

# CUSTOMIZED TEACHER ASSESSMENT BLUEPRINT

# ELECTRICAL POWER AND TRANSMISSION INSTALLERS

Test Code: 5922 Version: 01

## Specific competencies and skills tested in this assessment:

#### **Basic Safety**

Identify career and training opportunities Identify causes of job site accidents Identify job site hazards Working safely with job hazards Identify safe methods and equipment of aerial work Demonstrate basic fire safety Demonstrate basic electrical safety Perform lock-out/tag-out Demonstrate scaffold and ladder safety

#### **Construction Math**

Problem solving using whole numbers Problem solving using fractions Problem solving using decimal numbers Convert decimals, fractions, and percents Problem solving using the metric system Calculate basic construction problems using geometry formulas Calculate basic construction problems using algebraic formulas

#### Hand Tools

Recognize, identify, and safely use hammers and screwdrivers Recognize, identify, and safely use pliers and wire cutters Recognize, identify, and safely use saws and chisels Identify and safely use hydraulic tool systems

#### **Power Tools**

Recognize, identify, and safely use drills and saws Identify and safely use an electric hammer drill Identify and safely use a reciprocating saw Identify and safely use a portable hand-held band saw Identify and safely use a circular saw Identify and safely use an electric/cordless drill Identify and safely use a portable jig saw

#### **Testing Equipment**

Identify and safely use a multimeter Identify and safely use a continuity tester Identify and safely use a plug-in circuit tester Identify and safely use a clamp-on ammeter

#### **Blueprint Reading**

Identify types of blueprint plans Identify blueprint symbols Interpret blueprint plans Plan branch circuits for blueprint development Incorporate electrical details to residential blueprint

#### **Residential Cabling Technology**

Define residential networks Identify structured media-systems Design and plan layout of low voltage circuits services

#### Anchors and Supports

Identify and install various types of anchors and supports

#### **Raceways**

Install Electrical Metallic Tubing (EMT) Install Poly-Vinyl Chloride conduit (PVC) Identify surface metal and non-metal raceways (Wiremold<sup>®</sup>) Identify flexible raceway Demonstrate the five bends (90, offset, 3-point saddle, 4-point saddle, kick) used for conduit raceways

#### **Cable Types and Installations**

Install Non-Metallic (NM) cable for connection to an electrical device Install metal-clad cable (MC) Install telecommunications (Category 5e, 6, 7 cabling) cable Install a telephone circuit Install a television circuit Install rough wiring in a residence Install finish wiring

#### **Switches and Receptacles Circuits**

Install a duplex receptacle Install a single pole switch Install a 3-way switch Install a 4-way switch Install a split-wired duplex receptacle Install a Ground Fault Circuit Interrupter (GFCI) receptacle Install an Arc Fault Circuit Interrupter (AFCI) Install a timer circuit Install various special switches and receptacles

#### **Fixtures**

Install surface-mounted lighting fixtures Install recessed lighting fixtures

#### Wired Devices

Install a hard-wired smoke detector

### Green Technology

Identify renewable energy resources Identify and safely use energy saving devices

Electrical Service Install a 100-amp overhead service Identify a 100-amp underground service

National Electrical Code Identify NEC publisher Identify code cycle Identify purpose of NEC Identify layout of NEC

## Written Assessment:

Administration Time:	3 hours
Number of Questions:	194

#### Areas covered:

9%	Basic Safety
5%	Construction Math
5%	Hand Tools
9%	Power Tools
6%	Testing Equipment
5%	Blueprint Reading
3%	Residential Cabling Technology
2%	Anchors and Supports
8%	Raceways
10%	Cable Types and Installations
13%	Switches and Receptacles Circuits
4%	Fixtures
1%	Wired Devices
2%	Green Technology
6%	Electrical Service
12%	National Electrical Code

## Sample Questions:

OSHA is a federal agency governing

- A. occupational safety
- B. housing for the poor
- C. minimum wages
- D. zoning laws

When using power tools, proper ground fault protection prevents

- A. excessive noise
- B. electrical shock
- C. losing grip
- D. cutting into electrical wires

What symbol is normally used for duplex receptacles?

- A. circle with two parallel lines drawn through it
- B. circle with one line drawn through it
- C. square box with an X drawn inside
- D. square box with the letter R next to it

The standard length for sections of electrical tubing or conduit is

- A. 6 feet
- B. 8 feet
- 10 feet C.
- D. 12 feet

#### The "S" symbol is represents what type of switch?

- single pole four-way A.
- B.
- C. three-way
- D. dimmer

# Performance Assessment:

Administration Time:	3 hours
Number of Jobs:	2

## Areas Covered:

76%	Switch Controls, Conduit Bending, and GFCI Receptacles Draw product wiring diagram; select appropriate material; installation of boxes; wiring installation methods; installation of device; functionality; accuracy of measurement; proper bending and cutting techniques; installation of conductors; installation of GFCI and safety/workmanship.
24%	<b>Doorbell Circuit</b> Identify and select components; installation of components; functionality and safety/workmanship.
Sample Job:	Doorbell Circuit
Maximum Job Time:	40 minutes
Participant Activity:	Participant will select the necessary tools, equipment, instruments, and materials; follow the Job 2 overview provided; complete all installations in accordance with the NEC; installations should be consistent with electrical codes.