

**CITY OF LOS ANGELES
CIVIL SERVICE COMMISSION**



CLASS SPECIFICATION
POSTED JUNE 1999

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ELECTRICAL ENGINEERING ASSOCIATE, 7525

Summary of Duties: Performs professional electrical engineering work in a wide variety of electrical engineering assignments such as the preparation of designs, plans, specifications, engineering economic and cost analysis studies, schedules, contracts and reports for electrical systems and equipment, buildings, and marine facilities and equipment; conducts quality assurance and safety testing, inspection, and research activities; provides technical direction in the licensing, design, construction, installation, maintenance, and operation of a wide variety of electrical systems and equipment; may perform code enforcement functions relating to designs and specifications of electrical installations and equipment approval; and does related work.

Distinguishing Features: Electrical Engineering Associate I is the normal entry level to the class. Employees at this level usually have little, if any, experience or special training. They initially perform the less complex professional electrical engineering work under close supervision while learning and assisting in a variety of routine duties. As employees become more experienced, they may work independently and may be responsible for one or more large projects. Positions at this level are designated as three-year temporary training positions under Civil Service Rule 5.30. Employees with two years of full-time City experience as an Electrical Engineering Associate I and an Engineer-in-Training (EIT) Certificate would automatically move to the Electrical Engineering Associate II level.

Electrical Engineering Associate II level performs journey level electrical engineering work requiring a working knowledge of electrical engineering skills. Individuals at this level usually work independently, receiving instructions in general terms, and may be responsible for one or more major City projects having wide impact and significant cost. Employees may serve as a lead over a small group of lower level employees.

Electrical Engineering Associate III level may supervise, or may serve as a lead over a small group of employees, or as a project manager, or as a project engineer involved in work that is technically complex and requires considerable experience, skill and engineering knowledge. Two years of full-time paid, professional experience at the level of Electrical Engineering Associate II and registration as a professional engineer with the California State Board of

Registration for Professional Engineers is required for advancement to this level.

Electrical Engineering Associate IV level is a non-supervisory technical expert, who shall maintain the skills and expertise necessary to remain at this higher paygrade level. They may conduct extensive research into new technical developments and evaluate their suitability for City use, may prepare standards for technical design, may develop and conduct training for other employees on new procedures and techniques, or may act as an internal consultant to other employees on new technology or very difficult issues. These positions are designated by department management according to their department's needs. Some positions require registration as a professional engineer with the California State Board of Registration for Professional Engineers, as determined by department management.

Example of Duties: An Electrical Engineering Associate:

- Assigns, directs, reviews and participates in preparing various plans, designs, drawings, specifications, estimates, studies, schedules, recommendations, contracts and reports necessary for the construction, installation, maintenance, and operation of electrical equipment in such facilities as generating and converter stations, water treatment and pumping plants, airports, electric receiving and distributing stations, and marine facilities;
- Prepares designs, layouts, specifications, estimates, and recommendations for the construction, installation, and maintenance of electrical illumination, power for building equipment including elevators, escalators, shop machines and heavy cranes, controls for heating and air conditioning equipment, ship loading cranes, marine radio communication systems, communication and public address systems, and computer installations for new buildings and alterations to existing buildings;
- Consults with engineers, manufacturers, and others in investigating the design features of a variety of electrical equipment and materials;
- Analyzes bids and makes recommendations for awarding of contracts, and upon receipt inspects materials and equipment;
- Directs and checks quality control and quality assurance activities to insure conformity with specifications, engineering standards, and various local, state and federal codes;
- Prepares cost estimates from specifications and drawings;
- Reviews, analyzes and prepares reports on expenditure authorizations and variances;
- Directs or assists as a technical expert, and prepares reports on the inspection, reconditioning, and operating characteristics of hydroelectric or steam-electric generating plants, transmission lines, converter stations, sewage and water pumping and treatment plants, and electrically-driven rotating machinery and equipment;
- Conducts studies and prepares reports concerning electrical production,

supply and load growth by collecting and analyzing data such as population trends, economics, rates and other factors to determine the feasibility of future power projects and transmission systems;

