



**APPROVED BY: THE CHIEF
ADMINISTRATIVE OFFICER**

EFFECTIVE: March 2005

**ASSISTANT MECHANICAL ENGINEER I/II
ASSISTANT ENGINEER I/II (MECHANICAL)¹**

¹Any incumbent who has not achieved registration as a Professional Mechanical Engineer in California will use this generic title, in accordance with the State of California Business and Profession Code.

Class specifications are intended to present a descriptive list of the range of duties performed by employees in the class. Specifications are not intended to reflect all duties performed within the job.

DEFINITION

To perform a variety of professional mechanical engineering duties in the design, development, construction, installation, and maintenance of mechanical equipment and systems in the District's water supply, treatment, and distribution facilities and plants; scope of projects may include pumping stations, storage tanks, treatment plants, water transmission piping systems and related plant equipment, and corrosion control programs; to ensure work quality and adherence to professional codes, standards, and District specifications; and to perform a variety of professional tasks relative to assigned area of responsibility.

DISTINGUISHING CHARACTERISTICS

Assistant Mechanical Engineer I

This is the entry level, training class in the professional Mechanical Engineer series. Initially, under immediate supervision, incumbents perform a limited range of professional mechanical engineering duties requiring limited exercise of judgment. Duties involve using prescribed methods and include specific and limited portions of a broader assignment of an

experienced engineer in areas such as the design, construction, and installation of mechanical equipment and systems in District plants and facilities. As experience and proficiency are gained, assignments become more diversified and difficult with increasing independence of judgment. Since this class is typically used as a training class, employees may have only limited or no directly related work experience. This class is alternatively staffed with Assistant Mechanical Engineer II, and incumbents may advance to the higher level after gaining experience and demonstrating proficiency which meet the qualifications for the higher class.

Assistant Mechanical Engineer II

This is the experienced level class within the professional Mechanical Engineer series. Incumbents in this class work under general supervision and may be assigned specific projects with minimal supervision; additionally, incumbents may direct the work of engineers, draftspersons, technicians, and others who assist in specific project assignments. Work is reviewed for application of sound professional judgement and close supervision is provided whenever new aspects or types of work are assigned. Typical duties and responsibilities require knowledge of principles and techniques commonly employed in the specific area of assignment. As experience is gained, incumbents are assigned more complex or difficult work that involves conventional types of plans, investigations, surveys, structures, or equipment with relatively few complex features for which there are precedents. Additionally, incumbents may occasionally be provided the opportunity to lead smaller, short term projects or studies of limited scope. Positions in this class are flexibly staffed and are normally filled by advancement from the "I" level, or, when filled from the outside, have prior experience.

SUPERVISION RECEIVED AND EXERCISED

Assistant Mechanical Engineer I

Receives immediate supervision from higher level supervisory or management staff.

Assistant Mechanical Engineer II

Receives general supervision from higher level supervisory or management staff.

As assigned, may provide technical supervision over engineering project staff.

ESSENTIAL FUNCTION STATEMENTS

Essential responsibilities and duties may include, but are not limited to, the following:

1. Perform a variety of professional mechanical engineering duties in the planning, design, development, construction, installation, operation, and maintenance of the mechanical equipment and systems in the District's pumping stations, storage tanks, treatment plants, water transmission piping systems, and corrosion control programs; ensure work quality and adherence to professional specifications and established standards.
2. Conduct various engineering studies, investigations, and analyses; participate in preparation of reports regarding issues such as the impact of proposed projects on existing systems and supporting structures.
3. Assist in preparation of engineering specifications, drawings, sketches, and other supporting documentation for proposed engineering projects; review drawings, plans, and other work submitted by external consultants, engineers, contractors, developers, and related organizations for conformance with specifications and District standards; draft and prepare technical and administrative correspondence and reports.
4. Perform and review engineering calculations and prepare cost estimates for proposed projects and contract construction and installation work.
5. Provide technical support in the preparation of procurement specifications for mechanical systems and equipment; review and comment on vendor designs and drawings to ensure compliance with District standards and specifications; resolve vendor problems associated with equipment fabrication; inspect purchased equipment to ensure compliance with specifications.
6. Collect, compute, and compile engineering data, statistics, and surveys; conduct field, in-plant, and office engineering studies related to the research, planning, design, construction, installation, and maintenance of mechanical equipment and systems in pumping stations, storage tanks, treatment plants, and water transmission piping systems.
7. Participate in various engineering studies and related projects with District staff, outside agencies, and consultants ensuring that deadlines, standards, and specifications are met appropriately.
8. Provide support to District mechanical engineering construction, installation, or corrosion control projects; assist in the inspection of contractor installations as necessary; provide technical support during project including submittal review, request for information from contractors, interpretation of contract documents, and assistance with change orders; prepare and review contract documents as assigned.
9. May participate in the consultant selection process; assist in administration of consultant and professional service contracts; participate in the negotiation of utility relocation agreements with other agencies/entities as assigned.

