

## MASTER ELECTRICIAN

**PURPOSE:** To properly plan, lay out, perform, and supervise the installation and repair of wiring apparatus and equipment for electrical light, heat, power, and other purposes.

### **FUNCTIONAL AREAS:**

1. Perform skilled electrical work in the installation, maintenance, and repair of electrical systems.
  - \* A. Perform the installation of conduit, including electrical-metallic tubing, plasticmold, and wiremold.
  - \* B. Perform the installation of transformers, control boards, electronic circuits, coils, circuit breakers, voltage regulators, switches, fuses, and related electrical equipment in electrical generating and distributing stations and buildings.
  - \* C. Perform additions, extensions, or alterations to electrical installations for power, light, heat, and appliances in buildings and on grounds.
  - \* D. Troubleshoot, perform repairs, and test a variety of motors, electrical circuits, machinery, transformers, meters, and recording instruments.
  - \* E. Perform installations and connections of motors, lights, controllers, voltage regulators, racks, and various electrical fixtures.
  - \* F. Inspect and perform cleaning and maintenance to electrical equipment and motors, including replacement of brushes and necessary parts.
  - \* G. Determine modifications required when obstructions are met while installing electrical systems.
  - \* H. Assist in operating and maintaining cathodic protection on gas and water distribution systems.
  - I. Ensure a safe work environment.
  - J. Maintain and perform repairs to equipment and tools.
  - K. Attend related training sessions.
  - L. Assist other staff as necessary.
2. Perform other duties as assigned.
  - \* A. Review and interpret blueprints and determine material lists and costs.
  - \* B. Estimate time and materials necessary to perform a job.
  - C. Assist with inspections of new installations and/or modifications performed by others.
  - \* D. Obtain electrical permits for the City of Duluth when required.
  - \* E. Secure meter applications when required.
  - \* F. Organize and direct the work of journeypersons and helpers as assigned.
  - \* G. Train journeypersons and helpers as assigned.
  - H. Perform related tasks as assigned.

### **JOB REQUIREMENTS**

#### **License Requirements:**

- ◆ A. Possess and maintain a State of Minnesota Class "A" Master Electrician license.
- ◆ B. Possess and maintain a State of Minnesota Class "D" Driver's License or equivalent.
- C. Ability to obtain a State of Minnesota Class "B" Commercial Driver's License or equivalent.
- D. Ability to obtain a State of Minnesota Department of Health Class D Water Supply System Operator Certificate.
- E. Ability to become Operator Qualified to perform work on the Utility's natural gas distribution system.

Experience Requirements:

- ◆ A. One year of verifiable experience as a licensed Master Electrician.
- ◆ B. Experience working with high voltage, high horsepower motors and their associated control equipment in an industrial setting.

Knowledge Requirements:

- ◆ A. Thorough knowledge of the National Electrical Code (NEC).
- ◆ B. Thorough knowledge of all applicable laws, rules, and standards regulating electrical construction and installation practices.
- ◆ C. Thorough knowledge of electrical test equipment, instruments, and appliances used in the electrical trade.
- ◆ D. Knowledge of high voltage, high horsepower motor systems including their associated control and data acquisition systems.
- E. Knowledge of electronics and electronic circuits.
- F. Knowledge of system control and data acquisition systems and methods.
- G. Knowledge of microcomputer operations.
- H. Working knowledge of OSHA standards for flash-over protection.
- I. Working knowledge of the installation and operation of equipment operating at or over 600 V nominal.

Skill Requirements:

- ◆ A. Skill in safe work practices and procedures.
- ◆ B. Skill in operating and maintaining electrical equipment, instruments, appliances, and other electrically operated or controlled devices.
- ◆ C. Skill in the installation, maintenance, and repair of electrical systems.

Ability Requirements:

- ◆ A. Ability to read blueprints, diagrams, and schematics.
- ◆ B. Ability to calculate materials costs.
- ◆ C. Ability to estimate time and materials necessary to complete a job.
- ◆ D. Ability to perform soldering and mechanical work.
- ◆ E. Ability to understand and follow oral and written instructions.
- ◆ F. Ability to direct assigned personnel.
- ◆ G. Ability to erect ladders and scaffolding in a safe manner.
- ◆ H. Ability to use hand and power tools.
- ◆ I. Ability to recognize safety hazards and take appropriate precautions.
- ◆ J. Ability to work at heights up to 80 feet.
- ◆ K. Ability to work in damp and confined spaces.
- ◆ L. Ability to establish and maintain effective working relations with co-workers and the public.
- ◆ M. Ability to attend work on a regular basis.
- ◆ N. Ability to frequently push, pull, lift to move and carry equipment weighing up to 50 pounds and occasionally up to 100 pounds.

\* Essential functions of the job

- ◆ Job requirements necessary on the first day of employment

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