

Regulations of the Engineering Profession

The Evolution of Licensing Laws

- CSCE held its first meeting in 1887
- Canada followed the British Model
- Society established and maintained High standards of admission
- United States were the first nation to regulate an engineers work

The Evolution of Licensing Laws

- In 1918, the CSCE changed to the Engineering Institute of Canada (EIC)
- A model of regulations was enacted in 1919
- By 1922, laws were put in place to ensure that proper licenses were required to practice engineering

Provincial and Territorial Acts

- Each Province has its own laws and regulations concerning the engineering profession.
- Notable acts include:
 - Quebec: The Engineers Act
 - Ontario: Professional Engineering Act
 - Alberta: Engineering, Geological and Geophysical Professions act

Provincial and Territorial Acts

- Each Act includes:
 - The purpose of the act
 - The legal definition of engineering
 - The procedure for formulating an Association
 - Standards for the admission to the Association
 - Procedures for establishing specific regulations to govern the practice of Engineering

Provincial and Territorial Acts

- Each act includes (continued)
 - A code of ethics to guide personal actions of the members
 - Disciplinary Procedures
 - Procedures for establishing by-laws to govern the association 's administration and to elect a governing council

Legal Definition of Engineering

- A proper definition of engineering is required to delineate the boundaries between engineers and other profession
- Each definition is inscribed in the provincial act and differs in each province
- However, the CCPE has defined a national definition

Legal Definition of Engineering

- The CCPE holds an exemption for any who...
 - Holds a recognized honors or higher degree in one or more of the physical, chemical, life, computer or mathematical sciences, or who possesses an equivalent combination of education, training, and experience,...from practicing natural science which ... means any act requiring the application of scientific principles , competently performed

Legal Definition of Engineering

- Any act of planning, designing, composing, evaluating, advising, reporting, directing, or supervising, or managing any of the foregoing, that requires the application of engineering principles and that concerns the safeguarding of life, health, property, economic interests, the public welfare or the environment

Legal Definition of Engineering

- U.S. definition of Engineer:
 - The term engineer , with the intent of this act , shall mean a person who is qualified to practice engineering by reason of special knowledge and use of mathematical, physical, and engineering sciences and the principles and methods of engineering analysis and design, acquired by engineering education and experience.

Provincial and Territorial Association of Professional engineers

- Each province has its own self-governing Association of Professional Engineers.
- Adequate regulation only began in the 1920's
- Today, licenses are required to practice engineering
- All regulations can be found in the Provincial Act of Amendments

Provincial and Territorial Association of Professional engineers

- Regulations, by-laws and codes of ethics have been written for each province and territory.
 - Regulations are rules set up to implement or support the Act; they concern topics such qualifications for admission to the Association and Professional conduct
 - By-Laws are rules set up to administer the Association itself. They concern the methods for electing members to the association council, financial statements, committees, and so on...
 - The code of ethics is a set of rules of personal conduct to guide individual engineers. Every engineer must be familiar with and endeavor to follow this very important document. The code of ethics is a component of the Professional practice Exam and is therefore is discussed in detail in this text.

Provincial and Territorial Association of Professional Engineers

- Since the regulations, by-laws and code of ethics are set up under the authority of each professional Engineering Act, they govern the profession with the *force of law*.
- Engineering is a self-regulated profession

Admission to the Engineering Profession

- In order to receive a license six conditions must be considered:
 - Citizenship
 - Age
 - Education
 - Examinations
 - Experience
 - Character

Admission to the Engineering Profession

- The six conditions
 - Citizenship: The applicant must be a citizen of Canada or have the status of a permanent resident.
 - Age: The applicant must be the minimum age of 18 years or the legal age of a majority in most provinces except the Yukon, which has a minimum age of 23 years.

Admission to the Engineering Profession

- Education: The applicant must prove compliance with academic requirements.
- Examinations: Examinations might be required.
- Experience: The applicant must prove compliance with experience requirements
- Character: The applicant must be of good character, determined mainly from other references.

Academic Requirements

- Usually determined by a board of examiners or an academic committee
- The academic accomplishments of the applicant is the most important part of the admission process
- Graduation from an accredited program at a Canadian university grants full exemption from the examination process (except the professional practice exam)

Academic Requirements

- Degrees in engineering from accredited U.S. universities are also recognized as equivalent to Canadian Degrees
- However, depending on circumstances, certain examinations may be required in order to confirm the engineers knowledge
- Applicants must provide full documentation to substantiate their claims of academic qualifications.

Examinations

- Non university grads may apply to the engineering profession
- Non graduates must complete a set of examinations
- 16-18 exams lasting 3 hours may be required to enter a specific branch of engineering

Experience Requirement

- Responsibility of each applicant to ensure adequate documentation that the experience requirements have been met
- Applicants experience is evaluated on:
 - Nature
 - Duration
 - Currency
 - Quality

Experience Requirement

- Nature: the experience is expected to be similar to the applicants area of study.
- Duration: The Association usually requires at least 2 years of engineering work upon completion of a degree. However some provinces insist on at least 4 years of experience.

Experience Requirement

- **Currency:** The “recentness” of the experience is important. Applicants benefit from experiences which are recent in nature.
- **Quality:** Each applicant must prepare an experience resume and explain how the experience satisfies the requirements.
 - 5 major criterias

Experience Requirement

- The five criteria:
 - Application of theory
 - Practical experience
 - Management of Engineering
 - Communication skills
 - Social Implications of Engineering

Licensing of Engineering Corporations

- Licensing depends on province
- Protection of the public is the key issue
- Corporations should identify the individuals who are responsible for providing the engineering services
- Certification of Authorization must be held by engineers in order to provide their services

Consulting Engineers

- Term is only regulated in Ontario
- To qualify as a “Consulting Engineer”:
 - Individual must have at least 2 years of private practice experience
 - Must have at least 5 years of satisfactory experience since becoming a member
 - Must pass examinations that may be prescribed by the Association Council

Engineers seal

- Each engineer must possess his own seal to denote that he is licensed
- All the final work must be sealed and signed by the appropriate engineer
- The seal carries a significant legal responsibility
- The individual who signs and seals for the product is taking full legal responsibility for problems that may arise

Professional Misconduct

- Established to protect the public's welfare
- Necessary to discipline rogue engineers
- The Provincial Act empowers each association the right to reprimand, suspend or expel any member which is guilty of professional misconduct

Professional Misconduct

- Professional Misconduct is defined as negligence, incompetence or corruption
- Committee of Engineer appointed by the council oversee the hearings
- Most complaints reported are those that deal with violations of an engineers code of ethics