

ENGINEER SENIOR

KIND OF WORK

Professional work in a specialized field of engineering.

NATURE AND PURPOSE

An employee in this class applies professional skill and knowledge to engineering projects in the field or to projects of equal complexity. Responsibilities may extend to providing technical guidance to Graduate Engineers and other support staff. Work is generally reviewed by a higher level engineer through periodic conferences and a final check of completed projects and reports.

This class differs from the paraprofessional Engineering Specialist Senior and the Engineer Graduate 2 in that at this level the work requires the Licensure with the Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design (AELSLAGID).

EXAMPLES OF WORK (A position may not include all the work examples given, nor does the list include all that may be assigned.)

Serves as a subject matter expert in scientific areas pertaining to construction, pollution, pipeline transportation, etc. requiring a prolonged course of intellectual instruction to provide technical support to regulators and safety organizations; recommend changes to regulations, statutes, rules, standards, manuals, and other instructional materials related to area of expertise; provide engineering and technical advice on methods, policy and regulation; or provide other advise on the requirements for specific engineering standards.

Conducts investigations, technical reviews and/or surveys of:

- water supply and treatment systems, waste treatment and disposal systems and sanitation facilities for to identify and evaluate health hazards in industrial establishments ;
- non-destructive test inspection data, engineering studies, metallurgical reports, metallographical analyses, standards/code compliance calculations and engineering studies;(stress, thermal, hydraulic and surge analysis, fracture mechanics and finite element analysis studies) and sensitivity studies on analyses submitted by pipeline organizations;
- gas and hazardous-liquid pipelines;
- major and high profile pipeline incidents to advise pipeline regulators on technical issues;
- lakes, streams, commercial establishments and solid waste disposal sites to determine extent and sources of pollution;
- plant processes to recommend modification for compliance the reduction of air pollution;
- air dispersion modeling analysis to provide engineering and technical advice on air dispersion modeling methods, policy and regulation; OR
- area air quality and solid waste to assist in developing air pollution and solid waste regulations and/or develop effluent limitations for wastewater dischargers.

Applies engineering expertise to examine construction, mechanical, and/or plumbing plans and specifications:

- for the construction or alteration of public facilities;
- for the construction and mapping of gas and hazardous-liquid pipelines;
- for the construction of roads, bridges, water and sewage systems, buildings, heating and ventilating systems, water control structures, campgrounds and related facilities;
- for the construction of hospitals, nursing homes and related facilities;
- for the acquisition and development of lands administered by the agency; OR
- to make recommendations in connection with plumbing systems, public water supplies, soil absorption systems for sewage disposal, mobile home parks and recreational camping areas.

Applies engineering practices and principles to:

- determine compliance with applicable federal and state laws, codes and regulations;
- resolve OSHA related disputed/contested cases involving chemical and civil engineering analysis;
- provide technical support to pipeline regulators and other safety organizations;
- make estimates and valuations of mining properties;
- perform difficult technical work in areas such as road materials, photogrammetry or hydraulics;
- design and draft plans for various facilities, write project specifications and conduct feasibility studies; OR
- design detailed road plans for assigned parts of routes or interchanges.

Supervises and directs the work of:

- location survey parties;
- a team of OSHA health and safety investigators and OSHA case files review;
- regional engineering projects for the construction of state buildings and structures; the engineering and inspection programs of all state properties in a district;
- the inspection of exploration drilling and sampling procedures in progress; OR
- one or several highway construction projects.

Develops specifications and approves the acquisition of highway mechanical equipment.

Negotiates with public and private utilities for changing location of facilities and reviews claims for reimbursement.

Prepares and presents talks before community and industrial officials and civic organizations on pollution control or pipeline subjects.

KNOWLEDGE, SKILLS AND ABILITIES REQUIRED

Knowledge of:

The principles and practices of a specialized field of engineering.

Departmental programs, policies and applicable state and federal regulations.

Ability to:

Initiate research and carry it to a logical conclusion.

Establish and maintain effective working relationships with representatives of industry and citizen groups.

Coordinate and direct the activities related to one or more engineering projects of moderate size and complexity.

LEGAL OR LICENSURE REQUIREMENTS

Licensure with the Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design (AELSLAGID) under the provisions of M.S. 326.02 – 326.15.

Est.: 4 /1/70
Rev.: 6/09
Ckd.: 9/92, 6/09

T.C.:
Former Title(s):