



## CLASS SPECIFICATION

### MECHANICAL ENGINEERING ASSOCIATE, 7554

05/15/98

**Summary of Duties:** Performs professional mechanical engineering work in the preparation of plans, designs, specifications, reports, estimates, recommendation of awards, studies, quality assurance programs, safety and health testing, and in research, testing and inspection activities related to the manufacturing, construction, installation, operation and maintenance of mechanical equipment and systems, or checking mechanical systems of buildings for code compliance and operation and maintenance feasibility; may perform code enforcement functions relating to design and specifications of plumbing, mechanical and elevator installations and related equipment approval; and does related work.

**Distinguishing Features:**

Mechanical 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 mechanical 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 three-year temporary training positions under Civil Service Rule 5.30. Employees with two years of full-time paid City experience as a Mechanical Engineering Associate and an Engineer-in-Training (EIT) Certificate will automatically promote to Mechanical Engineering Associate II.

Mechanical Engineering Associate II performs journey level professional engineering work requiring a working knowledge of mechanical 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.

Mechanical Engineering Associate III 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 Mechanical 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.

Mechanical Engineering Associate IV is a non-supervisory technical expert, who shall maintain the skills and expertise necessary to remain at this higher pay-grade 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:** A Mechanical Engineering Associate:

- Performs professional mechanical engineering work in preparing or assisting in the preparation of plans, designs, specifications, and estimates for the construction, maintenance, and operation of mechanical equipment (penstocks, piping, boilers, turbines, pumps) in facilities such as generating stations, pumping plants, electric receiving and distribution stations, wastewater and sewage treatment plants, marine facilities, or plumbing, heating, refrigeration, ventilating and air-conditioning systems and fire protection for new or existing buildings;
- Participates in research, economic and environmental studies, and cost estimates for proposed projects;
- Investigates the design features of a variety of mechanical equipment and materials;
- Develops equipment specifications;
- Analyzes bids and makes recommendations for awards;
- Directs, witnesses or checks quality control and quality assurance activities to assure and verify conformity with specifications;
- Assembles and analyzes data and prepares reports covering inspections, reconditioning and operating characteristics of a variety of mechanical equipment and facilities;
- Prepares specifications and designs for the purchase or building of specialized automotive and construction equipment;
- Prepares specifications for the purchase of lubricants and fuels;
- Makes recommendations for the development of a preventive maintenance program or the reduction of operating cost for a large automotive fleet;
- Conducts operating tests of the characteristics of turbines and auxiliary equipment, steam generating equipment, water and sewage treatment equipment, and pumping station equipment;
- Tests and supervises the testing of various plumbing and mechanical products to show compliance with the Los Angeles plumbing and mechanical codes, as well as national and other health and safety standards adopted by the city;
- Determines and makes recommendations for solving operating problems primarily involving non-electrical machinery and equipment;
- Maintains records of activities and prepares reports on tests, research projects, and operating characteristics of machinery and equipment;
- Checks plans including shop drawings, of mechanical facilities and systems for buildings for conformance with pertinent laws, codes and construction requirements.
- Reviews project status, initiates changes and provides advice and assistance to engineering and construction personnel;
- Performs engineering and plan checking of plumbing, mechanical, fires sprinkler, elevator and energy designs for compliance with the Los Angeles plumbing code, mechanical code, elevator code, state of California energy code, and other applicable state and city ordinances and statutes;
- Recommends corrosion control measures for metal wharves and steel piles.

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 mechanical engineering;
- Sources of engineering information;
- Principles and practices of mechanical engineering drafting;
- Principles and practices of plumbing and mechanical safety.

**A general knowledge of:**

- Principles of mathematics, physics, chemistry, metallurgy, fluid mechanics, machine design thermodynamics, strength of materials and electricity normally included in the field of mechanical engineering;
- Principles of air conditioning, heating, ventilating, plumbing, welding, automotive, and construction equipment engineering;
- Mechanical engineering practices in design, construction, maintenance, testing, and research activities;
- Hand tools, fluid pressure and flow instrumentation, and mechanical instrument testing;
- Plumbing, mechanical, and elevator codes.

**The ability to:**

- Prepare technical reports, feasibility and environmental studies, charts and graphs;
- Read and interpret building, electrical, plumbing and mechanical plans for conformance with adopted building and related codes, standards, and ordinances;
- 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 mechanical 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.

**Licenses:** 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.**