- Coordinates fuel supply activities;
 - Prepares or directs the preparation of designs and specifications for overhead and underground electrical systems and related equipment;
 - Conducts or directs load, voltage, temperature, electrolysis tests of system lines, cables, facilities, and equipment;
 - Directs or performs research and testing of instruments, protective relay equipment, meters, transformers, and other electrical equipment or systems and designs needed for modifications of such equipment;
 - Performs studies of failed electrical equipment and makes recommendations to prevent similar failures;
 - Prepares technical reports and engineering letters for installation crews;
 - Consults with other engineers and confers with craft personnel to plan, schedule and coordinate distribution and construction activities;
 - Reviews project status, initiates needed changes, and provides advice and assistance to engineering and construction personnel;
 - Marks plans for use by journey-level electricians in installing or modifying electrical installations;
 - Calculates capacity of electrical wiring, conduit, switches, and overcurrent protection to comply with pertinent code requirements and City standards;
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- Tests or supervises the testing of meters, relays, instruments and other electric equipment and apparatus to assure compliance with the City's Electrical Code and nationally recognized electrical safety standards adopted by the City;
 - Checks electrical systems of industrial and commercial facilities for conformance with established codes, standards and good engineering practices;
 - Recommends corrosion control measures for metal wharves and steel piles;
 - Assists in the negotiation and preparation of contractual arrangements such as environmental, licensing, load growth and fuel supply reports with other utilities;
 - Coordinates legislative, environmental, and regulatory activities and prepares and presents testimony for regulatory agencies;
 - Prepares and assists in the checking of engineering drawings and specifications for the fabrication, installation, repair, and operation of electric equipment;
 - Checks finished drawings for accuracy and completeness, including dimensions and computations, and for conformance with sketches, notes, altered blueprints, and oral instructions of design engineers;
 - Makes field and laboratory tests in connection with stray current electrolysis,

- soil corrosion, and electrical equipment safety;
 - Makes field surveys to obtain information for as-built or alteration drawings;
 - Performs engineering and plan checking of electrical installations and equipment to ensure compliance with the National Electrical Code, Los Angeles City Electrical Code, Building Code, Fire Code, State Code, and applicable Federal Regulations.
- May occasionally be assigned to other duties for training purposes or to meet technological changes or emergencies.

Qualifications: Incumbents must have the following knowledges and abilities:

A good knowledge of:

- Principles of electrical engineering;
- Sources of engineering information;
- Principles and practices of electrical engineering drafting;
- Principles and practices of electrical safety and electrical codes.

A general knowledge of:

- Principles of mathematics, physics, chemistry, metallurgy, hydraulics, thermodynamics, and mechanics normally included in the field of electrical engineering;
- Electrical engineering practices in the planning, design, construction, operation, maintenance, testing, and research activities of a large industrial facility.

The ability to:

- Apply City Codes to various electrical installations;
- Communicate clearly and effectively, both orally and in writing;
- Deal tactfully and effectively with employees, manufacturers, vendors, other agencies, and the public.

Minimum Requirements: Graduation from a recognized four year college or university with a degree in engineering, including at least 24 semester units or 36 quarter units in electrical engineering core courses; or possession of a valid Engineer-in-Training Certificate recognized by the California State Board of Registration for Professional Engineers.

Persons with disabilities may be able to perform the essential duties of this class with reasonable accommodation. Reasonable accommodation will be evaluated on an individual basis and depend, in part, on the specific requirements for the job, the limitations related to the disability, and the ability of the hiring department to reasonably accommodate the limitation.

License: A valid California driver's license may be required for some positions.

As provided in Civil Service Commission Rule 2.5 and Section 4.55 of the Administrative Code, this specification is descriptive, explanatory and not restrictive. It is not intended to declare what all of the duties, responsibilities, and required qualifications of any position shall be.