

ENGINEER I

NATURE OF WORK IN THIS CLASS:

This is routine professional civil, mechanical, electrical, telephone, traffic, environmental or architectural engineering work. Employees in this class perform routine professional engineering duties independently after initial training and work under closer supervision on a variety of more complex developmental assignments.

ILLUSTRATIVE EXAMPLES OF WORK:

(Any one position may not include all the duties listed, nor do the examples cover all duties which may be performed.)

(CIVIL)

Designs the preparation of roadway plans involving a variety of conventional features; or performs moderately complex design including features as complex interchanges and intersections, extreme terrain problems or other novel and usual problems.

Designs major structures and bridges or performs moderately complex structural engineering work associated with pre-design investigations and preliminary and final design analysis; structurally analyzes and designs determinate and indeterminate structures.

Performs stress analyses of components of bridges, culverts, sign supports and special structures; completes structure design including notes and sketches.

Supervises and advises structural details on preparation of advance design drawings and reviews plan completed by details; inspects job sites to advise and assist construction personnel with usual structure construction problems.

Researches and develops new systems and programs for structural engineering applications; implements computer structural program for analyses and computation of moments, shear, reaction, deflection, and stress data.

Serves as project engineer on construction projects involving a variety of conventional problems; reviews and inspects construction plans, specifications and sites; oversees staking of projects; resolves routing problems with contractor; recommends approval of conventional changes and work order, referring unusual deviation and problems to supervisor.

Develops preliminary plans and studies; develops engineering plans and specifications for all new construction remodeling and major maintenance, construction and inspection personnel in analyzing problems of mechanical problems.

Performs non-routine testing of rails, cements, aggregates, highway chemical, butuminous materials and other items.

Performs technical inspections such as ultrasonic, penetrant dye and configuration inspection.

Collects, reduces, compiles and analyzes test and field data relating to materials and procedure of highway maintenance and construction.

Performs related duties as required.

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(MECHANICAL)

Advises and instructs water works and sewage disposal and industrial waste treatment plan operators on effective methods of operation, necessary and advisable mechanical adjustments and improvements, installation cost and engineering sanitary principles.

Consults with employees, management personnel, engineers or local health department personnel on routine matters relating to handling and treatment of wastes and; control and prevention of air, water, noise, and land pollution.

Designs mechanical engineering systems for small construction and remodeling projects.

Performs hydraulic calculations and design of bridges, culverts, storm sewers, irrigation and inlet layout and sizing; performs drafting of bridge and other hydraulic plans.

Performs hydraulic design duties involving the evaluation of engineering information, determining design discharges, reviewing previous designs and procedures.

Compiles and authors engineering specifications and agreements; investigates new methods, procedures and materials for possible inclusion into specifications; evaluates engineering and technical to be satisfied in division agreement.

Performs administrative engineering work in scheduling, coordinating, facilitating and reviewing highway construction project plans, contracts, authorizations and documents.

Prepares reports with recommendations for corrective measures to be taken and makes follow-up investigations.

Performs related duties as required.

(ELECTRICAL)

Prepares designs, plans, estimates, and performs routine engineering work on specifications associated with pre-design investigation and preliminary and final design analyses.

Prepares designs, plans and specification for the construction and maintenance of the island-wide power transmission and distribution lines.

Performs calculations applying standard formulae; prepares graphs, curves, and tables for other engineers; records factual data test and observation studies; performs drafting and detail designs; and searches technical reports to obtain information.

Prepares or analyzes reports and project write-ups for the system in the electrical power generation, transmission and distribution fields.

Prepares material estimates for the installation, maintenance, repairs and alteration of electrical system and associated components such as power and light distribution systems; cathodic protection systems; generators, motors, transformers, electrical control devices and instruments; wiring and supportive structures and similar equipment.

Performs routine inspection on the systems and components; prepares and maintains inspection reports.

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Designs electrical engineering system for small construction and remodeling projects.

Develops, reviews, and oversees the installation and maintenance of illumination, power transmission systems, electrical machinery and apparatus.

Makes recommendations regarding the approval of change orders.

Conducts investigations, evaluations, and surveys; prepares feasibility reports and construction cost estimates on special studies of complex design problems.

