

Chemical Engineers

A guide for newcomers to British Columbia



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1. Working as a Chemical Engineer [NOC 2134]

Job Description

Chemical engineers apply the principles of chemistry and other sciences in order to solve practical problems for a wide range of industries. Examples include helping companies use chemicals to produce everything from gasoline to food products.

As a chemical engineer, you perform the following duties:

- Conduct research into the development or improvement of chemical engineering processes and materials
- Design machines and processes to produce products or chemical effects, such as refining oil
- Oversee the construction, operation, and maintenance of the machinery
- Supervise technicians, technologists and other engineers
- Develop new products and safety testing techniques
- Carry out economic and technical feasibility studies

You may specialize in a specific industry, working with products and processes in:

- pulp and paper manufacturing
- pharmaceuticals
- petroleum refining
- energy processing
- plastics, adhesives and coatings production
- metal extraction and refining

Or you may specialize in an area that applies to various industries such as:

- process control
- pollution control
- fermentation processes

Sources:

- WorkBC Career Profile <http://workbc.ca/Careers> [search NOC 2134]
- Career Cruising (Profile for Chemical Engineer)
<http://www.vpl.ca/digital-library/career-cruising>
Available from the VPL Digital Library | Explore our Digital Library page

Industry Overview

In British Columbia there are new employment opportunities for chemical engineers due to industry growth and retiring workers.

Environmental protection is an area with considerable potential for employment growth. This specialization is relatively new and is still undergoing development.

You may also find work in the petroleum, petrochemical and mining industries.

More information:

- Canadian Occupational Projection System
<http://occupations.esdc.gc.ca/sppc-cops/.4cc.5p.1t.3onsummaryd.2tail@-eng.jsp?tid=72>
- Engineering Labour Market – Engineers Canada
<https://engineerscanada.ca/sites/default/files/Labour-Market-2015-e.pdf>

