



**HBI Pre-Apprenticeship
Certificate Training (PACT)
Specialty: Basic Electrical
Examination C21 & C22**

Student Codes: 9017 and 9018 / Version: 01
Teacher Code: 9448 / Version: 01
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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.



46.0302 - Electrician



Career Cluster - Architecture
and Construction



47-2031.00 - Construction and
Related Workers, All Other



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

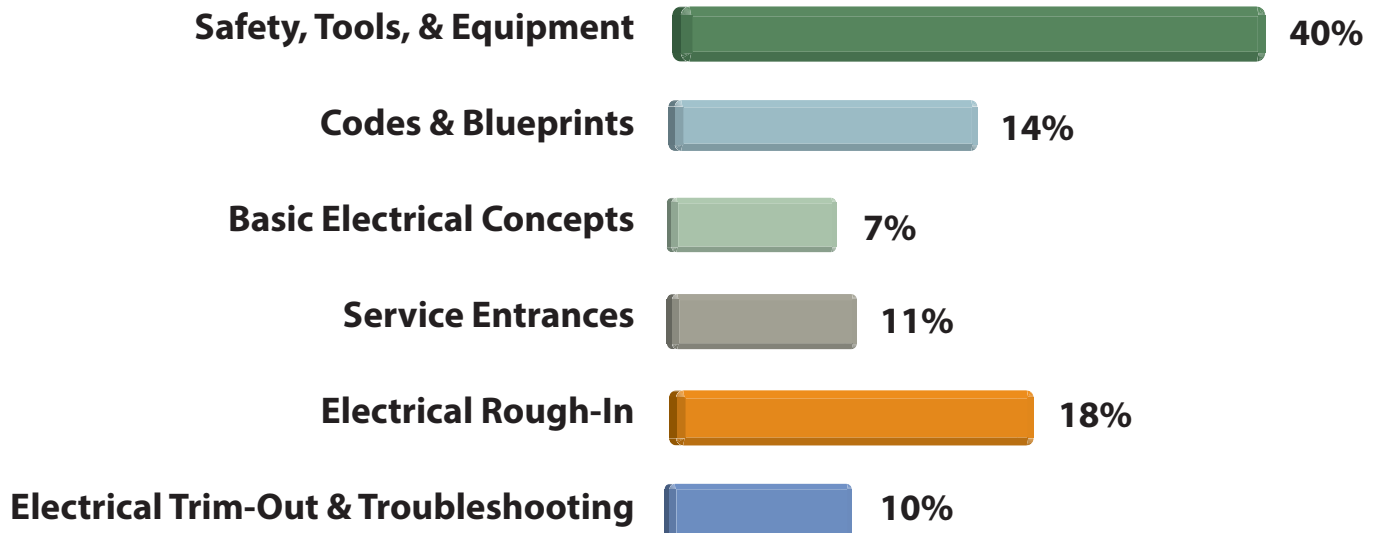
This written assessment consists of questions to measure an individual's factual theoretical knowledge.

Administration Time: 50 minutes

Number of Questions: 50

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

Areas Covered



Specific Competencies and Skills Tested in this Assessment

Safety, Tools & Equipment

- SDS
- Extension Cords
- OSHA
- Lockout/Tagout
- Electrical Safety
- Ladders
- Cutting Metal
- Connectors
- Demolition
- Power Drills
- Scaffolding
- Grounding
- Continuity Tester
- Ohmmeter
- Voltage Tester
- Fires
- GFCI
- Conduit
- Wiring
- Electric Drills
- Drilling
- Tool Safety
- Job Safety
- Injuries



Codes & Blueprints

- NEC
- Drawings
- Scales
- Lighting Fixtures
- Ruler
- Symbols
- Feet/Inches

(Continued on the following page)

Specific Competencies and Skills Tested in this Assessment (continued)

Basic Electrical Concepts

- Circuits
- Lighting
- Concepts
- Efficiency
- Current Draw
- Ohm's Law

Service Entrances

- Ohm's Law
- Drip Loop
- Conductors
- Ampacity
- Load
- Raceways
- Cables

Electrical Rough-In

- Cables
- Raceways
- Metal Boxes
- Doorbell Chimes
- Lighting Controls
- Conductors
- Electrical Boxes
- Smoke Detectors
- Switches

Electrical Trim-Out & Troubleshooting

- Lighting
- GFCI
- Outlets
- Circuits
- Voltage Tester
- Grounding

Sample Questions

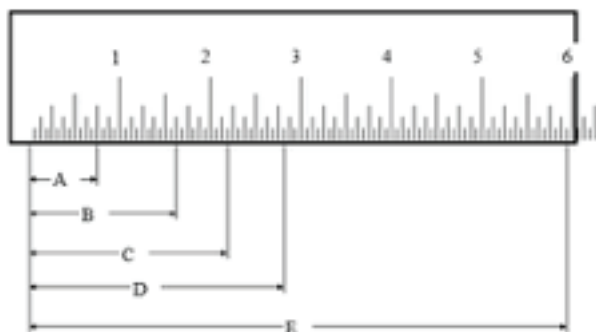
Which of these apply to lockouts/tagouts?

- A. Lockouts should have a minimum of three duplicate keys.
- B. Tagouts should be written in pencil.
- C. Padlocks should be numbered and assigned to only one employee.
- D. Tagouts should be green.

What is the minimum ampacity of a service entrance neutral with a calculated load of 17025 VA at 240 volts?

- A. 17 amperes
- B. 70 amperes
- C. 71 amperes
- D. 142 amperes

What is the distance measured by line E?



- A. 5-3/4 inches
- B. 5-5/8 inches
- C. 5-15/16 inches
- D. 5-13/16 inches

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Sample Questions (continued)

Which of these symbols designates a range receptacle outlet?

A. ○

C. Ⓢ

B. ○

D. Ⓢ_R

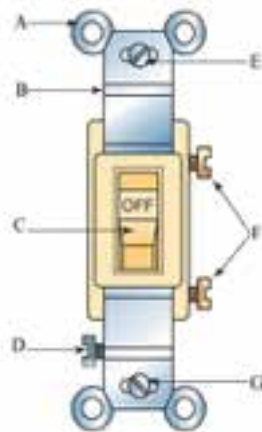
A. A

B. B

C. C

D. D

Which of these is the grounding terminal?



A. A

B. B

C. C

D. D