

Industry Profile: Engineering

A guide for newcomers to British Columbia



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1. Overview of the Engineering Industry

Introduction

BC is projected to have approximately 31,150 job openings from 2014-2024 for engineers, geoscientists, technologists and technicians. Over 40% of new workers in this sector will be newcomers to Canada.

Engineers, Geoscientists, Technologists and Technicians in
B.C.: Engineering & Geoscience Labour Market Study

Canada experienced an unprecedented slowdown in economic activity in the first half of 2020 due to the COVID-19 pandemic. However, B.C.'s economy is expected to perform better than some other regions of the country, in part due to continued progress on large-scale projects, including the LNG Canada terminal and the associated pipeline. Boosted by government capital spending, large engineering and infrastructure construction is set to rise in 2021.

In BC, the 30 top growth industries that help fuel its economy include the following ***technology driven sectors that need qualified engineering professionals and technologists/technicians:***

- oil and gas engineering construction
- residential building construction
- pipeline transportation and natural gas
- computer systems design
- oil & gas extraction & petroleum refining
- mining
- wood products manufacturing

Sources:

- Business Council of BC: An Update on BC's Fastest Growing Industries [2012-2017] <https://bccbc.com/insights-and-opinions/an-update-on-b-c-s-fastest-growing-industries-a-diverse-group-but-resources-still-prominent>
- TD Provincial Economic Forecast, September 2020 <https://economics.td.com/provincial-economic-forecast>

Forecast of Engineering Job Openings (2015-2024) & Projected Employment Gap: Engineers, Geoscientists, Technologists & Technicians

The report, *Labour Market Information (2015-2024) Engineers, Geoscientists, Technologists and Technicians in B.C.* forecasts that B.C. faces a considerable demand for new engineers, geoscientists, technologists and technicians over the next 10 years **projecting a net of 11,555 new, additional jobs by 2024**. With the **addition of retirement, 31,150 job openings will need to be filled over the 10 years** of the forecast (2015-2024).

From 2015 to 2019, labour market expansion will drive job openings. However, over the course of the 10- year period, **retirement will account for the majority of job openings**, with one quarter of workers today expected to

Engineering/Geoscience Job Openings

Region	Job Openings 2015-2019	Job Openings 2020-2024	Total Job Openings
Lower Mainland	15,038	10,239	25,277
North	344	291	635
Southeast	1,427	1,013	2,440
Vancouver Island Coast	1,568	1,216	2,784
BC Total	18,398	12,749	31,147

Source: Engineering & Geoscience Labour Market Study

retire and leave the labour market in the next decade. The **rate of supply is expected to lag job openings throughout the entire 10-year outlook** – up to 10 per cent in the first five years.

It is projected that by 2024, 52% of these openings will be filled by new graduates, **40% by new immigrants**, 1% by inter-provincial mobility and 7% by inter-occupational mobility.

Anticipated Supply for Engineering & Geoscience Job Openings through 2024

Region	New Entrants	Immigration	Inter provincial & interregional	Inter-professional
Lower Mainland	12,047	11,887	-1,278	2,046
North	569	-1	37	-3
Southeast	1,531	62	792	-16
Vancouver Island Coast	1,653	66	819	165
BC Total	15,812	12,059	393	2186

Source: Engineering & Geoscience Labour Market Study

Regional Distribution of Engineers*

84% in Lower Mainland, 1% in Northern BC, 6% in Southeastern BC, 9% in Vancouver Island Coast
 (*14 engineering occupations)

Regional Distribution of Technologists/Technicians*:

71% in the Lower Mainland; 5% in Northern BC; 12% in Southeastern BC; and 12% in Vancouver Island Coast
 (*16 Technologist and Technician occupations)

For more information:

- ***Labour Market Information (2015-2024) Engineers, Geoscientists, Technologists and Technicians in B.C.: Engineering & Geoscience Labour Market Study***

https://www.acec-bc.ca/media/34013/ett-key-highlights-document_final.pdf

(Jointly published by Engineers & Geoscientists BC (formerly APEGBC), Association of Consulting Engineering Companies of BC, Applied Science Technologists and Technicians of BC (ASTTBC), and the Asia Pacific Gateway Skills Table)

- ***Digging Deeper: Understanding the Engineer, Geoscientist, Technologist, and Technician Labour Market in the Asia Pacific Gateway, 2017*** https://www.egbc.ca/getmedia/5b185134-5a51-49b1-bad2-09a7a33487ff/Digging-Deeper_Understanding-the-EGTT-in-the-APG-FINAL.pdf.aspx

- ***Engineering Labour Market in Canada: Projections to 2025, Engineers Canada***

https://www.acec.ca/publications/engineering_labour_market_canada.html

2. Occupations in the Engineering Industry

Engineers

Occupation Title	NOC Code
Civil Engineers	2131
Mechanical Engineers	2132
Electrical/Electronics Engineers	2133
Chemical Engineers	2134
Industrial/Manufacturing Engineers	2141
Metallurgical Engineers	2142
Mining Engineers	2143
Geological Engineers	2144
Petroleum Engineers	2145
Aerospace Engineers	2146
Computer Engineers	2147
Engineering Managers	0211
Software Engineers	2173
Other Professional Engineers	2148

