

CLASS TITLE: **Structural Engineer**

CHARACTERISTICS OF THE CLASS: Under supervision, the class performs complex professional engineering work related to the design and testing of structural members for construction and maintenance projects; and performs related duties as required.

EXAMPLES OF DUTIES: Conducts field surveys to evaluate the material composition and soundness of structures on major construction sites ensuring compliance with building codes; calculates stresses, strains and sizes of structural members pursuant to the development of large scale design projects; calculates and verifies moments of inertia, loads and weights for the structural design of steel, reinforced concrete, timber and related structural members; prepares preliminary layouts and detailed drawings, designs and material specifications and calculations for structural engineering projects; drafts specifications for the design and construction of engineering projects to be performed by contractors; reviews structural design plans prepared by consultants and contractors for compliance with sound engineering standards and building code requirements, and recommends changes as needed; serves as project engineer for moderately large construction projects, monitoring work in progress, approving plan changes, inspecting materials and ensuring work is completed according to contract specifications; analyzes and resolves complex structural design problems; examines plan changes and makes recommendations on appropriateness and cost effectiveness; reviews vouchers submitted by engineering and construction firms ensuring payment requests are appropriate and reflect completed work; maintains project activity journals and prepares engineering reports on the status of construction projects.

RELATED DUTIES: Consults with other departments and agencies to coordinate personnel engaged in project activities; may assist in training and providing guidance to lower-level staff; researches new materials, techniques and software for use in engineering projects. may supervise engineers and technicians on assigned projects.

MINIMUM QUALIFICATIONS:

Training and Experience. Graduation from an accredited college or university with a Bachelor's degree in Structural Engineering or a directly related field of engineering supplemented by two years of structural engineering experience, or an equivalent combination of training and experience, provided the minimum degree requirement is met.

CLASS TITLE: **Structural Engineer (Cont'd)**

Knowledge, Abilities and Skill. Good knowledge of modern theories and methods of structural engineering. Good knowledge of advanced mathematical principles. Good knowledge of modern construction methods, materials and equipment. Good knowledge of infrastructure systems. Good knowledge of project monitoring and reporting techniques.

Ability to perform complex engineering calculations. Ability to prepare structural specifications and designs. Ability to meet and consult with other engineers and contractors. Ability to estimate costs and schedules for engineering projects.

Good skill in the application of modern structural engineering principles. Good advanced technical math skills. Good skill in the use of surveying and drafting equipment. Working skill in managing complex engineering projects. Good skill in conducting standard engineering tests and surveys. Good analytical skills. Good oral and written communication skills.

Physical Requirements. Ability to access work sites during various stages of construction or repair.

Working Conditions. Inside: General office environment. Outside: Occasional exposure to inclement weather and extreme temperatures.

Equipment. Field surveying equipment. Standard office equipment including personal computers.

NOTE: While the list of essential duties is intended to be as inclusive as possible, there may be other duties which are essential to particular positions within the class.