

# Industrial Electricity Competency Profile



## SAFETY

- Follow established procedures for the use and care of tools
- Follow established procedures for the use and care of equipment
- Follow established procedures for the use and care of power-operated equipment
- Follow established procedures for the use and care of safety equipment
- Follow OSHA guidelines for the erection and use of scaffolding and ladders
- Obtain OSHA 10 hour card

## ELECTRICAL PRINCIPLES

- Identify safety techniques established for the use of test equipment
- Measure voltage using a voltage tester (e.g., Wiggins)
- Measure current using a clamp-on ammeter
- Measure voltage, current, and/or resistance using an analog multimeter
- Measure voltage, current, and/or resistance using a digital multimeter
- Verify installation using a receptacle polarity tester
- Verify the operation of a ground-fault circuit interrupter using a GFCI tester
- Apply Ohm's law
- Demonstrate knowledge of the organization of the NEC

## RESIDENTIAL INSTALLATIONS

- Follow specifications, drawings, and code requirements for rough-in wiring
- Select materials in compliance with specifications, drawings, and code requirements
- Locate/mount boxes
- Lay out runs based on circuit requirements
- Install wiring between and in boxes
- Splice wiring underground
- Arrange for rough-in inspections
- Verify that the location of service equipment is in compliance with NEC and utility requirements
- Lay out distribution systems
- Install service panels and meter apparatus
- Install grounding electrode systems, making all needed connections
- Install subpanels, making all needed connections
- Install overcurrent protective devices
- Install service entrance systems in accordance with customer and power company agreements
- Install lighting fixtures

- Install wiring devices and covers
- Connect appliances
- Check/test installation
- Arrange for final inspections

#### COMMERCIAL AND INDUSTRIAL INSTALLATIONS

- Follow specifications, drawings, and code requirements for rough-in wiring
- Verify on-site dimensions
- Select materials in compliance with specifications, drawings, and code requirements
- Locate electrical boxes and panels
- Install electrical boxes and panels
- Lay out conduit runs
- Install EMT (e.g., cut, bend, mount)
- Install nonmetallic rigid conduit (e.g., cut, mount)
- Install all types of flexible conduit (e.g., cut, mount)
- Identify needed conductors according to specifications, drawings, and code requirements
- Pull identified conductors using method appropriate for size and number of conductors
- Install equipment grounding and bonding systems
- Verify that the location of service equipment is in compliance with NEC and utility requirements
- Lay out distribution systems
- Install service equipment
- Connect meter apparatus
- Install grounding-electrode systems, making all needed connections
- Install feeders, making all needed connections
- Install meter control centers, panels, and disconnects, making all needed connections
- Install wiring devices
- Install lighting fixtures
- Install equipment, making all needed connections
- Label circuits based on testing/identification
- Update prints and schematics

#### COMMERCIAL AND INDUSTRIAL MOTOR INSTALLATIONS

- Interpret motor nameplate information and monitor specifications on drawings
- Install single-phase and three-phase motors
- Install motor controllers
- Connect motors to motor controllers
- Verify motor rotation
- Interpret schematics and control diagrams
- Select control and safety devices in accordance with schematics and control diagrams
- Install control and safety devices, making all needed connections
- Verify operation and rotation

STUDENT HAS:

- Attended 90% of scheduled classes
- Learned a minimum of 70% of the curriculum competencies as quarterly evaluated by manual performance and/or written format
- Effectively demonstrated: teamwork, personal problem solving skills, critical thinking skills, citizenship responsibilities and personal hygiene
- CPR training
- First Aid training
- Bobcat training