

**Job Class Profile:**                **Senior Engineer**

**Pay Level:**                                **CG-44**                                **Point Band:**                                **1082-1135**

Factor	Knowledge	Interpersonal Skills	Physical Effort	Concentration	Complexity	Accountability & Decision Making	Impact	Development and Leadership	Environmental Working Conditions	Total Points
Rating	8	6	2	5	8	6	6	4	4	
Points	373	100	13	24	240	130	124	86	43	1133

## **JOB SUMMARY**

The Senior Engineer is responsible for the planning and design and/or the project management and supervision of large, complex and multi disciplinary construction or redevelopment projects. This may include supervision of various technical and non-technical staff, review of the designs and plans of other offices and contractors, and the preparation and review of contractual documents. May exercise creative and innovative approaches requiring multi-disciplinary engineering knowledge and skill. The Senior Engineer provides technical expertise for various processes, procedures, plans and designs.

### **Key and Periodic Activities**

- Performs a project management role of large multi-disciplinary construction or redevelopment projects related to transportation, public works, municipal infrastructure or the education system.
- Plans, designs, estimates and prepares tenders for construction projects such as highways, interchanges, drainage structures, earth retaining structures, wharfs, causeways, water treatment plants, water and sewer systems, public buildings, schools, hospitals, etc.
- Supervises the preparation of construction drawings (i.e. specifications for unique construction requirements) and contract documents (i.e. tender packages). This may also include directing consultant design teams, evaluating contractor bids and providing recommendations.
- Supervises, coordinates and reviews work of project staff and students.
- Reviews and approves internal and external technical drawings, designs, specifications and cost estimates to ensure conformance with design standards, principles and practices.
- Assesses applications from school districts for capital construction projects and prepares project estimates, and assists with long term capital planning and standardization of school facilities.
- Acts as subject matter expert for information requests and project dispute resolution. This includes liaising with internal stakeholders and external stakeholders affected by construction projects such as property owners, utility companies, other professional engineers and consultants, and other municipal/provincial/federal government departments.
- Responsible for all aspects of safety on capital construction projects such as approving safety plans, ensuring adherence to plans and completing safety orientations.
- Participates in interview and selection processes.

<b>Key and Periodic Activities</b>
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| — Participates in long term capital planning processes. |
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**SKILL**

<b>Knowledge</b>
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**General and Specific Knowledge:**

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| — Thorough understanding of a number of different engineering disciplines<br>— Current trends and developments in a number of related specialized fields<br>— Technology related to field<br>— Specific knowledge of highway design and hydrology<br>— Contract procedures and policies |
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**Formal Education and/or Certification(s):**

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| — Minimum: Undergraduate Degree specializing in Engineering field and Professional Engineering Designation (i.e. P. Eng.) |
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**Years of Experience:**

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| — Minimum: 6 to 7 years work experience |
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**Competencies:**

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| — Project management<br>— Conduct analysis and assessment<br>— Proof-read a variety of documents<br>— Write detailed text to communicate complex or conceptual ideas<br>— Coordinate a range of related work<br>— Apply established techniques and engineering concepts<br>— Develop solutions |
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<b>Interpersonal Skills</b>
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| — A range of interpersonal skills are used to listen to information, ask questions, provide routine information, deal with upset/angry people, gain the cooperation of others, negotiate contracts/agreements, provide direction to employees/contractors, provide information to co-workers, the general public and executives regarding projects, instruct/teach/train and make formal presentations. Skills are most frequently used to resolve contract disputes and collaborate to get projects completed on time.<br>— Communications occur within the immediate work area, department, other departments and outside the organization with peers, other government staff, supervisors/managers, customers/general public, suppliers/contractors, department executives and external stakeholders (i.e. municipal/provincial/federal government representatives, sales representatives, professional associations and professional advisors).<br>— The most significant contacts are with technical and non-technical staff, other professional engineers and consultants and other internal and external stakeholders. |
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## EFFORT