10. Develop and maintain various databases and computer files, and use engineering software or develop programs to solve specific engineering problems.
11. Review statutes and regulations; interpret and apply the regulations with respect to District compliance; develop compliance strategies for regulations; may analyze proposed regulations.
12. Confer with District staff contractors, the public, and other agencies or organizations as needed regarding assigned work.
13. Perform related duties and responsibilities as required.

QUALIFICATIONS

Assistant Mechanical Engineer I

Knowledge of:

Performing accurate engineering calculations.
Principles and practices of mechanical engineering with emphasis on water treatment, production, and distribution systems and equipment.
Hydraulics, engineering mechanics, and mechanics of materials.
Engineering mathematics and economics.
Methods and techniques of statistical analysis.
Mechanical engineering professional standards and codes.
Principles and practices of mechanical engineering design and construction.
Computer programs and languages and their engineering applications.
Pertinent federal, state and local laws, codes and regulations.

Ability to:

Apply principles and practices of mechanical engineering in assigned projects.
Apply engineering principles and computer programs to the solution of engineering problems.
Conduct various engineering studies and analyze the results to provide engineering solutions.
Prepare and interpret drawings, graphs, plans, and specifications.
Prepare a variety of technical and administrative reports and documents.
Exercise sound judgment within procedural guidelines.
Understand and apply federal, state, and local policies, laws, and regulations as related to assigned projects.
Communicate clearly and concisely, both orally and in writing.

Establish and maintain effective working relationships with those contacted in the course of work.

Experience and Training Guidelines

Any combination of experience and training that would likely provide the required knowledge and abilities is qualifying. A typical way to obtain the knowledge and abilities would be:

Experience

No experience is necessary.

Training

Equivalent to a Bachelors degree from an accredited college or university with major course work in mechanical engineering or a related field;

OR

Possession of a valid California Engineer-in-Training (EIT) certificate with two years of associated paraprofessional engineering experience.

License or Certificate

Registered positions within this classification must possess registration as a professional Mechanical Engineer in the State of California.

Possession of, or ability to obtain, an appropriate, valid California driver's license may be required with determinations made on a case by case basis at the time of job posting.

Assistant Mechanical Engineer II

In addition to the qualifications for Assistant Mechanical Engineer I

Knowledge of:

Operations, services, and activities of a comprehensive mechanical engineering capital improvement program with emphasis on water transmission, distribution, treatment, and pumping plant equipment and systems.

Principles and practices of mechanical engineering systems and equipment design, construction, and installation.

Mechanical engineering theory and design concepts for water transmission, distribution, and treatment plant systems and equipment.
Mechanical system and equipment design, fabrication and installation methods, materials, specifications, and codes.
Corrosion engineering principles, practices, and technology.
Operational characteristics of water treatment and distribution pumping systems and equipment.
Geographic Information System uses and applications.
Principles and practices of site surveying as it relates to mechanical engineering project installation.
Terminology, methods, practices, and techniques used in technical engineering report preparation.
Principles and practices of project scheduling and management including work plans and budgets.
Construction and installation methods, materials, specifications, and codes.

Ability to:

Prepare and review mechanical engineering designs drawings, specifications, and other engineering project documentation.
Communicate project goals and objectives to members of the public.
Utilize modern geographic information systems technology.
Prepare a variety of engineering studies and reports.
Provide technical support to assigned staff.
Prepare schedules and budgets for assigned projects.
Interpret and apply federal, state, and local policies, laws, and regulations as related to assigned projects.

Experience and Training Guidelines

Any combination of experience and training that would likely provide the required knowledge and abilities is qualifying. A typical way to obtain the knowledge and abilities would be:

Experience

Two years of professional engineering experience at a level equivalent to that of the Assistant Engineer I (Mechanical) classification.

Training

Equivalent to a Bachelors degree from an accredited college or university with major course work in mechanical engineering or a related field.

OR

Possession of a valid California Engineer-in-Training (EIT) Certificate with two years of associated paraprofessional engineering experience.

License or Certificate

Registered positions within this classification must possess registration as a professional Mechanical Engineer in the State of California.

Possession of, or ability to obtain, an appropriate, valid California driver's license may be required with determinations made on a case by case basis at the time of job posting.

WORKING CONDITIONS

Environmental Conditions

Indoor environment; some positions require frequent field visits; travel from site to site; work closely with others and alone; exposure to computer screens; irregular work hours; some positions may involve exposure to inclement weather, dust, dirt, noise, and other conditions associated with construction sites.

Physical Conditions

Essential and other important functions may require maintaining physical condition necessary for sitting, walking, and standing for extended periods of time; occasional moderate lifting and carrying.