



2025 Electrical: Residential-Commercial Competition FACT SHEET

Project Manager

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Specific Competition Eligibility

The electrical competition has no competition-specific eligibility requirements. Please refer to overall eligibility requirements listed in the guidebook.

Special Competition Announcement

The conduit-bending portion of the electrical practical performance test will be conducted on Tuesday, Feb. 25, 2025, from 2-4 p.m. during the competitor practical performance test site orientation. **All tools to complete this portion of the exam will be provided. Competitors will be required to wear hard hats, safety glasses and gloves provided by ABC. Competitors must bring their boots and prescription eyewear to the lunch orientation, which must be worn during the conduit-bending. There will not be time to return to their hotel rooms to get these items between lunch and the site orientation.**

Written Exam

Competitors will have one (1) hour to complete the 50-question exam. Every competitor should thoroughly understand the craft in which he/she is registered. All exams/tests are based on the standardized craft training process. In addition to the knowledge and skills required for each competition, all competitors should have completed the NCCER Core Curriculum modules. All competitors must sit for the exam or face disqualification from the NCC. The written exam makes up 25% of one's overall competition score. ABC will provide pencils, scratch paper, and a calculator for mathematical problems (if necessary). Scientific/graphing calculators and loose notes are prohibited. **No reference materials are permitted** except for the 2020 NEC Code book and the Pipefitter's Blue Book. All reference materials are subject to inspection. *Please refer to the 2025 NCC Guidebook for more details.*

Practical Performance Test Description

Each competitor, over a two-day period, will perform multiple tasks utilizing knowledge and skills applicable to residential/commercial construction.

Electrical Task: Residential-Commercial Construction

The competitor will be required to install electrical equipment, including panelboards, general branch circuitry, and basic lighting controls. Extensive plan reading skills will be necessary, as well as grounding and single-phase transformer makeup or connections. Competitors will also install various types of raceways and cables, including EMT, FMC, LFMC, MC, and NM cable. Working surfaces shall be two wood-framed walls, each measuring 6-1/2 feet tall by 4 feet wide, with drywall and plywood finishes. The construction must be completed within six hours. Upon completion, the project will be connected to a power source for functionality testing by the judges.

Knowledge and Skills Required

The knowledge and skills for this competition are based on the 2020 National Electrical Code® and all levels of the NCCER electrical curriculum 14 revisions with particular emphasis on the following modules:

- Electrical Safety
- Hand Bending
- Fasteners and Anchors
- Electrical Theory One
- Electrical Theory Two
- Electrical Test Equipment
- Introduction to National Electrical Code®
- Raceways, Boxes and Fittings
- Conductors
- Introduction to Electrical Blueprints
- Wiring: Commercial and Industrial
- Alternating Current
- Motors: Theory and Application
- Grounding
- Conduit Bending
- Load Calculations—Feeders and Services
- Practical Applications of Lighting
- Boxes and Fittings
- Conductor Installations
- Cable Tray
- Conductor Terminations and Splices
- Installation of Electric Services
- Circuit Breakers and Fuses
- Contactors and Relays
- Electric Lighting
- Calculations—Branch Feeders and Circuits
- Conductor Selection and Calculations
- Overcurrent Protection
- Raceway, Box and Fitting Fill Requirements
- Wiring Devices
- Distribution Equipment
- Standby and Emergency Systems
- Basic Electronic Theory
- Fire Alarm Systems

Tools

Each competitor will be provided with the needed tools. Listed below are examples of the tools provided by ABC. No other tools will be allowed.

- Medium and large screwdrivers, straight
- Medium Phillips screwdriver
- Wire strippers
- VOM meter
- Channel locks
- Awl or center punch
- Claw hammer
- Utility knife
- Romex stripper
- 9-inch lineman pliers
- Keyhole saw
- EMT conduit reamer
- EMT benders
- Rigid bender
- Pencils, Sharpie marker
- Basic, non-programmable calculator
- 25-foot tape measure
- Hacksaw
- Torpedo level
- Tool pouch and belt
- Hard hat, gloves and safety glasses

Review the safety scope for the following power tools:

- Impact driver

Sample Score Sheet

The following sample score sheet is provided to give competitors an example of the criteria that may be included in the practical performance test. **However, this score sheet is only a sample and not intended to act as a study guide in preparation or to imply specific criteria that will be judged during the actual practical performance test.**

ABC National Craft Championships Electrical Sample Score Sheet

Judging Criteria	Competitor Identification Numbers					
	Maximum					
Use of materials						
Grounding						
Placement						
Follow prints/plans						
NEC						
Accuracy						
Terminations of conductors and cables						
Proper circuiting and device makeup						
Trim out of devices and conductors						
Panel						
Devices						
Installation of devices						
Operation						
Sequence of work						
Care and use of tools						
Proper use of fasteners						
General						
Project disassembly						
SUBTOTAL:	160					
Safety – housekeeping						
Use of hard hat						
Use of safety glasses						
Use of power tools						
Proper footwear						
SUBTOTAL:	40					
GRAND TOTAL:	200					
Tie Breaker #1						
Tie Breaker #2						