

IOWA DEPARTMENT OF ADMINISTRATIVE SERVICES ▼
HUMAN RESOURCES ENTERPRISE
CONSTRUCTION/DESIGN ENGINEER

DEFINITION

Performs journey level technical engineering work; reviews architectural/engineering drawings for building construction projects and oversees 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

Plans, directs, and participates in the design, construction, maintenance, and operation of buildings, utilities, earthwork, and related facilities including related mechanical and electrical systems and equipment; assures that the components are utilized properly and to best advantage according to architectural, engineering, or related knowledge and principles.

Inspects existing facilities and the related mechanical and electrical systems and equipment; prepares recommendations for repairs or improvements.

Consults with construction groups; prepares special requirements necessary for the proper functioning of the facilities.

Prepares, reviews or approves master plans, construction drawings, construction specifications and cost estimates prepared by architectural technicians or design technicians for construction of new facilities and for repairs and/or modifications of existing facilities.

Consults with and oversees the work of contractors prior to, during, and after construction or remodeling; provides assistance and assures that the facility is being constructed properly.

Inspects or directs the inspection of sites before, during, and upon completion of construction; reviews change orders; insures that the work performed and the material used meet standards.

Reviews and approves contractor or consultant applications for payment and disburses construction funds to projects; meets obligations and allows contractors sufficient operating capital to continue construction.

Prepares or oversees the preparation of all records and reports; maintains an up-to-date account of completed an in-progress construction projects.

Reviews final drawings and specifications, and/or preliminary proposals of various building types to ensure compliance with the Iowa State Building Code, Chapters 5 and 16 of Iowa Administrative Code 661, and the National Fire Protection Associations various codes and standards, including the Life Safety Code. This includes such areas as: means of egress and fire escape; energy efficiency, handicapped accessibility; fire alarm systems; mechanical systems; lighting; building entrances; occupancy criteria; seating arrangements; fire suppression systems; and other code required features.

Monitors manufactured housing units to be delivered and installed in Iowa to ensure they are in compliance with applicable code requirements. Responds to homeowner complaints concerning improper installation.

Communicates with local building officials and the public to answer questions and provide guidance in complying with state handicapped accessibility requirements and to clarify and interpret State Building Code and Model Building Code issues as they relate to specific projects throughout the state.

**COMPETENCIES REQUIRED**

Knowledge of the general principles and practices of architecture and engineering as they relate to: building construction or modification; building systems and components; and current construction methods pertaining to recreational facilities, earth structures and related mechanical and electrical systems.

Knowledge of the practices and techniques used in the planning and inspection of capital improvement programs.

Knowledge of specific construction codes and standards, and their appendices, including the Uniform Building Code, Uniform Plumbing Code, Uniform Mechanical code, National Electrical Code, Model Energy Code, ASHRAE 90.1, CABO One and Two Family Dwelling Code. Familiar with various National Fire Protection Association standards related to healthcare facilities, including the Life Safety Code.

Knowledge of Iowa Administrative Code 661, Chapter 5, Fire Safety Rules of the State Fire Marshal, as it applies to various building uses and occupancies.

Knowledge of Iowa Administrative Code 661, Chapter 16, the Iowa State Building Code, as it applies to building uses and occupancies.

Knowledge of mathematical principles as they relate to disbursement of project funds and assembled billings from contractors.

Knowledge of modern building construction methods and materials and their proper usage, including general construction, electrical, HVAC, plumbing, fire detection, notification, and suppression systems.

Ability to analyze and solve complex and technical problems, and to evaluate alternative approaches in their resolution.

Ability to read, understand, and interpret blueprints, drawings, and specifications.

Ability to communicate technical engineering or architectural information to other engineers, agency employees, contractors, and the general public, both orally and in writing.

Ability to draft plans and specifications for buildings, recreational facilities, and earth structures.

Ability to establish and maintain effective working relationships with engineers, architects, technicians, contractors, construction personnel, the public, and other agency personnel.

Ability to analyze situations and make recommendations in such areas as facility design, facility construction, materials to be used, technical drafting, and on-site construction problems.

Ability to prepare and maintain records such as blueprint files, construction material costs, facility locations, and proposed construction sites.

Ability to assist in 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. Makes an effort to follow policy and cooperate 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 college or university with major course work in architecture, or in civil, mechanical, architectural, construction, fire protection or related engineering and the equivalent of four years full-time professional level work experience in the design and construction of buildings, utilities, earthwork, or related facilities and structures; and/or work with building codes, fire codes and handicapped accessibility regulations, direct involvement in the preparation of architectural or building engineering construction documents or in the review of such documents for conformance with applicable portions of these codes and regulations;

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 two 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 two years of the above described professional experience.

Effective Date: 12/03 JG