



Electrician

38

Job Description:

Electricians install, test, and maintain electrical systems.

Gross Monthly Income:

\$3,700

Wages:

Average median yearly pay is about \$45,000 a year in Utah.

Schedule: May work overtime to meet deadlines, including nights and weekends, and be on-call.



Education & Experience:

- ◆ Completed High School
- ◆ Apprenticeship program (4 years on-the-job training)
- ◆ 144 hours classroom training (1 year)
- ◆ Pass a state licensing exam

High

School Courses:

- ◆ Auto Collision Technology
- ◆ Auto Repair Technology
- ◆ Diesel Mechanics and Repair
- ◆ Introduction to Mechanics

Advancement:

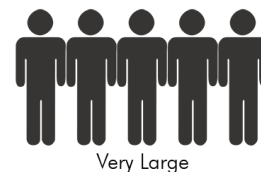
Experienced electricians who work for large companies have several options for advancement. Those who have good people skills may become supervisors. Those who have good organizational skills may become managers. Construction electricians may transfer to electrical jobs in the shipbuilding, automobile, or aircraft industries.

Work Conditions:

- ◆ High level of social contact, but also can work alone most of the time.
- ◆ Responsible for the health and safety of others.
- ◆ Deal with unpleasant, angry, or rude customers sometimes.
- ◆ Work in and outdoors, often in bad weather, hazardous conditions, and in high places.
- ◆ Must be exact in their work. Work as part of a team.
- ◆ Meet strict deadlines. Repeat the same tasks often throughout the day.

Travel: Light travel to work sites

Job Outlook:



Hours a Week:

40

Leisure Time:

Medium

Knowledge:

- ◆ Transportation
- ◆ Public Safety & Security
- ◆ Mechanical
- ◆ Customer & Personal Service
- ◆ Mathematics

Electrician

38



Overview

Have you ever heard of the "War of the Currents?" This is the name given to the competition between inventors Nikola Tesla and Thomas Edison to see whose system of electrical power would win out in the late 1800s. Edison was a proponent of direct current or "DC." DC has a constant voltage and only moves in one direction. Tesla, on the other hand, promoted the use of alternating current or "AC," which does not have a constant voltage. In addition, AC can be transmitted over much longer distances than DC. Tesla's invention eventually won out, when the organizers of the Chicago World's Fair in 1893 chose to light the fair with AC rather than DC. As the lights turned on at this first all-electric fair, it became clear that AC power was the way of the future.

In the past electricians chose to work either in construction or maintenance. Today many work in both. In general, construction electricians assemble and install electrical systems. Maintenance electricians maintain and repair systems.

Construction electricians begin jobs by reading blueprints. They learn where to put circuits, outlets, and other equipment. Electricians use this information to plan how they will install the wiring. In factories and offices, they install conduit (pipe or tubing) in walls and concealed areas. Then they install metal or plastic boxes for switches and outlets. Next, they pull insulated wires or cables through the conduit to the boxes and complete the circuits. In houses, electricians use plastic-covered wires instead of conduits and wires.

Once the wires are installed, electricians connect them to circuit breakers, transformers, and other components. They twist the ends of the wires together using pliers, and cover the ends with plastic connectors. Sometimes they use soldering guns to melt metal onto the twisted wires. When the wiring is finished, electricians test that all the circuits work properly. They follow the national electric code as well as state and local building codes when installing systems. Some electricians have helpers. Electricians teach helpers how to complete tasks and supervise their work.

Electricians may install fiber optic or coaxial cables. These are used for computers and telephones. They connect motors to electrical power. They may also install electronic controls for industrial equipment. All electricians use hand tools such as screwdrivers, pliers, knives, and hacksaws. They also use power tools and testing equipment, such as voltmeters.

Maintenance electricians keep electrical systems and equipment in good working order. They inspect equipment and fix any problems that they find. They also check equipment for safety and warn managers when equipment is not safe. They may install new electrical equipment. When breakdowns occur, they work quickly to find the problem and make the repair. They use equipment such as oscilloscopes to diagnose problems. They may change items such as circuit breakers, fuses, electrical components, or wire. When working on complex electronic devices, they may consult engineers or industrial machinery repairers.

Pathway:
***Skilled &
Technical Sciences***