


	Current Number of Workers 2006	Projected Number of Workers 2016	% Change to 2016	Average Annual Openings	 Electricians SOC # 47-2111	
Regional	600	750	25.00%	25		
Texas	49,400	59,700	20.90%	2305		
Education/ Training Time	Is License Required?	Wage Rate \$/Hr. 2008 Regionally	Percent Female	Average Age	Job Turnover	Why Most Job Openings Occur
1—2 yrs OR Apprentice	Yes	\$18.09	2.3%	38.9	Average	Replacement

JOB DESCRIPTION

Install, maintain, and repair electrical wiring, equipment, and fixtures. Ensure that work is in accordance with relevant codes. May install or service street lights, intercom systems, or electrical control systems. *Possible Green Job with enhanced skills.*

WHERE DO WORKERS FIND JOBS?

Building Equipment Contractors
Local Government, Except Education
Nonresidential Building Construction
Electric Power Generation, Transmission and Distribution

RELATED COLLEGE PROGRAMS

CIP 460302 Electrician
CIP 470616 Marine Maintenance/Fitter and Ship Repair Technology/Technician

IMPORTANT KNOWLEDGE

BUSINESS AND MANAGEMENT

- * Administration and Management
- * Customer and Personal Service

ENGINEERING AND TECHNOLOGY

- * Building and Construction
- * Design
- * Mechanical

MATHEMATICS AND SCIENCE

- * Mathematics

IMPORTANT SKILLS

COMPLEX PROBLEM SOLVING SKILLS

- * Complex Problem Solving

CONTENT

- * Active Listening

PROCESS

- * Critical Thinking

SYSTEMS SKILLS

- * Judgment and Decision Making

TECHNICAL SKILLS

- * Operation Monitoring
- * Quality Control Analysis
- * Repairing
- * Troubleshooting

IMPORTANT ABILITIES

ATTENTIVENESS

- * Selective Attention

FINE MANIPULATIVE ABILITIES

- * Arm-Hand Steadiness
- * Finger Dexterity
- * Manual Dexterity

IDEA GENERATION AND REASONING ABILITIES

- * Deductive Reasoning
- * Information Ordering
- * Problem Sensitivity

VERBAL ABILITIES

- * Oral Comprehension
- * Oral Expression
- * Written Comprehension

VISUAL ABILITIES

- * Near Vision

NATURE OF THE WORK: Electricians

Electricity is essential for light, power, air-conditioning, and refrigeration. Electricians install, connect, test, and maintain electrical systems for a variety of purposes, including climate control, security, and communications. They also may install and maintain the electronic controls for machines in business and industry.

Electricians generally specialize in construction or maintenance work, although a growing number do both. Electricians specializing in construction work primarily install wiring systems into new homes, businesses, and factories, but they also rewire or upgrade existing electrical systems as needed. Electricians specializing in maintenance work primarily maintain and upgrade existing electrical systems and repair electrical equipment.

Electricians work with blueprints when they install electrical systems. Blueprints indicate the locations of circuits, outlets, load centers, panel boards, and other equipment. Electricians must follow the National Electrical Code and comply with State and local building codes when they install these systems. Regulations vary depending on the setting and require various types of installation procedures.

When electricians install wiring systems in factories and commercial settings, they first place conduit (pipe or tubing) inside partitions, walls, or other concealed areas as designated by the blueprints. They also fasten to the walls small metal or plastic boxes that will house electrical switches and outlets. They pull insulated wires or cables through the conduit to complete circuits between these boxes. In residential construction, electricians usually install plastic encased insulated wire, which does not need to be run through conduit. The gauge and number of wires installed in all settings depends upon the load and end use of that part of the electrical system. The greater the diameter of the wire, the higher the voltage and amperage that can flow through it.

Electricians connect all types of wire to circuit breakers, transformers, outlets, or other components. They join the wires in boxes with various specially designed connectors. During installation, electricians use hand tools such as conduit benders, screwdrivers, pliers, knives, hacksaws, and wire strippers, as well as power tools such as drills and saws. After they finish installing the wiring, they use testing equipment, such as ammeters, ohmmeters, voltmeters, and oscilloscopes, to check the circuits for proper connections, ensuring electrical compatibility, and safety of components.

Maintenance work varies greatly, depending on where the electrician is employed. Electricians who specialize in residential work perform a wide variety of electrical work for homeowners. They may rewire a home and replace an old fuse box with a new circuit breaker box to accommodate additional appliances, or they may install new lighting and other electric household items, such as ceiling fans. Those who work in large factories may repair motors, transformers, generators, and electronic controllers on machine tools and industrial robots. Those in office buildings and small plants may repair all types of electrical equipment.

Maintenance electricians working in factories, hospitals, and other settings repair electric and electronic equipment when breakdowns occur and install new electrical equipment. When breakdowns occur, they must make the necessary repairs as quickly as possible in order to minimize inconvenience. They may replace items such as circuit breakers, fuses, switches, electrical and electronic components, or wire. Electricians also periodically inspect all equipment to ensure it is operating properly, and locate and correct problems before breakdowns occur. Electricians also advise management whether continued operation of equipment could be hazardous. When working with complex electronic devices, they may work with engineers, engineering technicians, line installers and repairers, or industrial machinery installation, repair, and maintenance workers.

Although primarily classified as work for line installers and repairers, electricians also may install low voltage wiring systems in addition to wiring a building's electrical system. Low voltage wiring involves voice, data, and video wiring systems, such as those for telephones, computers and related equipment, intercoms, and fire alarm and security systems. Electricians also may install coaxial or fiber optic cable for computers and other telecommunications equipment and electronic controls for industrial uses.