

Civil Engineers

A guide for newcomers to British Columbia



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1. Working as a Civil Engineer [NOC 2131]

Job Description

Civil engineers help design and build the structures all around us, including buildings, bridges, dams, highways, railways, and sewers.

You perform the following duties:

- Meet with clients and other members of the engineering team and conduct research to determine project requirements
- Plan and design major civil projects such as buildings, roads, bridges, dams, and water and waste management systems
- Create construction specifications and procedures
- Estimate quantities and cost of materials, equipment, and labour needed
- Ensure construction plans meet guidelines and specifications of building codes and other regulations
- Conduct feasibility studies, economic analyses, municipal and regional traffic studies, environmental impact studies, or other investigations
- Act as project or site supervisor for land survey or construction work
- Supervise technicians, technologists, and other engineers

Sources:

- WorkBC, Career Profiles at <http://workbc.ca/Careers> [search NOC 2131]
- *Career Cruising database* [profile for Civil Engineer]
<http://www.vpl.ca/digital-library/career-cruising>

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Industry Overview

There is strong demand for qualified and experienced civil engineers in BC. There is a large and growing need to replace retiring engineers. Upcoming major projects are also increasing the demand for these workers.

Source: Engineering Labour Market – Engineers Canada

<https://engineerscanada.ca/sites/default/files/Labour-Market-2015-e.pdf>

Job Outlook in BC

Civil Engineers



Chart from WorkBC

WorkBC provides job openings in BC regions from 2015-2025:

| Region | Expected # of Job Openings | Average Annual Employment Growth | Expected Increase in Employment |
|----------------------------|----------------------------|----------------------------------|---------------------------------|
| Vancouver Island | 300 | 0.6% | 55 |
| Lower Mainland / Southwest | 2450 | 1.3% | 890 |
| Thompson-Okanagan | 340 | 2.8% | 165 |

You can learn more about working as a civil engineer in BC from:

- **WorkBC, Career Profiles** at <http://workbc.ca/Careers> [search NOC 2131]
- **Career Cruising** database [profile for Civil Engineer]
<http://www.vpl.ca/digital-library/career-cruising>
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Types of Employers

Civil engineers work for:

- engineering consulting companies
- private sector manufacturing and construction companies
- all levels of government
- many other industries
- may be self employed

You often work in a multidisciplinary environment. This experience helps you acquire knowledge and skills that may allow you to practice in related areas of science, engineering, urban planning, sales, marketing, or management.

Salary

The median annual salary for civil engineers in BC is \$75,186. Senior engineers or those in management positions may earn more.

Your salary is affected by your level of education. If you have a bachelor's degree in engineering you tend to earn less than if you have a master's degree or PhD. If you earn a master's degree in business administration (MBA), you also tend to earn more.

In addition to your salary, full-time civil engineers often receive benefits such as pension plans, dental coverage, sick leave, and paid vacations. You may receive regular, performance-based bonuses that can increase your annual income.

Sources: WorkBC & Career Cruising

In BC regions, you can expect to make:

| Location | Wage (\$/hr) | | |
|---|--------------|--------|-------|
| | Low | Median | High |
| British Columbia | 21.46 | 36.78 | 67.00 |
| Kootenay Region | 21.46 | 36.78 | 67.00 |
| Lower Mainland - Southwest Region | 19.23 | 35.71 | 66.22 |
| Thompson--Okanagan Region | 22.98 | 33.88 | 53.39 |
| Vancouver Island and Coast Region | 21.46 | 36.78 | 67.00 |

Source: Job Bank, Wage Report http://www.jobbank.gc.ca/wage-outlook_search-eng.do?reportOption=wage

Civil Engineers

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In its 2016 Report on Members' Compensation and Benefits, Engineers &

Geoscientists British Columbia (formerly APEGBC) provides these salary figures:

| | Mean | Lower Quartile | Median | Upper Quartile |
|--|-------------|---------------------------|---------------|---------------------------|
| Engineering Consulting – Civil | \$97,765 | \$68,640 | \$88,00 | \$118,000 |
| Construction & Manufacturing Industry | \$96,153 | \$67,000 | \$86,250 | \$114,316 |

Source: Engineers & Geoscientists British Columbia <https://www.egbc.ca/Careers/Compensation-Survey>

Working Hours

You generally work between 8 and 10 hours a day, 40 to 50 hours a week.

