

# Geologists & Geological Engineers

A guide for newcomers to British Columbia



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## 1. Working as a Geologist and Geological Engineer

### *Job Description*

**Geoscientists** (NOC 2113) study the history and structure of the earth's crust and the rocks and minerals that make it up.

Working as a **geologist, geochemist, or geophysicist** you perform the following duties:

- Conduct field studies, drilling and geological testing
- Prepare maps that show rock types and geological structures
- Locate new oil fields and mineral deposits, and plan ways to access them
- Advise builders and engineers on the suitability of sites for building or mining projects
- Plan and conduct seismic, electromagnetic and other remote sensing programs
- Develop models and applied software for the analysis of data
- Advise in areas such as site selection, waste management and restoration of contaminated sites

Sources:

- WorkBC Career Profile <http://workbc.ca/Careers> [search NOC 2113]
- Career Cruising database [profile for Geologist]  
<http://www.vpl.ca/digital-library/career-cruising>  
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**Geologists & Geological Engineers**  
*A guide for newcomers to British Columbia*

**Geological engineers** (NOC 2144) carry out geological and geotechnical studies to assess suitability of locations for civil engineering, mining and oil and gas projects.

Working as a **geological engineer** you perform the following duties:

- Conduct programs of data acquisition, analysis, and mapping to assist with civil engineering, mining, petroleum and waste management projects
- Analyze and prepare recommendations and reports for construction or civil engineering projects
- Conduct studies of groundwater flow and contamination
- Carry out studies in mining exploration and mine evaluation
- Supervise technologists, technicians, and other engineers and scientists

Source: WorkBC Career Profile <http://workbc.ca/Careers> [search NOC 2144]

### ***Industry Overview***

Future employment opportunities for geologists and geological engineers are expected to be good, with more job openings than number of workers to fill them.

New jobs will likely come from oil, gas and mining exploration in BC and the environmental geosciences sector including land use planning, risk assessment and water resources management. There is currently demand for workers in independent power projects in the province.

Much of the demand for geologists and geological engineers is expected to be filled by immigration.

Source: WorkBC Career Profile <http://workbc.ca/Careers> [search NOC 2113]

## **Job Outlook in BC**

### **Geoscientists**



Chart from WorkBC, NOC 2113

### **Geological Engineers**



Chart from WorkBC, NOC 2144

WorkBC provides job openings in BC regions from 2015-2025:  
**Geological Engineers (NOC 2144)**

<b>Region</b>	<b>Expected # of Job Openings</b>	<b>Average Annual Employment Growth</b>	<b>Expected Increase in Employment</b>
Vancouver Island	30	0.6%	5
Lower Mainland/Southwest	220	1.5%	100

<b>Region</b>	<b>Expected # of Job Openings</b>	<b>Average Annual Employment Growth</b>	<b>Expected Increase in Employment</b>
Vancouver Island	160	0.9%	40
Lower Mainland/Southwest	610	2.0%	270
Thompson-Okanagan	60	0.6%	10
Kootenay	60	0.4%	10

You can learn more about working as a Geologist and Geological Engineer from:

- **WorkBC, Career Profiles** at <http://workbc.ca/Careers> [search NOC 2113 & 2144]
- **Career Cruising** database [profile for Geologist]  
<http://www.vpl.ca/digital-library/career-cruising>

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### ***Types of Employers***

**Geologists** work for:

- petroleum and mining companies
- consulting geology, geophysics, and engineering firms
- government and educational institutions
- may be self-employed

**Geological engineers** work for:

- consulting engineering companies
- electrical utilities, mining, and petroleum companies
- government
- research and educational institutions

## **Salary**

In BC, the median annual salary for **Geologists** is over \$77,000. The median annual salary for **Geological Engineers** is between \$99,129.

Your salary varies depending on education, work experience, position, and employer. Management positions may make more.

In addition to your salary, full-time employees often receive benefits such as pension plans, dental coverage, sick leave, and paid vacations.

Sources: WorkBC & Career Cruising

Job Bank Canada website provides hourly wages:

### ***Geologists [NOC 2113]***

Location	Wage (\$/hr)		
	Low	Median	High
British Columbia	21.46	44.87	95.18

### ***Geological Engineers [NOC 2144]***

Location	Wage (\$/hr)		
	Low	Median	High
British Columbia	26.28	48.12	90.73
<a href="#">Lower Mainland - Southwest Region</a>	32.31	50.41	103.87

Source: Job Bank, Wage Report [http://www.jobbank.gc.ca/wage-outlook\\_search-eng.do?reportOption=wage](http://www.jobbank.gc.ca/wage-outlook_search-eng.do?reportOption=wage)

## **Working Hours**

You generally work between 8 and 10 hours a day, 40 to 50 hours a week. However, at times you may be required to work longer hours due to seasonal site access limitations, remote location or data gathering equipment requirements.

