

STRUCTURAL ENGINEER, 7956

Summary of Duties : Performs responsible structural engineering work in supervising an engineering group engaged in preparing or checking designs, plans, and specifications, for a variety of structures; designs or checks plans for the more complex structures; makes special structural engineering studies; and does related work.

Distinguishing Features : A Structural Engineer is normally in charge of an engineering group involved in designing or checking plans for a variety of major structures. An employee of this class personally performs design and plan checking work of considerable complexity. A Structural Engineer must use considerable independent judgment based on engineering theory and practice in handling technical problems and fairly responsible administrative assignments, usually received in general terms. The work often requires correlating structural requirements with architectural, mechanical, and electrical features. An employee of this class determines detailed procedures to be followed, exercises technical supervision over difficult phases, and delegates other work to subordinates.

Examples of Duties : Supervises the preparation of designs, specifications, estimates, and reports necessary for the construction, maintenance, and operation of a wide variety of reinforced concrete, steel, and timber structures, including bridges, buildings, tunnels, wharves, retaining walls, steam and hydroelectric generating plants, nuclear generating plants, sewage treatment plant structures, transmission line towers, receiving and distributing stations, and concrete reservoirs and dams; determines the method of procedure and stress analysis on various projects; reviews work of subordinates for conformance to instructions, recognized standards, engineering practice, and various legal requirements; analyzes or supervises the analysis of bids to determine the lowest bidder on construction projects; prepares engineering reports on soil bearing tests for proposed structures and earth subsidence; investigates project site conditions and job progress; interprets plans for contractors and construction personnel; may act as an assistant to the head of a design section; performs the more complex design work and makes the more difficult stress analyses;

Supervises the checking of, or checks plans for major commercial structures involving structural features of considerable complexity for conformance to the City Building Code and the State Housing Act; makes calculations necessary to determine the application of structural theory, the structural load stability, and conformance to unit stress limitations; confers with engineers, architects, and contractors regarding proposed construction, alterations, or changes in buildings under construction for conformance with the Building Code; may inspect buildings where unusual problems of a

structural nature are involved; may make detailed studies of new or proposed methods of design or construction and submit reports as to their acceptability; may serve as technical adviser and secretary to the Building and Safety Commission; and may occasionally be assigned to other duties for training purposes or to meet technological changes or emergencies.

Qualifications: A good knowledge of structural engineering, including recognized standards, as applied to the preparation or checking of designs, plans, specifications, and estimates for reinforced concrete, steel, and timber structures such as buildings, bridges, foundations, marine structures, steam and hydroelectric generating plants, nuclear generating plants, transmission line towers, receiving and distributing stations, and concrete reservoirs and dams; a good knowledge of engineering mechanics and of mechanics of materials; a good knowledge of the methods and practices followed in preparing designs, plans, specifications, and estimates for bridges, buildings, and other structures; a good knowledge of common sources of engineering information; a good knowledge of the City Building Code and applicable State laws relating to structural design; a good knowledge of the Specifications for Highway Bridges of the American Association of Highway and Transportation Officials (AASHTO); a good knowledge of the laws and regulations related to equal employment opportunity and affirmative action; a general knowledge of City personnel rules, policies and procedures; a general knowledge of memoranda of understanding as they apply to subordinate personnel; the ability to plan, lay out, and direct the work of a group of employees; the ability to prepare and analyze comprehensive technical reports; the ability to coordinate the work of an engineering group with an over-all program; and the ability to deal tactfully and effectively with employees and the public.

Two years of full-time paid professional engineering experience at the level of Structural Engineering Associate is required.

Registration: Authority to use the title "Structural Engineer" issued by the California State Board of Registration for Professional Engineers, is required.

License: A California driver's license may be required.

Physical Requirements: Strength to perform average lifting of less than 5 pounds and occasionally over 15 pounds; good speaking and hearing ability; and good eyesight.