

CITY OF MADERA

INDUSTRIAL ELECTRICAL TECHNICIAN

*Class specifications are only intended to present a descriptive summary of the range of duties and responsibilities associated with specified positions. Therefore, specifications **may not include all** duties performed by individuals within a classification. In addition, specifications are intended to outline the **minimum** qualifications necessary for entry into the class and do not necessarily convey the qualifications of incumbents within the position.*

DEFINITION:

Under general supervision, performs complex and technical work in testing, installation, calibrating, maintenance and repair of all pneumatic, electronic and electrical distribution and control circuits and automated systems commonly used in a modern waste water treatment plant, storm/sewer collection system, water distribution system and traffic/streetlights controls; demonstrates a full understanding of all applicable policies, procedures and work methods associated with assigned duties; performs other related duties as required.

DISTINGUISHING CHARACTERISTICS:

The **Industrial Electrical Technician** is the journey level class responsible for a wide variety of electrical maintenance and installation tasks. This classification is distinguished from the next higher series of Public Works Electrical and Facilities Operations Manager in that the latter is responsible for supervision of the work unit.

SUPERVISION RECEIVED/EXERCISED:

Receives general supervision from a Public Works Electrical and Facilities Operations Manager.

ESSENTIAL FUNCTIONS: *(include but are not limited to the following)*

- Installs, maintains, repairs and calibrates digital/analog process control equipment.
- Designs instrumentation and electrical systems and then takes the lead with the implementation of such systems with the assistance of lower classification of personnel.
- Installs, maintains, and repairs computer system software and hardware, including Programmable Logic Controllers (PLCs), Standalone Control And Data Acquisition (SCADA) Computers and radio based telemetry systems, which are utilized for controlling flow, temperature, motion and chemical feed.
- Repairs, maintains and calibrates process control instrumentation such as but not limited to level, pressure and flow equipment.

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- Maintains a variety of electronic control instruments used to operate electrical mechanical equipment, record data, indicate equipment status and activate supervisory control.
- Maintains and repairs automatic control valves and associated control devices.
- Operates a variety of electronic testing equipment.
- Maintains service records; participates in development of specifications for requisition for parts and electrical equipment.
- Uses computers and applicable software for logging work completed, record keeping, and equipment data retrieval.
- Ensures all safety regulations are followed.
- Establishes positive working relationships with representatives of community organizations, state/local agencies, City management and staff, and the public.
- Demonstrates proficiency in the installation, maintenance and troubleshooting of heavy industrial equipment and electrical systems, including motor starters, variable frequency drives, motor control centers and distribution panels. Demonstrates the ability to work with a variety of voltages up to 480 Volts AC.
- Demonstrates proficiency in the installation and troubleshooting of process control and electrical circuits. Demonstrates the ability to read and interpret ladder diagrams and Piping and Instrumentation Diagrams.
- Demonstrates the ability to communicate and troubleshoot with various brands of Programmable Logic Controllers that utilize Ladder Logic, Function Block Diagram and Structured Text programming language using computer based software.

WORKING CONDITIONS:

Position requires sitting, standing, walking on level and slippery surfaces, reaching, twisting, turning, kneeling, bending, stooping, squatting, crouching, grasping and making repetitive hand movement in the performance of daily duties. The position also requires both near and far vision when inspecting work and operating assigned equipment, must see well enough to read, write and make observations. The need to lift, carry and push tools, equipment and supplies weighing 25 pounds or more is also required. Additionally, the incumbent in this outdoor position works in all weather conditions including wet, hot and cold. The position entails working in situations that may expose the employee to fumes or airborne particles, electrical shock or mechanical hazards. The nature of the work also requires the incumbent to climb ladders, use power and noise producing tools and equipment, drive motorized vehicles, work in heavy vehicle traffic conditions and often work with constant interruptions.

QUALIFICATIONS: *(The following are minimal qualifications necessary for entry into the classification)*

Education and/or Experience:

Any combination of education and experience that has provided the knowledge, skills and abilities necessary for an **Industrial Electrical Technician**. A typical way of obtaining the required qualifications is to possess the equivalent of three years of journey level experience involving skilled maintenance/installation of industrial, instrumentation/electrical and electronic control systems and a high school diploma or equivalent supplemented by course work in technical training courses related to electronics, instrumentation and electrical systems.

License/Certificate:

Possession of, or ability to obtain, a valid class C California driver's license. Possession of or ability to obtain within 2 years a valid General Electrician certification by the State of California, Department of Industrial Relations, Division of Apprenticeship Standards.

KNOWLEDGE/ABILITIES/SKILLS: *(The following are a representative sample of the KAS's necessary to perform essential duties of the position)*

Knowledge of:

Standard and specialized practices, methods, tools, equipment and materials used in the installation, repair and maintenance of supervisory, and automated control systems used in water/wastewater/storm and traffic signal systems. Principles and practices of electronics/electric/pneumatic and instrumentation installation as it applies to automated control systems. Principles of radio based telemetry systems. Occupational hazards and standard safety precautions of the trade, including the National Electric Code and NFPA70E safety requirements.

Ability to:

Develop and implement a comprehensive, preventive maintenance program for Municipal Services instrumentation and electronics equipment. Operate electronic/electrical testing equipment. Diagnose electrical and electronic failures and take an effective course of action to correct the problem. Respond to emergency conditions and use good judgment to make appropriate repairs. Understand and carry out oral and written instructions. Troubleshoot and diagnose control circuits in an industrial setting; interpret ladder diagrams and install control and power circuits from diagrams.

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Skill to:

Safely and effectively operate a variety of power and hand tools used in electrical installation and repair.

Approved 2/17/2016

Previously titled Electronic/Instrumentation Technician