

## STATE OF SOUTH DAKOTA CLASS SPECIFICATION

**Class Title: Buildings Engineer Assistant**

**Class Code: 40442**

**Pay Grade: GI**

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### **A. Purpose:**

Prepares detailed plans that are used in advertising for bids, conducts field surveys for data to be used in preparing complete plans and technical specifications, estimates material quantities and estimated costs of projects, and inspects construction projects to verify that plans and specifications are followed.

### **B. Distinguishing Feature:**

Buildings Engineer Assistants prepare detailed plans and specifications for bid advertisements, survey construction sites, and inspect construction projects.

Buildings Engineers I develop, implement and coordinate a capital improvements plan for an agency or institution.

### **C. Functions:**

*(These are examples only; any one position may not include all of the listed examples nor do the listed examples include all functions that may be found in positions of this class.)*

1. Performs preliminary technical engineering work to compile necessary information, measurements, and data for plans preparation.
  - a. Surveys property boundary locations and construction sites.
  - b. Prepares applications, environmental assessments for necessary permits, and other clearances for various agencies.
  - c. Prepares design ideas for developing detailed plans and specifications for construction projects.
2. Drafts detailed plans from engineering calculations to aid in preparing for bid letting on construction or renovation projects.
  - a. Prepares technical specifications to define the work to be accomplished, type and quality of materials to be used, construction requirements and deadlines.
  - b. Estimates material quantities and preliminary estimated costs for all bid items.
  - c. Reviews final plans and applications for errors.
3. Prepares bidding forms and conducts bid lettings and contractors' preconstruction conferences.
4. Conducts on-site project inspections and coordination to assist contractors and ensure compliance with plans and specifications.
  - a. Interprets plans and specifications and building codes.
  - b. Prepares and certifies monthly payment estimates forms, progress charts and reports, construction change orders, and final inspection reports.
  - c. Prepares reports of field construction progress and consults with supervisor about construction problems.
  - d. Coordinates locations for on-site storage of construction materials, ensures that stored materials are maintained in compliance with contracts, and estimates dollar value of stored materials for contract payments.

- e. Supervises and approves material testing procedures including soils density and gradations, roof samples, concrete testing, electrical input, and hydrostatic tests.
- 5. Advises state agency personnel of potential maintenance problems, assists agencies in obtaining preliminary cost estimates to solve maintenance problems, recommends available contractors, and assists with warranty enforcement on completed projects to ensure construction projects are completed in accordance with contracts, plans and specifications.
- 6. Performs other work as assigned.

**D. Reporting Relationships:**

Reports to an Engineering Supervisor or Program Manager. Does not supervise.

**E. Challenges and Problems:**

Challenged to schedule and perform inspections during construction to ensure compliance with plans and specifications and proper workmanship.

Problems include dealing with materials that do not meet specifications, coordinating with contractors on unacceptable work, resolving conflicts between contractors and state agencies, scheduling phases of projects among various contractors, non-compliance with plans and specifications, and poor soil conditions.

**F. Decision-making Authority:**

Decisions include details required to complete plans for bid lettings; how to conduct field surveys to obtain needed information for working plans; certification of pay estimates to contractors; final project close-out and acceptance; interpretations of building codes and specifications; clarification of plans; whether to stop construction for non-compliance with plans and specifications; whether construction change orders are needed; field inspection schedules; and the number and frequency of inspections needed on a project.

Decisions referred include selection of engineering and architectural firms; resolution of disputes between state agencies and contractors that cannot be negotiated; atypical interpretations of codes, plans, and specifications; total project shutdown because of non-compliance with plans and specifications; final approval of plan details for bid letting, construction methods, and final work; and setting priorities for work load.

**G. Contact with Others:**

Daily contact with department personnel and other agencies to discuss progress on projects and obtain information on plans and specifications, and with contractors to inspect projects and explain plans and specifications and building codes; and weekly contact with the public to explain project impact.

**H. Working Conditions:**

Works in a typical office and on construction sites, and is subject to normal construction hazards including extreme heights, heavy equipment, and excavated areas.

**I. Knowledge, Skills, and Abilities:**

Knowledge of:

- modern practices of mechanical, electrical, or structural engineering;
- building construction practices and methods;
- building inspection techniques and the uniform building codes;
- conventional and automated drafting standards, symbols, techniques, and equipment;
- landscape design;
- mathematics such as basic algebra, geometry, trigonometry;
- engineering calculations and notes;
- survey data, and property plats and terminology;
- human relations sufficient to establish working relationships with coworkers and contractors.

Ability to:

- conduct field surveys to obtain data for use in preparing plans and specifications for desired engineering improvements;
- prepare complete and concise reports and recommendations on potential and pending projects;
- read and interpret engineering calculations and survey data, and create graphic designs from them;
- use computer drafting technology and equipment;
- mathematically calculate distances, elevations, angles, curves, cross-sections, slopes, etc., and design them to scale;
- mathematically calculate acreage and cost estimates of material quantities;
- prioritize assigned work;
- establish and maintain effective working relationships with coworkers, contractors, and other state agencies' staff.