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
**Electrical Power and Transmission Installers (continued)**

**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®)  
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
Electrical Power and Transmission Installers (continued)

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
Electrical Power and Transmission Installers (continued)

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
Electrical Power and Transmission Installers (continued)

The standard length for sections of electrical tubing or conduit is
A. 6 feet  
B. 8 feet  
C. 10 feet  
D. 12 feet

The "S" symbol is represents what type of switch?
A. single pole  
B. four-way  
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%  
**Doorbell Circuit**
*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.