Class Code: 04262

Iowa Department of Administrative Services – Human Resources Enterprise
Job Classification Description

Construction/Design Engineer Senior

Definition

Performs technical engineering program management work and oversees other engineers, technicians, construction managers, 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 below are for illustrative purposes only and not intended to be the primary basis for position classification decisions.

Work Examples

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.

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.

Oversees onsite construction managers to ensure construction project results are delivered; advocate for the State's best interests.

Monitors all aspects of construction project activity to ensure construction is satisfactorily progressing based upon design and specification requirements; ensures timely project completion.

Functions as the primary liaison between the State and all other parties (e.g., customer agencies, vendors, contractors) involved in construction projects.

Leads development of construction project scope by evaluating and quantifying needs and solutions; leads the evaluation and selection of project team members (e.g., construction managers and design professionals).

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 ensure compliance with approved plans and specifications; prepares progress reports and keeps superiors informed as to the status of projects.

Competencies Required

Knowledge:

- Building and Construction – Materials, methods, and the tools involved in the construction or repair of houses, buildings, or other structures.
- Customer Service – Principles and processes for providing customer services, including customer needs assessment, meeting quality standards for services, and evaluating customer satisfaction.
- Design – Design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.
- Engineering and Technology – The practical application of engineering science and technology. Includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services.
- Mathematics – Arithmetic, algebra, geometry, calculus, statistics, and their applications.
- Administration and Management – Business and management principles involved in strategic planning, resource allocation, human resources modeling, leadership technique, production methods, and coordination of people and resources.
- English Language – The structure and content of the English language, including the meaning and spelling of words, rules of composition, and grammar.
- Production and Processing – Raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods.

Abilities:

- Written Expression – Communicate information and ideas in writing so others will understand.
- Written Comprehension – Read and understand information and ideas presented in writing.
- Speech Clarity – Speak clearly so others can understand.
- Speech Recognition – Identify and understand the speech of another person.
- Deductive Reasoning – Apply general rules to specific problems to produce answers that make sense.
- Inductive Reasoning – Combine pieces of information to form general rules or conclusions.
- Information Ordering – Arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
- Problem Sensitivity – Tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Skills:

- Active Listening – Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

- Coordination – Adjusting actions in relation to others' actions.
- Monitoring – Monitoring/assessing performance of oneself, other individuals, or organizations to make improvements or take corrective action.
- Critical Thinking – Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Reading Comprehension – Understanding written sentences and paragraphs in work-related documents.
- Speaking – Talking to others to convey information effectively.
- Writing – Communicating effectively in writing as appropriate for the needs of the audience.
- Active Learning – Understanding the implications of new information for both current and future problem-solving and decision-making.
- Time Management – Managing one's own time and the time of others.
- Complex Problem Solving – Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

Minimum Qualification Requirements

Applicants must meet at least one of the following minimum requirements to qualify for positions in this job classification:

1) Graduation from an accredited four-year college or university with a degree in construction management, civil engineering, mechanical engineering, architectural engineering, construction engineering, or a related field and experience equal to six years of full-time engineering work in the design and construction of buildings, utilities, earthwork, related facilities and structures.
2) Graduation from an accredited four-year college or university with a degree in construction management, civil engineering, mechanical engineering, architectural engineering, construction engineering, or a related field and experience equal to six years of full-time work as a construction manager, general contractor, subcontractor, or similar role.
3) A combination of ten years of education and full-time experience (as described in number one or two), where one year of full-time experience equals 30 semester hours of the required course work.
4) Possession of a valid Professional Engineer license recognized by the Iowa Engineering Examining Board and four years of full-time experience (as described in number one or two).
5) Possession of a certificate of registration as a Professional Architect recognized by the Iowa Architectural Examining Board and four years of full-time experience (as described in number one or two).

Effective date: 06/14 SA