DISTINGUISHING FEATURES OF THE CLASS

The work involves responsibility for providing professional engineering services and resources to identify, evaluate, design and implement repairs and improvement to facilities and infrastructure to ensure and maintain their efficient and effective functional use. An employee in this class applies engineering principals and engineering skill to investigate, identify and evaluate problems with mechanical equipment and systems and creates cost effective designs to solve any problems. The incumbent also is involved with effective on–site construction project inspection for quality control and oversight as an agency representative. Supervision is not typically a function of this position. Supervision is received from a construction or maintenance supervisor or other administrative employee who allows the incumbent considerable leeway in the interpretation of mechanical engineering principles in the evaluative phases and in recommending solutions for engineering problems. Does related work as required.

TYPICAL WORK ACTIVITIES

Applies engineering principals to address and solve problems concerning mechanical systems including pumping, piping, heating, ventilating and air conditioning systems, compressors, gear drives and other process equipment and appurtenances, as well as structural and architectural systems.
Researches and evaluates equipment and material for its function, usage, condition and repairability.
Researches literature, manufacturer's applications and design data, and other engineering standards and codes to prepare detailed calculations, designs, drawings and specifications.
Prepares detailed engineering design and specifications which are acceptable for the governmental competitive bidding process; prepares cost estimates as necessary.
Reviews shop drawings, specifications, operating manuals and other submittals by contractors or consultants for conformance with mechanical requirements, design standards and engineering principles.
Provides consultation and review to contractors and/or subcontractors, during the construction, installation or repair phases of mechanical systems.
Obtains field measurements and data necessary to perform designs and evaluations.
Assists with the procurement and purchase of equipment and materials necessary for maintenance, repair, construction or system upgrades.
Inspects, tests, and performs quality control for mechanical construction or repair using basic engineering principles and practices.
Assists construction inspectors with field studies and reviews as needed.

FULL PERFORMANCE KNOWLEDGES, SKILLS, ABILITIES AND PERSONAL CHARACTERISTICS

Thorough knowledge of the principals and practices of mechanical engineering.
Thorough knowledge of mechanical components, including the analysis and design of mechanical devices.
Thorough knowledge of stress analysis in mechanical components including static and dynamic stress analysis.
Thorough knowledge of the mechanics of fluids including fluid statics and the concepts of fluid motion and energy determination science for fluid systems.
Thorough knowledge of thermodynamics and its implications in mechanical engineering.
Thorough knowledge of vibration theory and controls.
Good knowledge of codes and design standards as they relate to the area of assignment.
Working knowledge of structural design.
Ability to convert design layouts to assembly drawings.
Ability to inspect construction and renovations to determine its engineering integrity.
Ability to use computers in engineering technology applications.
Ability to work with contractors and consultants in a professional and effective manner.
Ability to solve hydraulic and pneumatic power system problems.
Physical condition commensurate with the demands of the position.

MINIMUM QUALIFICATIONS

A. Graduation from a regionally accredited college or university or one accredited by the New York State Board of Regents to grant degrees with a baccalaureate degree in mechanical engineering or civil engineering and four (4) years of professional engineering work; or,

B. Eight (8) years of paraprofessional or professional level work experience, or its part time equivalent, in civil or mechanical engineering, four (4) years of which must have been professional engineering work; or,

C. An equivalent combination of training and experience as defined by the limits of A and B above.

11/06 Revised