

APPLIED SCIENCE 450

Professional Engineering Practice

The EGBC Act and Code of Ethics

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The topics

- EGBC definition of *professional engineering* and *professional engineer*. The *Engineer in Training* designation
- The difference between doing engineering and practicing engineering
- When does the Code of Ethics apply?
- How to contravene Principle 1 of the Code of Ethics
- Conflict between Principles in the Code of Ethics

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EGBC definition of professional engineering

"**practice of professional engineering**" means the carrying on of chemical, civil, electrical, forest, geological, mechanical, metallurgical, mining or structural engineering, and other disciplines of engineering that may be designated by the council and for which university engineering programs have been accredited by the Canadian Engineering Accreditation Board or by a body which, in the opinion of the council, is its equivalent, and includes reporting on, designing, or directing the construction of any works that require for their design, or the supervision of their construction, or the supervision of their maintenance, such experience and technical knowledge as are required under this Act for the admission by examination to membership in the association, and, without limitation, includes reporting on, designing or directing the construction of public utilities, industrial works, railways, bridges, highways, canals, harbour works, river improvements, lighthouses, wet docks, dry docks, floating docks, launch ways, marine ways, steam engines, turbines, pumps, internal combustion engines, airships and airplanes, electrical machinery and apparatus, chemical operations, machinery, and works for the development, transmission or application of power, light and heat, grain elevators, municipal works, irrigation works, sewage disposal works, drainage works, incinerators, hydraulic works, and all other engineering works, and all buildings necessary to the proper housing, installation and operation of the engineering works embraced in this definition;

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EGBC definition professional engineer and EIT

"**professional engineer**" means a person who is registered or licensed as a professional engineer under this Act;

The **Engineer-in-Training** (EIT) category of membership is for people who have completed their education and are working towards obtaining the required four years of work experience in order to obtain their Professional Engineer (P.Eng.) designation.

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And after 4 years of EIT experience

A certificate



and a seal



Must be signed and dated if used

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Clause 20(9) of the Act

A member or licensee receiving a seal or stamp under this section must use it, with signature and date, to seal or stamp estimates, specifications, reports, documents, plans or things that have been prepared and delivered by the member or licensee in the member's or licensee's professional capacity or that have been prepared and delivered under the member's or licensee's direct supervision.

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Can I do engineering without being registered?

Of course you can!

But you cannot *practice* engineering.

If you are not registered

You must not represent yourself as a registered professional engineer.



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Key question: Who assumes liability?

If you work on your own or in a partnership, you may need professional liability insurance. (This can be expensive and is often a major barrier to entry.)

If you work for a large company or a professional engineering company, the company purchases professional liability insurance and assumes liability.

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Whether or not you are registered ...

be careful of doing pro bono engineering work for friends, family, community groups, or charities.

Classic typical request:

“We need a solar electrical system for our cabin. You’re an engineer, Can you design something for us?”



Fear is the correct response to such requests

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List of FAQs on Ethics – worth looking at

<https://www.egbc.ca/Complaints-Discipline/Ethics,-Law,-and-Conduct/Ethics,-Law,-and-Conduct-FAQ>

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Does the Code of Ethics apply to me ...

... even if I am not doing or practicing engineering?

Yes, registration as an EIT or PEng renders the Code of Ethics binding on you *personally* and wherever you happen to be.

So if you see or perceive a situation that's unsafe, damaging or potentially damaging, or that could lead to a conflict with any other principle of the code of ethics, you should report it or do something about it.

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Artisanal gold mining: a dangerous activity and an environmental disaster



Step 1: Gather sediments containing gold particles



Step 2: Separate heavy particles from light soil particles

Step 3: Form gold mercury amalgam



Step 4: Cover nose and burn off mercury



Source: Science, Sept 27, 2013

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Code of Ethics Principle 1

Hold paramount the safety, health, and welfare of the public, the protection of the environment, and promote health and safety within the workplace.

<https://www.egbc.ca/About/Governance/The-Act-Bylaws-and-Code-of-Ethics>

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How do you contravene Principle 1?

It's good to know that no one does it deliberately!

It always happens because some other Principle is contravened.

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For example...

Principle 3:

Provide an opinion on a professional subject only when it is founded upon adequate knowledge and honest conviction.

Suppose you provide an opinion that is not founded on adequate knowledge and a mistake occurs as a result.

Then, as a result of the mistake, an unsafe or environmentally damaging situation results.

Result: contravention of P1

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Conflicts between principles

Remember Kantian or rule-based ethics:

“Always tell the truth”

“Do not harm people”

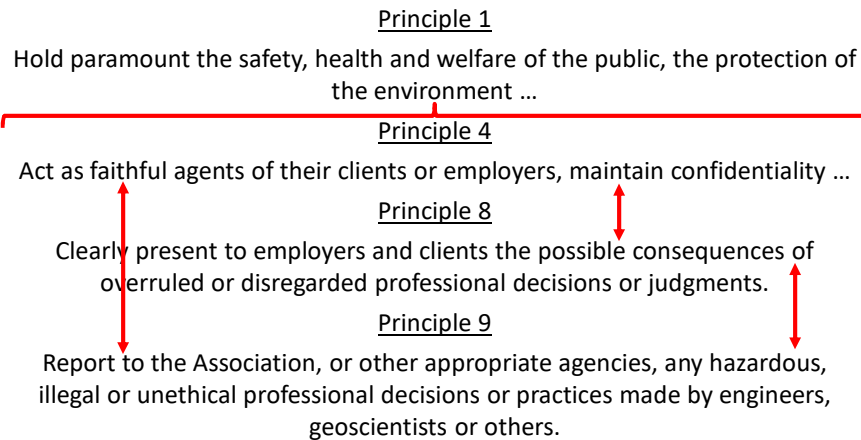
What if telling the truth will harm someone?

One solution to this problem was:

Rule violation is possible if one accepts that others may do the same at any time under the same circumstances

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Potential conflicts in EGBC code



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Suppose ...

the company you work for is doing something bad. The bad thing is likely in contravention of P1, but it could be anything else such as doing work for which they are not qualified in contravention of P2:

Undertake and accept responsibility for professional assignments only when qualified by training or experience.

Do you divulge this to authorities in accordance with P9 or remain a faithful agent of your employer in accordance with P4?

This is the conflict associated with whistleblowing.

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That's all Folks

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