

New York State Department of Civil Service
DIVISION OF CLASSIFICATION & COMPENSATION

Tentative Classification Standard

Occ. Code 4003300

Senior Engineering Technician, Grade 13 4003300

Brief Description of Class Series

Senior Engineering Technicians assist in the performance of civil engineering work and provide engineering support services to engineers, or construction or engineering programs by inspecting portions of construction projects, participating in field survey work, leading small project survey parties, collecting and analyzing engineering data, reviewing contracts and specifications, and preparing and reviewing maps and plans.

These positions are found in several agencies, most positions are classified at the Department of Transportation. Senior Engineering Technicians (Soils) are found only in the Department of Transportation.

Distinguishing Characteristics

Senior Engineering Technician: performs technical tasks, under the direct supervision of engineers or higher level technicians in support of engineering programs and projects; works with relative independence in selecting method, resolving routine problems, scheduling work, collecting and evaluating information and making recommendations based on analyses and findings, and preparing calculations, maps, and plans; may be assigned to serve as the principal assistant to a specific engineer, verify the accuracy and completeness of work prepared by others, and perform inspections and tests of materials, construction methods and soils.

Illustrative Tasks

Senior Engineering Technician

As assigned, performs one or more engineering technical activities in support of an agency program. The following activities may be performed singly or in combination and are illustrative of the level of work performed by Senior Engineering Technicians, rather than limiting the functional assignments of these positions to the activities described.

Under general direction, inspects construction projects or project components to ensure contractor's conformance with contract specifications.

- Provides routine interpretations of construction specifications to contractor.
- Performs field tests of materials and construction such as compaction tests and concrete air content tests.
- Visually inspects projects to determine compliance with specifications and commonly accepted construction methods and standards.
- Takes and records measurements.
- Computes quantities of materials used, such as volumes, lengths, and batch slip weights, to determine correct payment of contract estimates.
- May supervise several Engineering Technicians and Engineering Aides assigned to assist in inspecting small projects or parts of projects.
- Meets with contractors' on-site project supervisor to discuss and resolve problems noted during inspection.
- Prepares inspection reports, noting problems and methods used to correct them.
- Assists in or compiles records for projects from beginning of construction to completion.

Assists in preparing contract plans, specifications, and estimates.

- Gathers all information needed for preparation of contract plans.
- Prepares maps, sketches, and diagrams of sites and proposed projects from data gathered from field surveys and office records.
- Prepares estimates of quantities of different materials needed for individual projects and calculates estimated project costs by pricing material and labor at prevailing rates.
- Assists in developing and evaluating project designs and price analyses for major projects.
- Prepares draft narrative and graphic material for inclusion in contract specifications.
- Assists in preparing alternate project plans, including evaluating effects of different proposals on surrounding area and population and summarizing cost of alternatives.

- Assists higher level staff in final assembly and summarization of project plans, estimates, and supporting documentation.

Leads small project survey parties.

- Schedules field survey work.
- Installs and maintains field measurement equipment and takes and evaluates periodic readings.
- Directs and verifies data collection, measurements, and field tests.
- Performs and evaluates engineering calculations of data, measurements, and tests.
- Prepares plot plans and maps of sites and State-owned property, indicating topography, boundaries, buildings, roads, signs, obstacles, and any unique site characteristics, such as flood areas, rock formations, and streams.
- Plots and reduces information gathered from field surveys.
- Supervises and participates in surveys and inspections to determine the condition of structures, buildings, bridges, canal banks, and roads, on State owned or managed property and prepares reports of findings.

Maintains and reviews project records and files for an engineering program or section.

- Ensures that all project documentation is present and properly reviewed and evaluated.
- Checks project costs and data to assure it is complete and correct and verifies computations.
- Prepares graphic displays and materials for project preparation or for use at public hearings and project presentations.
- Assists in reviewing construction change orders by performing calculations to verify cost data, interpreting technical portions of plans and specifications, tabulating and maintaining files of change orders, and preparing draft memoranda and letters regarding reviews.
- Maintains management information systems to obtain and tabulate construction inspection project data.

- Supervises the maintenance and updating of the file system for approved plans, specifications, bid materials, and contracts.
- Assists engineers in gathering technical data and information to develop improved construction management techniques.
- Maintains and updates files of manufacturer's equipment and material catalogs to assist in reviewing change orders, plans, and specifications.

Performs engineering research and planning activities in support of agency programs.

- Researches and evaluates data on site use, physical characteristics, and condition and validates, analyzes, and adjusts data.
- Evaluates traffic data to determine validity of future use projections considering expected growth or decline of population, commerce, and use and impact of these factors on main roads and bridges, cross streets, and parallel roads and bridges.
- Prepares and codes information for computer entry and correlates data with other systems output.
- Prepares and maintains logs and charts concerning water management and canal use.
- Maps out traffic control plans, sign location diagrams, pavement marking layouts, interchanges, access and peripheral roads, and parking areas.
- Participates in air and water quality surveys to establish criteria and standards, develop project priorities, and determine compliance with State and Federal regulations.
- Assists engineering staff in preparing technical data, such as maps, charts, profiles, and tables, required for Flood Insurance Studies and prepares community and insurance rate zone maps.
- Assists in tax valuation appraisals by processing data, taking measurements, collecting data, verifying calculations, and making field inspections to update appraisal.
- Performs laboratory and field tests of construction materials, methods, and equipment by operating testing equipment, correlating test data, conducting field tests, recording data and entering it into the computer, and plotting results on master charts.

