



**HBI Pre-Apprenticeship
Certificate Training (PACT)
Residential Construction
Principles Volumes 1 and 2**

Student Code: 9982
Teacher Code: 9983

General Assessment Information

Blueprint Contents

General Assessment Information
Written Assessment Information

Specific Competencies Covered in the Test
Sample Written Items

Test Type: This 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 postsecondary 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 Idaho, Florida, Maine, North Carolina, and Washington.



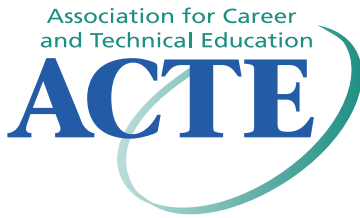
46.0000 - Construction Trades, General



Career Cluster - Architecture
and Construction



47-2061.00 - Construction Laborers



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 Home Builders Institute (HBI) trains skilled workers for the building industry. Through pre-apprenticeship training, certification programs and job placement services, HBI provides graduates with the skills and experience they need to build a career and change their lives. HBI assessments, in partnership with the National Association of Home Builders (NAHB), are based on national skills standards set by industry professionals and educators. Participants passing the assessments are eligible for certification through HBI/NAHB at the entry, semi-skilled, or skilled levels.

Selection of curricula and instructional materials chosen to support assessment achievement must be obtained from material that has been aligned to the Residential Construction National Skill Standards and approved by HBI. For a current listing, please go to <http://www.hbi.org/curriculum/>

Visit www.hbi.org for more information.

Written Assessment

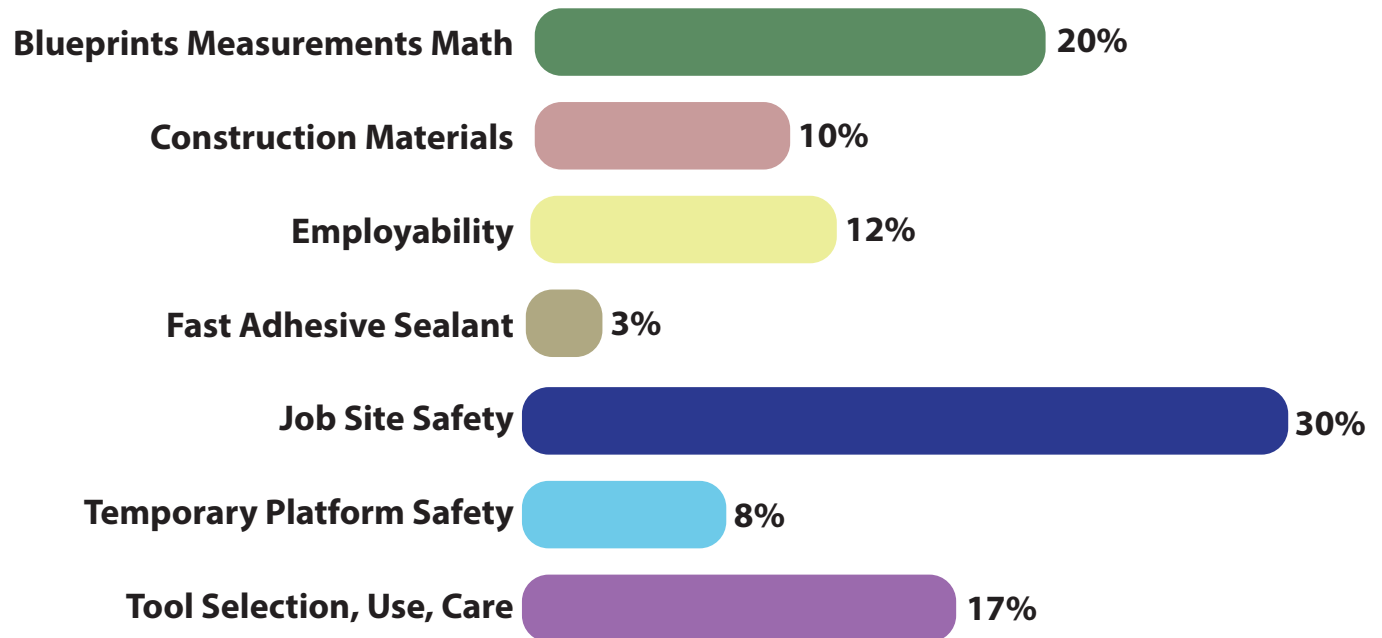
This written assessment consists of questions to measure an individual's factual theoretical knowledge.

Administration Time: 60 minutes

Number of Questions: 1 hour and 15 minutes

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

Areas Covered



Specific Competencies and Skills Tested in this Assessment

Blueprints Measurements Math

- 2.2.1 Identify dimensions, lines, scales, symbols, the title block on a blueprint, and notes.
- 2.4.1 Read a rule to the nearest 16th of an inch.
- 2.5.1 Add and subtract measurements.
- 2.5.4 Calculate square foot and linear foot measurements.
- 2.6.2 Calculate decimals using addition and subtraction.
- 2.7.4 Calculate fractions using multiplication and division.
- 2.7.7 Calculate mixed numbers by using addition, subtraction, multiplication, and division.
- 2.8.2 Calculate whole numbers using multiplication and division.
- 2.8.3 Use whole number to determine material dimensions needed for difficult or unusually shaped areas.
- 2.9.2 Calculate a percentage of a given number.
- 2.10.4 Use the Pythagorean Theorem to calculate the hypotenuse (right angle or square) of a triangle.
- 2.11.1 Solve job-related problems by adding, subtracting, multiplying, and dividing numbers, using fractions, decimals, and whole numbers.