Physical Effort
<ul style="list-style-type: none"> <li>— Work demands occasionally result in fatigue, requiring periods of rest.</li> <li>— Occasionally required to move/lift objects weighing up to 25 lbs.</li> <li>— Physical effort may include constant fine finger/precision work while sitting at a computer to perform work tasks.</li> <li>— Occasionally stands and walks to perform work tasks.</li> <li>— There is the requirement to visit and inspect sites especially during the construction season which may include physical efforts such as occasionally walking and climbing over undeveloped areas, or areas of construction, and extended driving but most of the time work is performed in the office environment at the computer.</li> </ul>
Concentration
<ul style="list-style-type: none"> <li>— <b>Visual concentration</b> may include preparing and reviewing drawings/designs using design software, processing and verifying data from field surveys or digital models, and reading/writing/reviewing text on a computer and on paper.</li> <li>— <b>Auditory concentration</b> may include listening and communicating in person with supervisors and co-workers, and on the phone with internal and external stakeholders.</li> <li>— While on-site, need to remain <b>attentive for health and safety of self and others</b>.</li> <li>— <b>Repetition requiring alertness</b> is evident when reviewing structural designs, review and approval of invoices.</li> <li>— <b>Higher than normal levels of attentiveness</b> is required when reviewing project change orders and contract documents.</li> <li>— There are <b>time pressures and deadlines</b> for projects such as meeting Public Tendering Act deadlines and responding to emergency and information requests.</li> <li>— <b>Lack of control over work pace</b> due to multi-tasking with various projects, <b>interruptions</b>, phone calls, etc.</li> <li>— <b>Eye/hand coordination</b> is required for driving.</li> <li>— <b>Exact results and precision</b> includes data entry and analysis, evaluating contractual documents, maintaining project budgets, detailed designs, calculations and project dimensions and selecting routes/positioning for bridges and other transportation structures.</li> </ul>
Complexity
<ul style="list-style-type: none"> <li>— Work involves a series of tasks and activities which vary in complexity; are different and unrelated and require a broad range of skills and knowledge.</li> <li>— Tasks tend to require different solutions, occasionally there are guidelines to follow, but at other times creative solutions must be developed. Planning and design work and project management activities typically are unique, require problem definition and analysis and involve highly technical tasks.</li> <li>— Tasks occasionally have strategic or policy significance when participating in long-term capital planning processes.</li> <li>— Typical complexities include meeting project requirements in prescribed budget and time. Projects vary in scope and situations may be unique. Solutions must be developed within codes, standards, policies and procedures.</li> </ul>

- Materials/resources available include geometric design guides, departmental reference materials, reference codes and standards, regulations, policies and procedures, industry best practices, software manuals, and co-workers.

## RESPONSIBILITY

### Accountability and Decision-Making

- Work tasks and activities are moderately prescribed or controlled.
- Considerable independent action and decision-making is required around designs and project administration decisions as well as project estimates, changes to scope and completion of certifications/approvals.
- Authority to approve work orders, change orders payment certificates to specified limits. In addition, recommendations may include selecting and supervising staff, resolving contract disputes and providing technical advice.
- Requires approval for project budgets, contractual documents, work/change orders in excess of specified limit, and awarding contracts.
- May exercise a high degree of discretion when preparing/designing work plans and processes; applying engineering principles, etc.

### Impact

- Results of work tasks and activities impact the immediate work area, department, organization and outside the organization on external stakeholders.
- Work tasks and activities generally impact finances, equipment, processes and systems, material and human resources, facilities, information, health and safety and corporate image.
- Consequences of mistakes or errors related to large, complex and multi-disciplinary construction or redevelopment projects could have significant impact in a variety of areas (i.e. transportation, education system, public works, municipal infrastructure, etc.) and may be difficult to resolve and have an impact beyond the short-term.
- Work could either negatively or positively impact on projects being completed. Depending on the nature of the impact, errors could be found and solved in a relatively short time period or may have longer lasting impacts and possibly injury to the public.
- Decisions and/or advice/interpretations provided generally have impact on the above areas and resources. The most extreme impacts are on the organization, customer/clients/general public, and all aspects related to facilities, material resources, corporate image, and health and safety.

### Development and Leadership of Others

- Typically responsible for direct and ongoing bargaining unit supervisory activities for a small size work group of employees (1 to 4 employees).
- May be required to act as a technical mentor, delegate/allocate tasks, lead a project or technical team, act as a team leader, provide staffing input, and organize, coordinate, review/check the work of colleagues, contractors and/or students.

## WORKING CONDITIONS

### Environmental Working Conditions

- Required to wear safety equipment such as safety boots, hard hat, safety vests, safety glasses and personal protection measures when in the field/on-site.
- The likelihood of serious injury or illness is limited but the potential exists.
- Works mostly in an office setting but spends a small amount of time on construction project sites or conducting building assessments. May be exposed to a variety of undesirable working conditions, including but not limited to unusual/distracting noise, limited lighting, dirt/dust/garbage, glare, dangerous heights/depths, wet or slippery surfaces, physical dangers/threats, adverse weather conditions, and travel.