Performs related duties as required.

(TELEPHONE)

Prepares designs, plans, estimates, and performs routine engineering work on specifications associated with pre-design investigation and preliminary and final design analyses.

Designs, develops, investigates and analyzes engineering projects for traffic, transmission, equipment, and telephone system protection for outside and inside plants.

Supervises traffic equipment and arrangement of central office and trunking equipment.

Inspects and directs various traffic projects, transmission and protection projects for conformance to plans and specifications.

Performs calculations applying standard formulae; prepares graphs, curves, and tables for other engineers; records factual data test and observation studies for the use of traffic equipment.

Performs drafting and designs for cable plant or maintenance projects; prepares material and labor estimates and write-up specification for telephone equipment.

Maintains records and prepares reports.

Performs related duties as required.

(TRAFFIC)

Performs traffic engineering design and conducts standard traffic engineering studies.

Assembles and analyzes basic data and field information.

Develops plans for a part of a major project in accordance with prescribed procedures in a general outline.

Computes hazard indices and performs cost/benefit analysis on traffic engineering projects.

Participates in special research or investigation to determine traffic flow patterns or characteristics.

Designs traffic signals plans which include traffic signal location and phasing, draft signalization plans.

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Assists in the review of traffic signal plans, specifications, and cost estimates submitted by various local jurisdiction.

Performs related duties as required.

(ENVIRONMENTAL)

Prepares designs, plans, and estimates; performs routine engineering work on specifications associated with pre-design investigation and preliminary and final design analyses.

Conducts surveys of watersheds, water supply systems, and plans, swimming pools, air sanitation and control equipment, industrial waste disposal systems; gathers and interprets engineering data to pollution, contamination, and sanitation; performs the engineering and sanitation aspects of epidemiological investigations.

Investigates industrial establishments for the identification of potential environmental hazards or sub-standard sanitary conditions; develops methods and process to alleviate potentially dangerous or harmful conditions; advises owners or managers on corrective measures.

Prepares charts and tables for the interpretation of data and prepares reports of findings and analyses.

Performs related duties as required.

(ARCHITECTURAL)

Reviews complex plans and specifications for feasibility of design.

Directs the designing of plans and specifications for local agencies.

Consults with architects and engineers regarding architectural and engineering standards.

Provides professional advise to field inspectors; assists in field inspection of structures; serves as technical consultant to local agencies, professional and public organization.

Makes recommendations regarding the approval of change orders submitted during construction.

Develops designs for minor facilities and remodeling projects.

Maintains records and prepares reports.

Performs related duties as required.

MINIMUM KNOWLEDGE, ABILITIES AND SKILLS:

Knowledge of the principles and practices applied in civil, mechanical, electrical, telephone, traffic, environmental or architectural engineering.

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Knowledge of a variety of construction materials and their characteristics relating to engineering.

Ability to apply local and national building and safety regulatory codes.

Ability to estimate building, labor and material costs.

Ability to make computations and calculations involving the applications of engineering principles.

Ability to interpret and apply pertinent laws, regulations, policies, procedures and other program guidelines.

Ability to prepare, interpret, and utilize plans, designs and specifications.

Ability to analyze and present technical data in clear, concise engineering reports.

Ability to test the quality and suitability of new methods of construction and various types of materials.

Ability to work effectively with the public and employees.

Ability to communicate effectively, orally and in writing.

Ability to maintain records and prepare reports.

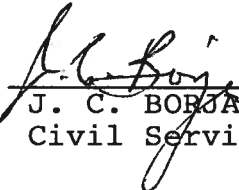
MINIMUM EXPERIENCE AND TRAINING:

- a) Graduation from a recognized college or university with a Bachelor's degree in the field of engineering; or
- b) Possession of an Engineer-in-Training certificate from any state or territory of the United States; or
- c) One year of experience in the applicable field of engineering acquired under Professional engineering supervision and guidance, and graduation from a recognized college or university with an Associate's degree in engineering; or
- d) Graduation from a recognized college or university with a Bachelor's or higher degree in engineering technology, physics, architecture or closely related field.

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PAY RANGE: 30



J. C. BOBBA, Executive Director,
Civil Service Commission

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