Construction Materials

- 9.1.2 Select appropriate tools and determine appropriate types of materials needed.
- 9.1.3 Demonstrate the ability to recognize proper fasteners/brackets.
- 9.2.2 Select appropriate tools and determine appropriate types of materials needed.
- 9.3.2 Select appropriate tools and determine appropriate types of materials needed.
- 9.5.3 Demonstrate the ability to recognize and troubleshoot soil and erosion problems.
- 9.7.2 Select appropriate tools and determine appropriate types of materials needed.

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Specific Competencies and Skills Tested in this Assessment (continued)

Employability

- 1.4.9 Create a resumé.
- 1.4.11 Practice and interview for a job.
- 1.5.5 Utilize critical thinking to make sense of problems and persevere in solving them.
- 1.5.7 Use technology to enhance creativity and productivity.
- 1.5.10 Arrive for work on time.
- 1.5.13 Describe the characteristics of a qualified person.
- 1.6.1 Identify the traits of an effective team.

Fast Adhesive Sealant

7.1.1 Differentiate types of nails, screws, anchors, and bolts.

7.2.1 Identify and describe uses for types of common construction adhesives.

Job Site Safety

- 5.1.3 Identify safe work practices
- 5.2.3 Identify safety hazards and immediately inform a supervisor.
- 5.2.12 Comply with all applicable OSHA rules and regulations.
- 5.3.1 Select and wear proper safety attire on the job site including Personal Protective Equipment (PPE).
- 5.3.2 Wear ANSI Z-87-approved safety glasses at all times while working.
- 5.3.7 Wear fall protection and connect to correct anchor points.
- 5.3.10 Describe the proper use and limitations of personal respiratory protection.
- 5.5.4 Recognize fire class labels.
- 5.5.7 Perform a fire drill.
- 5.6.1 Identify hazardous conditions associated with chemicals/supplies.
- 5.6.5 Describe safe handling of chemicals and hazardous materials.
- 5.6.6 Identify and locate the Safety Data Sheets (SDS) and follow the procedures as necessary.
- 5.6.7 Identify pictograms used on SDS forms.
- 5.7.2 Identify and describe the use of Ground Fault Circuit Interrupters (GFCIs).
- 5.8.2 Identify the safety hazards for internal combustion (gas) engines.
- 5.9.2 Identify and use first aid equipment.
- 5.9.3 Demonstrate how to control bleeding.
- 5.10.3 Follow all safety regulations for job site vehicles.

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Specific Competencies and Skills Tested in this Assessment (continued)

Temporary Platform Safety

- 6.1.2 Describe the methods to safely erect and dismantle scaffolds and platforms.
- 6.1.4 Identify and explain types of fall protection for scaffolds elevated above 6 feet.
- 6.2.1 Describes OSHA rule for proper ladder set up.
- 6.2.9 Inspect ladders before each use.
- 6.2.13 Describes OSHA rule for proper ladder set up.

Tool Selection, Use, Care

- 8.1.1 Identify and select the correct hand tool for a task.
- 8.1.4 Identify the various types of layout tools and procedures.
- 8.2.2 Identify types of pliers and wrenches and demonstrate proper use.
- 8.2.8 Demonstrate use of gauges and squares.
- 8.3.1 Identify and select the correct power tool for a task.
- 8.3.4 Identify proper grounding and insulation in power tools.
- 8.4.1 Demonstrate proper use of power saws.
- 8.4.2 Demonstrate proper use of drills.
- 8.4.11 Demonstrate proper use of impact tools.

Sample Questions

On a construction drawing, which type of line is typically used to indicate the extent of a dimension without touching the object itself?

- A. Dimension line
- B. Leader line
- C. Break line
- D. Grid line

A rectangular deck measures 15 feet by 10 feet. What is its area in square feet?

- A. 125
- B. 150
- C. 170
- D. 180

A project lists material cost of \$1,200. If the overhead is 15% and profit is 10%, what is the total contract amount?

- A. \$1,200
- B. \$1,380
- C. \$1,500
- D. \$1,620

Which fastener is generally best for exterior plywood seams to resist moisture and provide a strong hold?

- A. Roofing nails
- B. Wood screws
- C. Staples
- D. Glue

On a teamwork-focused job site, which soft skill most directly contributes to a reliable project schedule?

- A. Advanced math speed
- B. Clear communication
- C. Solo problem solving
- D. Fluency in a second language

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Sample Questions (continued)

Which PPE is specifically used to protect the eyes from flying debris during drilling or grinding?

- A. Hard hat
- B. Safety glasses
- C. Ear plugs
- D. Steel-toe boots

A tape measure shows 7 feet 3 1/2 inches. What is the length in inches only?

- A. 75 inches
- B. 87.5 inches
- C. 91.5 inches
- D. 93 inches

Which material is commonly used as the primary framing lumber in standard residential construction?

- A. 2x4 studs (actual 1.5 x 3.5 inches)
- B. 2x6 rafters
- C. 4x6 beams
- D. 6x6 posts

Which practice most improves accuracy before cutting or assembling components?

- A. Cutting first, then measuring
- B. Verifying measurements twice and marking clearly
- C. Asking another person to guess
- D. Skipping measurements if time is short

What is the primary purpose of a lockout/tagout procedure on equipment?

- A. To speed up maintenance
- B. To ensure machines are properly powered down to prevent accidental startup
- C. To label tools for inventory
- D. To organize workspaces