You may have to work nights and weekends if an important deadline is approaching or if an urgent construction problem arises.

Source: *Career Cruising* database

2. Skills, Education and Experience

Skills

- Critical thinking and problem solving
- Oral communication and public speaking
- Planning and organizing
- Team project work
- Project management
- Proposal writing and financial management
- Committee work- industry ethics

Education and Experience

- Bachelor's degree in civil engineering or in a related engineering is required
- Master's degree or doctorate in a related engineering discipline **may be** required

Qualifications

This occupation is regulated in British Columbia

This means that if you are working as an engineer you must either:

- be registered as a Professional Engineer in BC

OR

- work under the direct supervision of someone who is registered as a Professional Engineer in BC

Licensing Requirements for Civil Engineers

You must be licensed by **Engineers & Geoscientists British Columbia** (formerly APEGBC) to use the title "Engineer." This allows you to approve engineering drawings and reports and to practise as a professional engineer (P.Eng.).

Registration requires:

- graduation from an accredited educational program
- four years of supervised work experience in engineering
- successfully passing the professional practice examination
- completion of the law and ethics seminar

Internationally trained engineers: if you have completed your P. Eng application process you may qualify as a "Provisional Member" with Engineers & Geoscientists British Columbia. This designation provides member status to internationally trained engineering graduates who have completed the academic, experience, professionalism, character, and residency requirements.

For more information:

- **Engineers & Geoscientists British Columbia - Become a Member**
<https://www.egbc.ca/Become-a-Member>
- **Engineers & Geoscientists British Columbia Online Resource for Internationally Trained Engineers and Geoscientists :**
 - Self assessment tool: <http://engtechnbc.ca/>
 - Job Mentoring Programs:
<https://www.egbc.ca/For-Members/Mentoring-Program>
- **A Roadmap to Engineering in Canada. Engineers Canada**
<http://newcomers.engineerscanada.ca/>
- **International agreements** between professional engineering associations

<http://www.engineerscanada.ca/mobility-international>

- **Introduction to Engineering in BC – Langara College**

These courses are designed to provide you with industry specific skills in order to find employment in an engineering environment. They also help you gain a good understanding of Canadian workplace culture.

<http://www.langara.bc.ca/continuing-studies/programs-and-courses/programs/introduction-to-engineering-in-bc/index.html>

3. Finding Jobs

You will find job advertisements in local newspapers, trade journals, and electronic sources, as well as through professional associations' publications.

Local Newspapers

You can look at the *Vancouver Sun* and *The Province* at Vancouver Public Library for free. Check the job postings daily, the careers section in the *Vancouver Sun* on Wednesdays and Saturdays and in *The Province* on Sundays.

Job White Pages

- **JOB Freeway.com**

<http://www.vpl.ca/digital-library/jobfreewaycom>

Available from the VPL Digital Library | Explore our Digital Library page
Access at VPL locations only

- (see categories 1630-2019, "Science/Engineering Professionals")

Online Job Postings

- **Indeed.com**

http://ca.indeed.com/advanced_search

Find jobs posted on a multitude of company career sites and job boards.

- **Skilled Workers.com**

<https://skilledworkers.com/find-a-job/>

- **TechJobs.ca**

<http://www.technicaljobs.ca/en>

Professional Associations' Career Resources

- **Association of Consulting Engineering Companies British Columbia (ACEC-BC)**
<http://www.acec-bc.ca/resources/>
- **Engineers & Geoscientists British Columbia Employment Centre**
<https://www.egbc.ca/Careers/Career-Listings>
- **Engineering Institute of Canada**
<http://www.engineeringcareers.ca/>

Identifying the Right Position

When you browse job advertisements, you'll find a range of different job titles that are relevant.

For civil engineers, look for these related job titles (from NOC 2131):

- construction engineer
- environmental engineer
- geomatics engineer
- hydraulics engineer
- municipal engineer
- public works engineer
- structural engineer
- surveying engineer
- traffic or transportation engineer
- water management engineer

Creating a List of Potential Employers

You can use directories to produce lists of employers in Vancouver or the Lower Mainland. Contact them directly to find out if they're hiring.

