

Duties of a Journeyworker Electrician



Electricians typically do the following:

- Read blueprints or technical diagrams before doing work
- Install and maintain wiring and lighting systems
- Inspect electrical components, such as transformers and circuit breakers
- Identify electrical problems with a variety of testing devices
- Repair or replace wiring, equipment, or fixtures using hand tools and power tools
- Follow state and local building regulations based on the National Electric Code
- Direct and train workers to install, maintain, or repair electrical wiring or equipment

Almost every building has an electrical system that is installed during construction and maintained after that. Electricians do both the installing and maintaining of electrical systems.

Installing electrical systems is more structured than maintaining older equipment. This is because it is easier to get to electrical wiring during construction. Maintaining older equipment, however, involves identifying problems and repairing malfunctioning equipment that is sometimes difficult to reach. Electricians doing maintenance work may need to fix or replace components, overcurrent protection, motors, utilization equipment, or robotic control systems.

Electricians read electrical prints, which are technical diagrams of electrical systems that show the location of circuits, outlets, and other equipment. They use different types of hand and power tools, such as pipe benders, to run and protect wiring. Other commonly used hand and power tools include screwdrivers, wire strippers, drills, and saws. While troubleshooting, electricians also may use ammeters, voltmeters, and multimeters to find problems and ensure that components are working properly.

Many electricians work independently, but sometimes they collaborate with others. For example, experienced electricians may work with building engineers and architects to help design electrical systems in new construction. Some electricians also may consult with other construction specialists, such as elevator installers and heating and air conditioning workers, to help install or maintain electrical or power systems. At larger companies, electricians are more likely to work as part of a crew; they may direct helpers and apprentices to complete jobs.

How to Become an Electrician: Apprenticeship

Growing demand in a growing industry



Apprenticeship

Most electricians learn their trade in a 4-year apprenticeship. For each year of the program, apprentices must complete at least 144 hours of technical training and 2,000 hours of paid on-the-job training. In the classroom portion of apprentice training, apprentices learn electrical theory, blueprint reading, mathematics, electrical code requirements, and safety and first-aid practices. They also may receive specialized training related to communications, fire alarm systems, and hospital systems. Because of this comprehensive training, those who complete apprenticeship programs qualify to do both construction and maintenance work.

After completing an apprenticeship program, registered electrical workers may take a State test and qualify as a licensed journeyman electrician worker and may perform duties without direct supervision. Further testing is required to become a Master electrician and work as an electrical contractor.

Several groups, including unions and contractor associations, like the Electrical Association, sponsor apprenticeship programs. The basic qualifications to enter an apprenticeship program are as follows:

- Minimum age of 18
- High school education or equivalent
- One year of algebra
- Qualifying score on an aptitude test
- Drug free

Some electrical contractors have their own training programs, although most workers enter apprenticeships directly when they go to work for a contractor. Some apprentices start out as helpers. The Electrical Association provides an apprentice program for workers entering the field and who are working for a contractor.

Education

Some electricians start out by attending a technical school. Many technical schools offer programs related to safety and basic electrical information. Graduates usually receive credit toward their state license qualification.

Electricians are required to take continuing education courses. These courses usually involve instruction related to safety practices, changes to the electrical code, and training from manufacturers in specific products.

Licenses

Most states require licensure. Requirements vary by state. Contact the state where you will work-state's licensing agency- for more information. Minnesota requires licensed electricians to perform work on electrical installations. Workers who are not licensed must be registered with the State in order to do electrical work.

Important Qualities

Color vision. Electricians need good color vision because workers frequently must identify electrical wires by color.

Critical-thinking skills. Electricians need to think theoretically and work concretely. Electricians perform tests and use the results to diagnose problems. For example, when equipment is not working, they may use digital meters to check the voltage, amperage, or resistance to determine the best course of action.

Customer-service skills. Electricians work with people on a regular basis. As a result, they should be friendly and be able to address customers' questions. Good oral and written communication skills are an advantage.

Managerial skills. Some electricians must be able to direct others' work as well as plan work schedules. Often, this work includes preparing estimates and other administrative tasks. Directing the work of others takes skill in managing people as well as directing the technical work.

Troubleshooting skills. Electricians find, diagnose, and repair problems. For example, if a motor stops working, they perform tests to determine the cause of its failure and then, depending on the results, fix or replace the motor.

Questions? Contact Us!

612-827-6117 • info@electricalassociation.com

