

**IOWA DEPARTMENT OF ADMINISTRATIVE SERVICES ▼**  
**HUMAN RESOURCES ENTERPRISE**

**CONSTRUCTION/DESIGN ENGINEER, SENIOR**

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**DEFINITION**

Performs technical engineering program management work and oversees other engineers, technicians or contractors in the design, construction, maintenance and operation of buildings, utilities, earthwork and related facilities; performs related work as required.

**The Work Examples and Competencies listed are for illustrative purposes only and not intended to be the primary basis for position classification decisions.**

**WORK EXAMPLES**

Confers with departmental and institutional personnel concerning program requirements for proposed construction, maintenance, repair or alterations to existing and new facilities; provides technical advice to a higher level manager regarding engineering/architectural design of new and existing facilities.

Prepares written engineering analysis and assessment plans and specifications regarding general structural, mechanical or electrical design compliance to various codes and regulations; recommends conceptual design changes to consultant plans.

Reviews advanced plans and specifications for engineering/architectural features of construction projects and coordinates complex construction projects from proposal to completion; reviews and evaluates plans and specifications prepared by architectural/engineering firms to determine compliance with sound professional practices and established standards, codes and regulations; reviews the requirements for plumbing, sewage, water supply, electrical and electronic equipment, elevators, air conditioning, heating and ventilating for proposed and existing structures.

Analyzes and recommends solutions to non-routine maintenance problems for state agencies or other entities; evaluates the existing conditions of state or other buildings in relation to structural, mechanical and electrical design work.

Visits sites to observe construction or alteration in order to insure compliance with approved plans and specifications; prepares progress reports and keeps superiors informed as to the status of projects.

Assists supervisor by performing such duties as instructing employees, answering questions, distributing and balancing the workload, and checking work; may make suggestions on selection, promotions and reassignments.

**COMPETENCIES REQUIRED**

Knowledge of the principles and practices of building engineering, including one or more specialized areas such as mechanical, electrical or structural engineering.

Knowledge of state building codes, rules and regulations.

Knowledge of the materials, methods, practices, machinery, tools and equipment used in large-scale construction work.

Knowledge of mechanical, electrical and environmental systems; computer systems as applied to environment and energy management.

Knowledge of modern methods and techniques of installation, operation and maintenance of mechanical equipment.

Knowledge of modern security requirements particularly as applied to design concepts, perimeter security and security related equipment.

Ability to prepare complete engineering plans and specifications for a variety of building facilities.

Ability to determine the adequacy of building design from standpoint of one or more specialized areas such as mechanical, electrical or structural engineering.

Ability to determine, from an inspection of existing facilities, the feasibility of proposed alterations or additions.

Ability to organize and coordinate construction projects.

Ability to plan and participate in the work of subordinate professional and technical assistants in the development of plans and specifications.

Ability to read, interpret, and accurately obtain necessary information from engineering related source documents/data such as design plans and specifications, scientific and technical journals and reports, and other reference materials to document proposals or theories, search for precedents, seek out alternative procedures, etc. for assigned engineering problems or projects.

Ability to assist in the planning, organizing, and overseeing the work of lower level staff.

Displays high standards of ethical conduct. Exhibits honesty and integrity. Refrains from theft-related, dishonest or unethical behavior.

Works and communicates with internal and external clients and customers to meet their needs in a polite, courteous, and cooperative manner. Committed to quality service.

Displays a high level of initiative, effort and commitment towards completing assignments efficiently. Works with minimal supervision. Demonstrates responsible behavior and attention to detail.

Responds appropriately to supervision. Follows policy and cooperates with supervisors.

Aligns behavior with the needs, priorities and goals of the organization.

Encourages and facilitates cooperation, pride, trust, and group identity. Fosters commitment and team spirit.

Expresses information to individuals or groups effectively, taking into account the audience and nature of the information. Listens to others and responds appropriately.

#### **EDUCATION, EXPERIENCE, AND SPECIAL REQUIREMENTS**

Graduation from an accredited four year college or university with major course work in architecture, or in civil, mechanical, architectural or a related engineering field, and experience equal to six years of full-time engineering work in the design and construction of buildings, utilities, earthwork, or related facilities and structures;

OR

an equivalent combination of education and experience substituting the equivalent of one year of full time work experience for each year of the required education to a maximum substitution of four years;

OR

possession of a valid Professional Engineer license recognized by the Iowa board of Engineering Examiners and four years of the above described professional experience;

OR

possession of a certificate of registration as a Professional Architect recognized by the Iowa Board of Architectural Examiners and four years of the above described professional experience.