

ARIZONA CTE CAREER PREPARATION STANDARDS & MEASUREMENT CRITERIA

RESIDENTIAL ELECTRICIAN, 46.0300.20	
STANDARD 1.0 – DEMONSTRATE HEALTH, SAFETY, AND ENVIRONMENTAL MANAGEMENT SYSTEMS AND THEIR IMPORTANCE TO PERFORMANCE AND REGULATORY COMPLIANCE	
1.1	Clean and maintain the work area in a safe working condition
1.2	Describe personal and jobsite safety rules and regulations that maintain safe and healthy work environments
1.3	Identify workplace/safety electrical devices
1.4	Read and interpret MSDs (Material Safety Data Sheets)
1.5	Identify emergency procedures to follow in response to workplace accidents
1.6	Describe the purpose of BLS (Basic Life Saving) training
STANDARD 2.0 – IDENTIFY, SAFELY USE, AND MAINTAIN TOOLS AND ACCESSORIES UTILIZED IN THE ELECTRICAL INDUSTRY	
2.1	Identify basic electrical tools and equipment
2.2	Demonstrate safe use of basic hand and power tools
STANDARD 3.0 – DEMONSTRATE UNDERSTANDING OF BASIC DIRECT-CURRENT (DC) ELECTRICAL-CIRCUITS	
3.1	Define the terms “voltage,” “current,” “resistance,” “power,” and “energy”
3.2	Measure voltage, amperage, and resistance using a Volt-Ohm Meter (VOM) and a Digital Volt-Ohm Meter (DVM)
3.3	Analyze and explain a series, series-parallel, and parallel circuit
3.4	Draw series, series parallel, and parallel circuits and calculate circuit values
3.5	Explain and apply Ohm’s Law
STANDARD 4.0 – DEMONSTRATE UNDERSTANDING OF ALTERNATING-CURRENT (AC) CIRCUITS	
4.1	Describe the purpose of a capacitor and inductor
4.2	Demonstrate proficiency in measuring, testing, and connecting a low voltage transformer
4.3	Analyze and apply the principles of step-up and step-down transformers to AC circuits
4.4	Identify common AC source voltages (120/ 240, 120/208, 277/480)
4.5	Calculate the amperage of single-phase and three-phase circuits
4.6	Reverse a three-phase motor

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STANDARD 5.0 – DEMONSTRATE UNDERSTANDING OF BASIC ELECTRICAL THEORY	
5.1	Explain the principles of electromagnetism
5.2	Identify methods of providing electricity
STANDARD 6.0 – READ AND INTERPRET THE NATIONAL ELECTRIC CODE (NEC)	
6.1	Identify the importance of following the national electric code
6.2	Read and interpret the national electric code
6.3	Identify how the National Fire Protection Agency (NFPA) 70E relates to job safety
STANDARD 7.0 – DEMONSTRATE RESIDENTIAL WIRING METHODS	
7.1	Identify residential-wiring requirements and specifications in accordance with a wiring plan
7.2	Draw a residential wiring plan for a bathroom, kitchen, and bedroom using electrical-wiring symbols
7.3	Identify and install a recessed and a surface lighting and a surface lighting fixture complying with the appropriate national electric code
7.4	Identify, install, and wire a duplex-receptacle-outlet circuit in compliance with the national electric code
7.5	Install a low-voltage signal system
7.6	Identify grounding wiring requirements for service entrance and subpanels
7.7	Troubleshoot residential electric circuits (reverse polarity, arc faults GFCIs)
STANDARD 8.0 – DEMONSTRATE COMMERCIAL WIRING METHODS	
8.1	Read and interpret a commercial wiring plan and specifications
8.2	Draw a commercial electrical-wire plan for a room
8.3	Install conduit and conductors in a conduit in compliance with national electrical code
8.4	Identify procedures for installing wiring in hazardous areas such as gasoline islands
8.5	Identify commercial-service-entrance requirements related to location and grounding
STANDARD 9.0 – IDENTIFY SPECIALIZED ELECTRICAL SKILLS	
9.1	Identify differences between mechanical and solid state control devices
9.2	Identify data cable installation issues