- D. depth

The purpose of a trap is to

- A. discharge sewer gas from the building
- B. prevent sewer gas from entering the building
- C. prevent excess pressure from building up in the system
- D. trap solid waste material

A \_\_\_\_\_ is a pre-cut length of rolled fiberglass insulation.

- A. filler
- B. batt
- C. cricket
- D. standard

The height of the window header is found in the

- A. site section
- B. plot plan
- C. wall section
- D. mechanical plan

The leading cause of fatalities in the construction industry is

- A. falls
- B. lacerations
- C. electrical shock
- D. structure fires

What unit of measure is used for a heating device size, such as a furnace?

- A. BTU - British thermal unit
- B. BHU - British heat unit
- C. ATU - American thermal unit
- D. AHU - American heat unit

Roof trusses are typically spaced \_\_\_\_\_ on center.

- A. 10 inches
- B. 15 inches
- C. 20 inches
- D. 24 inches

## Performance Assessment:

**Administration Time:** 2 hours and 25 minutes

**Number of Jobs:** 5

### Areas Covered:

21% **Solder Pipe**

Participant will correctly cut, ream, clean, flux, and solder copper tubing into a complete, finished product.

19% **Lay Out Rafter**

Participant will position the rafter crown, create the correct rafter line length and overhang length, place and cut the bird's mouth correctly, and cut the tail plumb and ridge plumb correctly.

10% **Calculate and Cut a Stud**

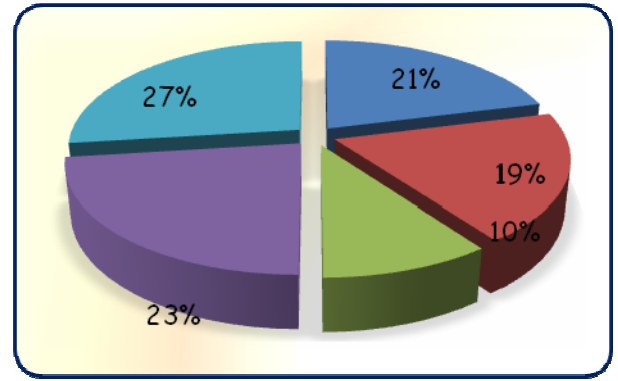
Participant will cut the stud to the correct length and shape.

23% **Rough and Finish Electrical**

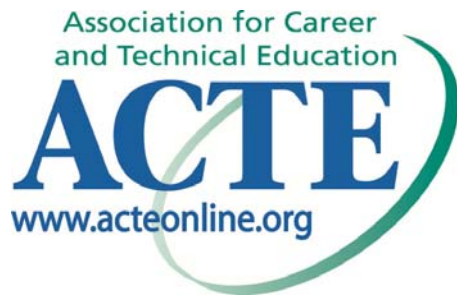
Participant will correctly set boxes, choose and install cables, pre-wire boxes, choose, wire, and install switch properly, split and wire the receptacle correctly.

27% **8-Inch Block Wall Construction**

Participant will construct the block course correctly, with correct wall height, length and straightness, as well as a correct wall plumb and level and full, finished joints.



- Sample Job:** 8-Inch Block Wall Construction
- Maximum Time:** 45 minutes
- Participant Activity:** The participant is to construct a block wall 47-5/8-inches long by 24-inches high, strike all joints using a convex jointer, and finish wall with a clean appearance.



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!



The Pennsylvania Builder's Association utilizes this assessment to assist in determining competencies for granting skill certificates to students graduating from Pennsylvania secondary trade programs that have been endorsed by the Pennsylvania Builders Association (PBA).

PBA's services include support to workforce training and education by linking industry employers with educators to grow the workforce of tomorrow. PBA serves Pennsylvania communities and consumers through its steadfast efforts to protect homeownership rights and advocate for affordable housing options. PBA is affiliated with the National Association of Home Builders.