## **2. Skills, Education and Experience**

### ***Skills***

- Applied knowledge of math, physics, chemistry and biology
- Detailed observation skills
- Good physical stamina
- Excellent problem solving and decision making abilities
- Project management experience
- Ability to travel to field locations
- Good interpersonal and communication skills

### ***Education and Experience***

- University degree in geology, geological engineering, geochemistry, geophysics, or a related discipline is required.
- Registration with Engineers & Geoscientists British Columbia (formerly APEGBC) is required.
- A master's degree or a PhD may be required for some positions

### ***Qualifications***

***This occupation is regulated in British Columbia.***

This means that if you are working as an engineer or as a geoscientist in BC, you must either:

- Be registered as a Professional Engineer or Geoscientist in BC

*OR*

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

In order to become a registered member of Engineers & Geoscientists British Columbia you require:

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

For more information:

- **Engineers & Geoscientists British Columbia - Become a Member**  
<https://www.egbc.ca/Become-a-Member>

***Internationally trained professionals:*** if you have completed your P. Eng or P. Geo application process you may qualify as a “Provisional Member” with the 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

- **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'll 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* & *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*

#### ***Online Job Postings***

- **Engineering Central Canada**

<http://www.engcen.ca/>

- **Indeed.com**

[http://ca.indeed.com/advanced\\_search](http://ca.indeed.com/advanced_search)

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

- **TechJobs.ca**

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

- **Skilled Workers.com**

[http://www.skilledworkers.com/search\\_job/search.php](http://www.skilledworkers.com/search_job/search.php)

### ***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/>
- **Canadian Institute of Mining, Metallurgy and Petroleum**  
<http://www.cim.org/en/Services/Jobs.aspx>

### ***Identifying the Right Position***

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

For **geologists**, look for these related job titles (from NOC 2113):

- Geochemist /Geophysicist
- Hydrologist
- Mine Geologist / Mineralogist
- Petroleum Geologist / Petrologist
- Sedimentologist

For **geological engineers**, look for these related job titles (from NOC 2144):

- Geophysical Engineer
- Hydrogeological Engineer

Source: <http://noc.esdc.gc.ca/English/noc/welcome.aspx?ver=16>

## ***Creating a List of Potential Employers***

You can use directories to produce lists of employers who work in the mining or engineering industries 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>
- **Mines Handbook**  
Available at the Central Library, 380 Mi6C
- **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 "geological" 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 (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 pathfinders 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 and assistance. Registration and fees are required for membership.

- **Engineers & Geoscientists British Columbia**  
<https://www.egbc.ca/>
- **Canadian Society of Petroleum Geologists**  
<http://www.cspg.org>
- **Engineering Institute of Canada (EIC)**  
<http://www.eic-ici.ca>
- **Geological Association of Canada**  
<http://www.gac.ca>
- **Prospectors and Developers Association of Canada**  
<http://www.pdac.ca>
- **Society of Internationally Trained Engineers of British Columbia**  
<http://www.sitebc.ca>
- **Society of Punjabi Engineers and Technologists of British Columbia**  
<http://www.speatbc.org>
- **Geology Exploration & Mining. Online Resources**  
<http://geologydegree.org/mining-mineral-exploration/>  
Links to numerous associations & organizations in BC and elsewhere

## ***Industry Journals***

Search the Vancouver Public Library catalogue for journals related to your profession.

Examples at the Central Library:

- **Canadian Consulting Engineer**  
Available at the Central Library, 620.5 C212 and online at:  
<http://www.canadianconsultingengineer.com/>
- **CIM Magazine** / Canadian Institute of Mining, Metallurgy and Petroleum  
Available at the Central Library, 622.06 C21c and online at:  
<http://magazine.cim.org>
- **Canadian Mining Journal**  
Available at the Central Library, 622.05 C2125 and online at:  
<http://www.canadianminingjournal.com/>
- **Innovation**/ Association of Professional Engineers & Geoscientists of BC  
Available at the Central Library, 620.5 B86 and online at:  
<https://www.egbc.ca/Resources/News-and-Publications/Innovation-Magazine/Innovation-Past-Issues>
- **The Northern Miner**  
Available at the Central Library, 338.205 N87 and online at:  
<http://www.northernminer.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/>.*