

Geological Engineer

Engineering built on rock, soil and groundwater: tunnels, mine slopes, dams and contaminated ground.

TYPICAL PAY

\$104,000

a year, full time

PAY RANGE

\$65k to \$173k

starting to experienced

TIME TO QUALIFY

4 to 8 years

after high school

DEMAND

Good

job outlook

LICENCE NEEDED

Yes

regulated job

WHERE YOU WORK

**Consulting firms, mine sites,
construction projects, government...**

How you get there

- 1 High school** Grades 11 and 12
Calculus, Advanced Functions, Physics and Chemistry. Earth science or geography is a useful extra.
- 2 Accredited geological engineering degree** 4 to 5 years with co-op
Only a handful of schools offer it. You can also reach the same work through civil engineering with a geotechnical focus.
- 3 Field school** 2 to 6 weeks
A few weeks of mapping outdoors, usually after second or third year. Most people remember it as the best part of the degree.
- 4 Engineer-in-training** About 4 years
Register with your provincial regulator and log about four years of supervised work, usually mixing office design with site investigation.
- 5 P.Eng (professional engineer) licence** After about 4 years
Pass the law and ethics exam, submit your experience record, and you can seal your own designs.

Pros and cons

- + Outdoor field work and technical office work in the same job
- + Your advice decides whether a slope, tunnel or dam is safe
- + Demand from mining, construction, water and environmental cleanup at once
- Long stretches away from home in camps and motels
- Weather does not care about your schedule
- Mining and construction both slow down in a downturn

Good to know

A very small graduating class

Geological engineering is one of the rarest engineering degrees in Canada. Waterloo notes its program is one of only two in Ontario, and classes are often a few dozen students rather than several hundred.

A dam failure changed the rules

When the Mount Polley tailings dam in British Columbia failed in 2014, it released mine waste and water into nearby lakes and creeks. The review that followed tightened how tailings dams are designed, inspe...

Optional boosts

Rock mechanics. Hydrogeology. Dam and tailings expertise. A master's degree.

Where these numbers come from

Job Bank: Geological engineer, wages (updated Nov 2025)
Engineers Canada
APEGA, the Alberta regulator for engineering and geoscience
University of Waterloo: Geological Engineering

Numbers checked September 2026. Pay figures are typical full-time annual amounts in Canadian dollars, based on Government of Canada Job Bank wage data and published salary grids. They vary by province, employer and experience. Tuition is for domestic students. Sources, links and the click-through version: <https://career.help/ca/careers/geological-engineer>



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