- **Association of Consulting Engineering Companies British (ACEC-BC),**
Directory of Member Firms
<http://www.acec-bc.ca/membership/directory-of-members.aspx>
- **Engineers & Geoscientists British Columbia**
<https://www.egbc.ca/Member-Directories>
- **Business in Vancouver. Book of Lists.**
Biggest Engineering Firms in BC
Available at the Central Library 338.9711 B97b and online at
<http://www.biv.com/lists>
- **Canadian Company Capabilities**
Search by "civil engineering" or NAICS Code "541330" [Engineering Services]
<http://www.ic.gc.ca/app/ccc/srch/cccBscSrch.do?lang=eng&prtl=1>
- **Canadian Construction Association Membership Directory**
<http://www.cca-acc.com/en/membership/search-corporate-members>
- **Reference Canada**
<http://www.vpl.ca/digital-library/reference-canada>
Click on "Start Search" beside Canadian Businesses, then select the "Advanced Search" button. Select both "Keyword/SIC/NAICS" under Business Type and "City" under Geography. In the top search box enter "civil engineer" and click LOOKUP. Select the appropriate headings. Lower down, select the Province, choose the cities, and click the "View Results" button.
Available from the VPL Digital Library | Explore our Digital Library page
NOTE: *You can access this database from a Library computer. If you are using a computer from outside the Library, you will need a Vancouver Public Library card to login to this database. After clicking on the database name, you will be asked to enter your library card number and PIN (usually last four digits of your telephone number).*

4. Applying for a Job

In Canada, employers usually expect to receive a resume or curriculum vitae and a cover letter that identifies the position you are applying for and summarizes your relevant experience.

Use the library catalogue, <http://vpl.bibliocommons.com/> to find books on writing resumes and cover letters specific to your industry.

To learn about applying for jobs in Canada, use the following guides which are available in print at the Central Library or online at <http://skilledimmigrants.vpl.ca/>.

- **Writing Resumes and Cover Letters**

Go to <http://skilledimmigrants.vpl.ca>

[Search Writing Resumes and Cover Letters]

- **Getting Canadian Work Experience**

Go to <http://skilledimmigrants.vpl.ca>

[Search Getting Canadian Work Experience]

- **Networking for Employment**

Go to <http://skilledimmigrants.vpl.ca>

[Search Networking for Employment]

- **Learn More About Working in BC and Canada**

Go to <http://skilledimmigrants.vpl.ca>

[Search Learn More About Working in BC and Canada]

5. Getting Help from Industry Sources

Industry Associations

Associations for professional and civil engineers in BC and Canada provide information & assistance. Registration and fees are required for membership.

- **Association of Consulting Engineers Companies of British Columbia**
<http://www.acec-bc.ca/>
- **Engineers & Geoscientists British Columbia**
<https://www.egbc.ca/>
- **Canadian Society for Civil Engineering**
<https://csce.ca/>
- **Engineering Institute of Canada (EIC)**
<http://www.eic-ici.ca/>
- **Engineers Canada, Canadian Council of Professional Engineers (CCPE)**
<http://www.engineerscanada.ca/>
- **Society of Internationally Trained Engineers of British Columbia (SITE)**
<http://www.sitebc.ca/>
- **Society of Punjabi Engineers and Technologists of British Columbia**
<http://www.speatbc.org/>

Industry Journals

Search the Vancouver Public Library catalogue for journals related to your profession: www.vpl.ca

Examples at the Central Library include:

- **Canadian Consulting Engineer** / Association of Consulting Engineers of Canada
Available at VPL Central Library, 620.5 C212 and online at:
<http://www.canadianconsultingengineer.com/>
- **Innovation** / Journal of Engineers & Geoscientists British Columbia
Available at VPL Central Library, 620.5 B86 and online at:
<https://www.egbc.ca/Resources/News-and-Publications/Innovation-Magazine/Innovation-Past-Issues>
- **Journal of Commerce**
Available at VPL Central Library, 338.47 J86 and online at:
<http://journalofcommerce.com/>

**Questions? Please ask the Information Staff in the Central Library,
Vancouver Public Library or telephone 604-331-3603.**

Please note that the information in this guide is also available online through the Skilled Immigrant InfoCentre website at <http://skilledimmigrants.vpl.ca/>.