Source: Engineering Labour Market in Canada, Engineers Canada

Technologists and Technicians Occupations*

NOC	Occupation Title	NOC	Occupation Title
2211	Chemical Technologists and Technicians	2252	Industrial Designers
2212	Geological and Mineral Technologists & Technicians	2253	Drafting Technologists and Technicians
2231	Civil Engineering Technologists & Technicians	2254	Land Survey Technologists and Technicians
2232	Mechanical Engineering Technologists & Technicians	2255	Technical Occupations in Geomatics and Meteorology
2233	Industrial Engineering and Manufacturing Technologists and Technicians	2262	Engineering Inspectors and Regulatory Officers
2241	Electrical and Electronics Engineering Technologists and Technicians	2281	Computer Network Technicians
2244	Aircraft Instrument, Electrical and Avionics Mechanics, Technicians and Inspectors	4161	Natural and Applied Science Policy Researchers, Consultants and Program Officers
2251	Architectural Technologists and Technicians	9212	Supervisors, Petroleum, Gas and Chemical Processing and Utilities

***technologist & technician** occupation groups included in the *Engineering & Geoscience Labour Market Study*
<https://www.apeg.bc.ca/Careers/Engineering-and-Geoscience-Labour-Market-Study>

Engineering Industry: Top Occupations in Demand across BC regions:

WorkBC’s list of **High Opportunity Occupations** includes the following engineering and technology careers:

- software engineers & designers
- civil engineers
- electrical & electronics engineers
- mechanical engineers
- engineering managers
- computer engineers

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- geological engineers
- petroleum engineers

The following table shows the projected job openings for these in-demand careers and the approximate percentage of openings that will be **filled by migrants moving to BC** (both international & interprovincial migrants):

Engineering Occupations	Total Number Job Openings in BC 2019-2029
Software Engineers & Designers NOC 2173 Net in-migration to BC: 25% of openings, 2015-2019 33% of openings, 2020-2025	4480
Civil Engineers NOC 2131 Net in-migration to BC: 50% of job openings, 2015-2019 55% of job openings for 2020-2025	4190
Electrical & Electronics Engineers NOC 2133 Net in-migration to BC: 40% of job openings, 2015-2019 and 2020-2025	2020
Mechanical Engineers NOC 2132 Net in-migration to BC: 45% of job openings, 2015-2019 55% of job openings for 2020-2025	1850
Computer Engineers NOC 2147 Net in-migration to BC: approx. 15% of job openings, 2015-2019 approx. 25% of job openings for 2020-2025	1020
Geological Engineers NOC 2144	400
Petroleum Engineers NOC 2145	90

**Net in-migration= international & interprovincial migrants moving to BC

Sources:

- British Columbia Labour Market Outlook 2019-2029
<https://www.workbc.ca/labour-market-industry/labour-market-outlook.aspx>
 [includes the top 100 opportunity occupations]
- Engineering Labour Market in Canada: Projections to 2025
<https://www.engineerscanada.ca/reports/engineering-labour-market-report>
 [provides the *net in-migration breakdown*]

3. Finding Jobs in the Engineering Industry

Online Job Postings

- **Indeed.ca**
https://ca.indeed.com/advanced_search
- **Engineers & Geoscientists British Columbia**
<https://www.egbc.ca/Careers/Career-Listings>
- **ASTTBC TechJobs: Applied Science Technologists and Technicians of BC**
<https://asttbc.org/jobpostings/>
- **Association of Consulting Engineering Companies: British Columbia**
<https://www.acec-bc.ca/resources/> select: **Job Posts**
- **TechJobs.ca**
<https://www.techjobs.ca/en/>
- **T-Net**
<https://www.bctechnology.com/jobs/search.cfm>
- **Talent.com**
<https://ca.talent.com/>

Creating a List of Potential Employers

You can use directories to produce lists of employers in this industry in British Columbia. Contact them directly to find out if they're hiring.

- **Association of Consulting Engineering Companies**
https://www.acec.ca/business_search.html
- **BC Tech Association**
<https://wearebctech.com/membership/member-directory/>
- **Business in Vancouver. Book of Lists. "Biggest Engineering Firms in BC"**
Available at the Central Library 338.9711 B97b or online
<https://biv.com/lists>

- **Reference Canada**

<https://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 the type of engineering work that is relevant to you, e.g. "civil engineers" **or** "mechanical engineers" **or** "drafting" and click SEARCH. Select the appropriate heading(s) that match your career. Lower down, select the Province, choose the cities, and click the "View Results" button.

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4. Additional Resources

Still looking for more information? Try looking at the following resources:

- **ASTTBC Technology Professionals: Applied Science Technologists and Technicians of BC**
<https://asttbc.org/> [click on 'technology careers']
- **Engineers & Geoscientists BC**
<https://www.egbc.ca/Careers>
- **Association of Consulting Engineering Companies: British Columbia**
<https://www.acec-bc.ca/resources/>
- **Engineering Institute of Canada, EIC**
<https://eic-ici.ca/>
- **Engineers Canada**
<https://engineerscanada.ca/>
- **Structural Engineers Association of British Columbia**
<https://www.seabc.ca>
- **Society of Internationally Trained Engineers of British Columbia**
<https://www.sitebc.ca/>

***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 <https://www.vpl.ca/siic>.*