

Mechanical Engineers

A guide for newcomers to British Columbia



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1. Working as a Mechanical Engineer [NOC 2132]

Job Description

Mechanical engineers design, create, test, and conduct research into machines and mechanical systems of all kinds.

Working as a **Mechanical Engineer** you may perform the following duties:

- Meet with managers and other engineers to discuss the expectations for the new machine
- Design machines and products using computer-aided design (CAD) software
- Conduct research into the feasibility, design, and performance of mechanisms, components, and systems
- Plan and manage projects and prepare material, cost and timing estimates, reports, and design specifications for machinery and systems
- Oversee the manufacture, operation, and maintenance of the machines
- Test and repair machines when necessary
- Supervise technicians, technologists, and other engineers and review and approve designs, calculations, and cost estimates.

Source: WorkBC, Career Profiles <http://workbc.ca/Careers> [search NOC 2132]

Industry Overview

Qualified and experienced mechanical engineers are in demand in B.C. Entry level jobs may be filled directly from Canadian graduates. The shortage of experienced workers may come from qualified immigrants bringing knowledge from abroad.

The aeronautics, robotics, process automation, environmental standards industry will be sources of employment growth for mechanical engineers.

Source: Job Bank Canada, <http://www.jobbank.gc.ca/> [search NOC 2132]

Job Outlook in BC

Mechanical 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	130	0.3%	15
Lower Mainland / Southwest	1590	1.3%	580
Thompson-Okanagan	140	2.5%	65

You can learn more about the working as a mechanical engineer from:

- **Work BC, Career Profiles** at <http://www.workbc.ca/Careers/> [search NOC 2132]
- **Career Cruising** database [profile for Mechanical Engineer]
Available from the VPL Digital Library | Explore our Digital Library page
<http://www.vpl.ca/digital-library/career-cruising/>

Types of Employers

Mechanical engineers work for:

- consulting engineering companies
- manufacturing companies
- architectural companies
- government agencies

You may also consider jobs as technical equipment representatives or managers in an industrial company.

Salary

In BC, the median annual salary for mechanical engineers is \$73,830. Your salary depends on education, experience, industry and employer. You generally earn more if you have master's degree or PhD.

If you work full-time you often receive benefits such as dental coverage, paid sick & vacation days and pension plans. Exact benefits vary by employer.

Sources: WorkBC & *Career Cruising*

Job Bank Canada provides hourly wages for **Mechanical Engineers [NOC 2132]**

Location	Wage (\$/hr)		
	Low	Median	High
British Columbia	23.08	31.28	57.69
Lower Mainland - Southwest Region	20.00	28.85	51.28
Thompson--Okanagan Region	23.08	31.28	57.69

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

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 – Mechanical	\$87,695	\$70,000	\$80,000	\$102,000
Bachelor's degree – Base salary – Mechanical	\$100,721		\$92,570	

Source <https://www.egbc.ca/Careers/Compensation-Survey>

Working Hours

You usually work long hours, 8 to 9 hours a day or 45 to 50 hours a week. Longer hours and weekends may be required when deadlines are approaching, or if an important piece of machinery has broken down.

You may work especially long shifts if you are just starting out in the industry.

From *Career Cruising* database (Profile for Mechanical Engineer)

2. Skills, Education and Experience

Skills

- Critical thinking and problem solving
- Analytical and detail oriented
- Decision making
- Project management and team work
- Proposal writing and presentations
- Financial management
- Committee work - industry ethics

Education and Experience

To work as an Industrial and Mechanical Engineer you require:

- a Bachelor's degree in industrial engineering or in a related engineering discipline
- licensing by Engineers and Geoscientists British Columbia in order to practise as a *Professional Engineer (P.Eng)*

You may also require:

- a Master's degree or doctorate in a related engineering discipline

Qualifications

This occupation is regulated in British Columbia.

*Entry level engineering positions **do not** require professional designation in BC.*

You must be registered with Engineers & Geoscientists British Columbia (formerly APEGBC) to use the title *Professional Engineer* in BC.

However, you can work in engineering, even if you haven't been licensed by a professional engineering association, as long as you are supervised by a professional engineer (P.Eng).

Only licensed engineers are permitted to undertake and assume responsibility for engineering projects in BC. Licensing is required to approve engineering drawings and reports, and to practise as a Professional Engineer (P. Eng.)

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
- 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 Engineers

If you are an internationally trained mechanical engineer you may qualify for provisional membership with Engineers & Geoscientists British Columbia if you meet all requirements including: education, work experience, language skills, good character, professionalism and ethics.

For more information:

- **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'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

- Available in print at the Central Library or online at <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
- **Skilled Workers.com**
http://www.skilledworkers.com/search_job/search.php
- **TechJobs.ca**
<http://www.technicaljobs.ca/en>
- **T-Net British Columbia**
<http://www.bctechnology.com/jobs/search.cfm>

Professional Associations' Career Resources

- **Association of Consulting Engineering Companies British Columbia (ACEC-BC)**
<http://www.acec-bc.ca/resources/>
- **Engineers and 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 ads, you'll find a range of different job titles that are relevant.

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

- Acoustics Engineer
- Design Engineer – Mechanical
- Energy Conservation Engineer
- Engineer, Power Generation
- Heating, Ventilation, and Air Conditioning (HVAC) Engineer
- Nuclear Engineer
- Robotics Engineer
- Aeronautics 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.

- **BC Tech, Technology Guide** (special issue of BC Tech magazine)
Includes biggest BC tech companies and the top 100 tech companies in BC.
Available at the Central Library, 380 EL3CBh
- **Business in Vancouver Book of Lists.** Biggest Engineering Firms in BC.
Available at the Central Library, 338.9711 B97b B97b or online at
<http://www.biv.com/lists>
- **Canadian Construction Association Membership Directory**
<http://www.cca-acc.com/en/membership/membership>
- **Association of Consulting Engineering Companies British (ACEC-BC),**
Directory of CEBC Member Firms
<http://www.acec-bc.ca/membership/directory-of-members.aspx>
- **HPAC (Heating Plumbing Air Conditioning)**
July/August Issue Directory, Available at the Central Library 697.05 H441
- **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 "mechanical
engineering" and click SEARCH. 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 mechanical engineers in BC and Canada provide assistance to individuals. Registration and fees are required for membership.

- **Canadian Society of Mechanical Engineering**
<http://www.csme-scgm.ca/>
- **Association of Consulting Engineers Companies of British Columbia**
<http://www.acec-bc.ca/>
- **Engineers and Geoscientists British Columbia (formerly APEGBC)**
<http://www.egbc.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, for example:

- **Canadian Consulting Engineer** / Association of Consulting Engineers
Available at the Central Library 620.5 C212 or online at:
<http://www.canadianconsultingengineer.com/>

- **HPAC Engineering** (Heating/Piping/Air Conditioning)
Available at the Central Library 697.05 H441 and online at:
<http://hpac.com/>

- **Innovation** / Engineers & Geoscientists British Columbia
Available at the Central Library 620.5 B86 or online at:
<https://www.egbc.ca/Resources/News-and-Publications/Innovation-Magazine>

***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/>.*