Job Outlook in BC

Employment Outlook Chemical Engineers

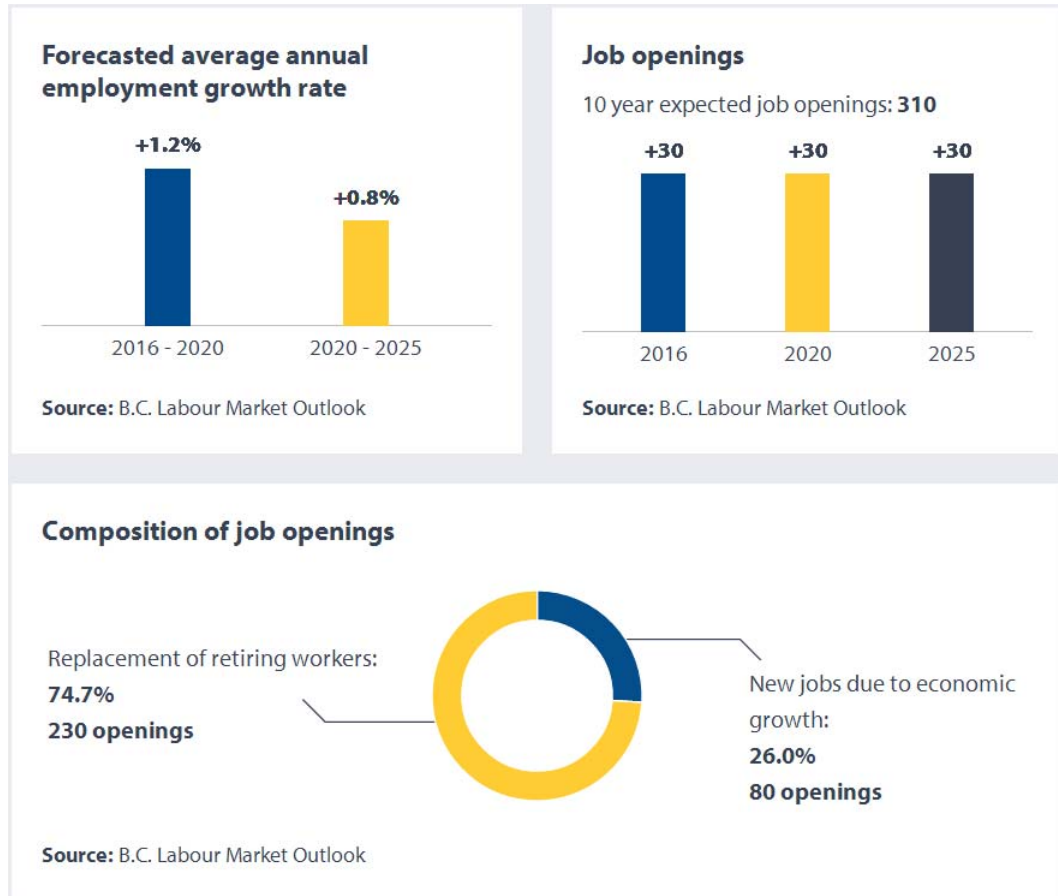


Chart from WorkBC

WorkBC provides job openings in BC regions:

Region	Employment in 2016	Average Annual Employment Growth	Expected Number of Job Openings
Vancouver Island	110	-1.4%	30
Lower Mainland / Southwest	710	1.3%	280

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

- **WorkBC Career Profile** <http://workbc.ca/Careers> [search NOC 2134]
- **Career Cruising** (Profile for Chemical Engineer)
<http://www.vpl.ca/digital-library/career-cruising/>
Available from the VPL Digital Library | Explore our Digital Library page

Types of Employers

Chemical Engineers are employed in a wide range of organizations including:

- manufacturing and processing industries
- consulting firms
- government
- research organizations
- educational institutions
- professional, scientific or technical businesses

You can work for companies ranging from huge oil refineries to small breweries.

Salary

The median annual salary for chemical engineers working full-time in BC is \$81,568. Your salary depends on experience, level of education, location, and employer.

The Engineers & Geoscientists British Columbia *2016 Membership Compensation Survey* reported the annual median salary for consulting chemical engineers was \$116,500.

In addition to a salary, most full-time engineers receive health and dental benefits, paid sick days, and paid vacations.

Chemical Engineers

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

In BC regions, you can expect to make:

Location	Wage (\$/hr)		
	Low	Median	High
British Columbia	25.37	42.00	74.62
Vancouver Island and Coast Region	25.37	42.00	74.62

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

Working Hours

Chemical engineers usually work full-time, 8 to 9 hours a day, and 40 to 50 hours a week.

Evening and weekend work is rare but may be required in emergencies.

Source: Career Cruising

2. Skills, Education and Experience

Skills

- You should be creative, innovative, analytical, and detail-orientated
- Good at problem solving
- Strong critical thinking abilities
- Experience with project management
- Able to work well individually and as part of a team
- Ability to write proposals and make presentations

Education and Experience

- Bachelor's degree in chemical 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 Chemical 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 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://engtechinbc.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'll find job advertisements in local newspapers, trade journals, and electronic sources, as well as through professional association publications.

Local Newspapers

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

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

- **Indeed.com**
http://ca.indeed.com/advanced_search
- **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/>
- **Chemical Institute of Canada**
<http://niche.workopolis.com/frontoffice/enterSeekerHomeAction.do?sitecode=pl56>

Identifying the Right Position

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

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

- biochemical engineer
- chemical process engineer
- environmental chemical engineer
- industrial hygiene engineer
- petrochemical engineer
- polymer engineer
- process control engineer, chemical
- refinery engineer
- waste treatment 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 "chemical engineering" or NAICS Code "541330" [Engineering Services]

<http://www.ic.gc.ca/app/ccc/srch/cccBscSrch.do?lang=eng&prtl=1>

- **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 "chemical 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 chemical engineers in BC and Canada can provide information and 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 (formerly APEGBC)**
<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/>
- **Chemical Institute of Canada (CIC)**
<http://www.cheminst.ca/>

Industry Journals

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

Some titles 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** / 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>
- **Chemical Engineering Process** Available at VPL Central Library, 660.2805 C51 and online at: <http://www.iche.org/resources/publications/cep>

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/>.