



## **City of Phoenix**

# **MECHANICAL ENGINEER**

**JOB CODE 20150**

Effective Date: 12/95

### **DISTINGUISHING FEATURES OF THE CLASS:**

The fundamental reason this classification exists is to apply professional mechanical engineering knowledge and skills to a variety of engineering functions within the Engineering and Architectural Services Department. Work assignments are broad in scope and require the use of independent judgment and initiative in making technical decisions of considerable difficulty. In addition, the managerial aspects of these assignments are of equal importance since this classification is responsible for the direction of major projects. Supervision is exercised over a staff of professional, paraprofessional, and office employees. Work is reviewed by an Engineering Supervisor through discussion and inspection, primarily for determining general progress and adherence to departmental policies and regulations.

### **ESSENTIAL FUNCTIONS:**

- Develops mechanical, plumbing, and fire protection plans for public buildings and other public works projects;
- Designs and/or supervises the design of municipal swimming pools and chlorination, filtration, fueling, fuel storage, vehicle lubrication, and hoist systems;
- Prepares or supervises preparation of detailed plans, specifications, and cost estimates for heating, ventilation, air conditioning and piping projects for retrofit and new construction;
- Reviews and evaluates mechanical design drawings and specifications prepared by consulting engineers;
- Analyzes and evaluates building energy consumption and recommends methods and materials to conserve energy and water;
- Prepares special reports on fire code compliance, energy studies, and ventilation requirements for various facilities;
- Consults with and advises inspectors regarding problems of work in progress;
- Attends final inspections and recommends acceptance or rejection of completed works;
- Reviews and evaluates standard specifications and details and building and water conservation standards for possible adoption by the City;
- Administers consulting contracts for design and construction management of mechanical engineering projects by coordinating the work of the consultant and City staff;



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- Formulates standard specification language for mechanical engineering projects;
- Acts as project manager on mechanical engineering CIP projects;
- Maintains regular and reliable attendance;
- Demonstrates superior seamless customer service, integrity, and commitment to innovation, efficiency, and fiscally responsible activity;
- Works more than forty hours in a workweek without additional compensation to perform assigned job duties, including weekends, evenings, early morning hours, and holidays as required.

### Required Knowledge, Skills and Abilities:

#### Knowledge of:

- Diversified, fundamental scientific mechanical engineering concepts, phenomena, and relationships.
- Advanced mathematical techniques, such as those gained through the study of calculus and differential equations.
- Development and derivation of formulas and relationships, basic assumptions made, and limitations and areas of applicability of established mechanical engineering principles, methods, and techniques.
- Energy conservation management, concepts, techniques, and evaluation system.
- Plumbing, mechanical, and fire codes, OSHA requirements, and related regulations.
- Applicable titles of state statutes, county health regulations, and city codes and ordinances as they relate to the management of complex projects.
- Principles and practices of personnel management and supervision.

#### Ability to:

- Design in-house mechanical engineering projects using mechanical tools of the trade.
- Organize, analyze, interpret, and evaluate scientific electrical engineering problems and prediction of results.
- Keep abreast of changes in scientific knowledge and engineering technology, and utilize such changes in solution of theoretical or practical mechanical engineering problems.
- Communicate orally in the English language with customers, clients, and the public using a telephone and in group and face-to-face, one-to-one settings.
- Estimate labor or material costs from blueprints or work plans.
- Produce documents written in the English language using proper sentence construction, punctuation, grammar, and spelling.
- Work cooperatively with others.



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- Review or check the work products of others to ensure conformance to standards.
- Perform advanced mathematical calculations such as calculus.
- Perform a broad range of supervisory responsibilities over others.

### **Additional Requirements:**

- Some positions will require the performance of other essential and marginal functions.
- Some positions require the use of personal or City vehicles on City business. Individuals must be physically capable of operating the vehicles safely, possess a valid driver's license and have an acceptable driving record. Use of a personal vehicle for City business will be prohibited if the employee does not have personal insurance coverage.
- Must be registered as a Professional Engineer with proficiency in Mechanical Engineering at time of hire, with registration in the State of Arizona obtained by the end of the probationary period.

### **ACCEPTABLE EXPERIENCE AND TRAINING:**

Four years of mechanical engineering experience, including one year of supervisory experience, and a bachelor's degree in mechanical engineering. Other combinations of experience and education that meet the minimum requirements may be substituted.