

Iowa Department of Administrative Services – Human Resources Enterprise
Job Classification Description

Electrician

Definition

Performs skilled electrical work in the installation, alteration, maintenance, and repair of electrical systems, fixtures, and related equipment; performs related work as required.

The work examples and competencies listed below are for illustrative purposes only and not intended to be the primary basis for position classification decisions.

Work Examples

Performs skilled work in the installation, maintenance, alteration, and repair of wiring, power appliances, machinery, overhead circuits, underground circuits, and pole lines.

Lays out, assembles, installs, tests, and maintains electrical fixtures and apparatus such as boxes, conduit, wiring outlets, switch panels, and bus bars; tests circuits for continuity and proper connections.

Installs and maintains motors and generators, seats and replaces brushes, oils and cleans motors, and does limited mechanical work in repairing and replacing parts on electrical fixtures or equipment.

Uses standards and specialized electrical fixtures or equipment such as voltammeters, ammeters, ohmmeters, magnetos, and other hand tools ordinarily used in the trade.

Rewinds coils and armatures; dresses and polishes commutators; converts motors, refrigerators, and similar appliances to correct current ratings; troubleshoots electrical systems; operates electrical equipment.

Repairs and maintains a power plant switchboard and related control devices.

Makes minor repairs and adjustments on passenger and freight elevators and air conditioning equipment; inspects elevators, with state inspectors, for code violations.

Installs high voltage distributor transformers and makes internal connections to adjust to the required voltage; installs, splices, and insulates high voltage underground and overhead cables; performs maintenance and runs tests on generators.

Confers with supervisor, department head, or others regarding operation, installation, maintenance, or repair of electrical systems or equipment; advises in the selection and storage of electrical equipment; consults and works with other trades personnel.

Makes rough sketches and estimates the cost of minor electrical installations; interprets blueprints, sketches, and specifications in making electrical installations.

Instructs trades helpers and unskilled or semi-skilled workers.

Keeps simple records and makes reports as required; assists generally, as required, in other maintenance work.

Competencies Required

Knowledge:

- Building and Construction – Materials, methods, and the tools involved in the construction or repair of houses, buildings, or other structures such as highways and roads.
- Mathematics – Arithmetic, algebra, geometry, calculus, statistics, and their applications.
- Mechanical – Machines and tools, including their designs, uses, repair, and maintenance.
- Design – Design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.

Abilities:

- Problem Sensitivity – Tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Deductive Reasoning – Apply general rules to specific problems to produce answers that make sense.
- Inductive Reasoning – Combine pieces of information to form general rules or conclusions.
- Near Vision – See details at close range (within a few feet of the observer).
- Oral Comprehension – Listen to and understand information and ideas presented through spoken words and sentences.
- Visual Color Discrimination – Match or detect differences between colors, including shades of color and brightness.
- Arm-Hand Steadiness – Keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
- Finger Dexterity – Make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.
- Information Ordering – Arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Skills:

- Troubleshooting – Determining causes of operating errors and deciding what to do about it.
- Repairing – Repairing machines or systems using the needed tools.
- Active Listening – Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Critical Thinking – Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Judgment and Decision Making – Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Installation – Installing equipment, machines, wiring, or programs to meet specifications.

- Quality Control Analysis – Conducting tests and inspections of products, services, or processes to evaluate quality or performance.

Minimum Qualification Requirements

Applicants must meet at least one of the following minimum requirements to qualify for positions in this job classification:

- 1) Three years of full-time work experience in skilled electrical work in the construction or repair of residential or commercial buildings.
- 2) Successful completion of a standard electrician program at an accredited trade school.
- 3) A total of three years of education and/or full-time experience (as described in number one), where one semester of an approved trade school electrician program is equivalent to six months of full-time experience.
- 4) Successful completion of three years of an approved electrician apprenticeship program.
- 5) Current, continuous experience in the state executive branch that includes two years of full-time work as a Trades Helper which involved electrical duties.

Notes

Within a timeframe determined by the appointing authority, persons in this class may be required to obtain a license to perform electrical work in accordance with Iowa Code Chapter 103.

Designated positions in this class require possession of a valid Commercial Learner's Permit upon hire. Within a timeframe determined by the appointing authority, a valid Commercial Driver's License with the required endorsements and applicable restrictions must be obtained and subsequently maintained to continue employment.

Effective date: 06/19 SA