Investigates accidents on State roads and waterways by checking proper placement of signs, buoys, and markers, reviewing records to determine locations with high accident rates, collecting field data, preparing diagrams of accident locations and accidents, coding and evaluating information, and preparing reports, noting possible causes and solutions.

Assists in issuing permits for special hauling, use of State canals, and for construction in State Rights-of-Way.

- Conducts investigations of issued permits to assure users are complying with permit conditions.
- Processes, issues, and amends permits.
- Supervises and maintains a record of all permits issued, including supporting documentation and record of fees paid by recipients.
- Inspects construction work specified in highway work permits.
- Inspects movements allowed by special hauling permits to determine effectiveness of movement and its effect on highway facilities and traffic.
- Compiles listings of conditions that may or will influence the future issuance of permits.

Performs activities in support of waterway and canal maintenance.

- Locates obstructions and supervises sweep crews in cleaning and maintaining waterways.
- Assists in preparing dredging charts and plans, including locating and laying out dumping grounds, marking refill limits, and consulting with staff about the placement of dredges and derrick boats.
- Assists engineering staff in inspecting structures, preparing condition reports, and preparing shop and assembly drawings for winter lock overhaul.
- Assists in the bank inspection program by conducting inspections and preparing and revising charts and maintenance schedules.
- Prepares and distributes quarterly gauge books, computes mean and plots mean elevation, and changes charts on automatic recorders.
- Updates maps to show any changes related to canal properties.
- Sets and maintains navigation aids.

Controls equipment by compiling residency equipment requirements, scheduling equipment transfers, reviewing utilization reports, and maintaining equipment inventory records.

Corresponds with government officials, consulting engineers, and regulatory agencies to obtain, exchange, and provide information about projects and programs.

Answers inquiries from the public and private sectors about programs.

May supervise subordinate technical and administrative support staff.

- Trains subordinates to maintain records, take measurements, conduct tests, collect and analyze data, perform calculations, make drawings and plans, and perform field work.
- Reviews work for accuracy, completeness, and compliance with procedure and guidelines.

Minimum Qualifications

Senior Engineering Technician

Promotion: successful completion of the one-year Engineering Technician traineeship.

Open Competitive: High school graduation or equivalent and two years of full-time satisfactory experience assisting in engineering or engineering technology, engineering management technology, architecture or architectural technology, environmental technology, landscape architecture/design, materials laboratory technology, drafting or surveying. An associate's degree in mathematics, physical science, engineering or engineering technology, architecture or architectural technology, construction technology, environmental technology, landscape architecture/design, drafting, forestry, surveying, aeronautics, or electronics may substitute for two years of the required experience. A certificate in CAD/CAM, construction technology, drafting, engineering, engineering graphics or electronics may substitute for one year of the experience; or 36 semester college credit hours in mathematics, physical science, engineering or engineering technology, architecture or architectural technology, construction technology, environmental technology, landscape architecture or landscape design, drafting, forestry, surveying, aeronautics, electronics or electronics technology may substitute for experience at a rate of 18 semester credit hours equaling one year of experience.

Note: Classification Standards illustrate the nature, extent, and scope of duties and responsibilities of the classes they describe. Standards cannot and do not include all the work that might be appropriately performed by a class. The minimum qualifications above are those

required for appointment at the time the Classification Standard was written. Please contact the Division of Staffing Services for current information on minimum requirements for appointment or examination.

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Parenthetic Attachment:

Senior Engineering Technician (Soils): positions in this class work in a General Soils Laboratory. Incumbents work under the general direction of a Soils Engineering Laboratory Supervisor, an Engineer, and/or Engineering Geologist, or a higher-ranking technician; assist in laboratory, office, and/or field soils engineering work; prepare soil samples, perform laboratory and field soil tests, and compute results; check computations for routine laboratory and field tests and assist in performing complex soil tests; and may collect and assist in analyzing field instrumentation data. Duties include the following: perform soil and aggregate samples for testing; perform laboratory and field testing of soil and construction aggregates as part of the Departments Quality Assurance (QA) Program; perform laboratory testing of geosynthetic materials. Review data and samples submitted for Approved List Materials; perform complex laboratory testing of soils; compute test results; check computations for laboratory and field soil tests; interact with Department engineering staff. Summarize test results and provide reports to engineering staff; enter test results into the Departments Site Manager and/or LIMS Systems; interact with Department engineering staff, manufacturers and industry representatives in the materials acceptance/rejection process; occasional travel across the state to support the Geotechnical program, including the inspection and maintenance of equipment; and assist in providing training in geotechnical testing inspection.

Minimum Qualifications

Senior Engineering Technician (Soils)

Open Competitive: High school graduation or equivalent and two years of full-time satisfactory experience assisting in engineering or engineering technology, engineering management technology, architecture or architectural technology, environmental technology, landscape architecture/design, materials laboratory technology, drafting or surveying. An associate's degree in mathematics, physical science, engineering or engineering technology, architecture or architectural technology, construction technology, environmental technology, landscape architecture/design, drafting, forestry, surveying, aeronautics, or electronics may substitute for two years of the required experience. A certificate in CAD/CAM, construction technology, drafting, engineering, engineering graphics or electronics may substitute for one year of the experience; or 36 semester college credit hours in mathematics, physical science, engineering or engineering technology, architecture or architectural technology, construction technology, environmental technology, landscape architecture or landscape design, drafting, forestry, surveying, aeronautics, electronics or electronics technology may substitute for experience at a rate of 18 semester credit hours equaling one year of experience.