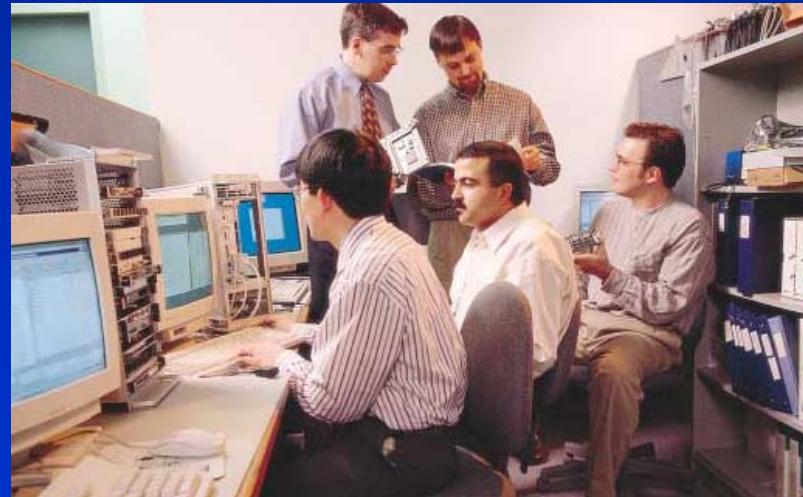


*SFU ENSC 406*

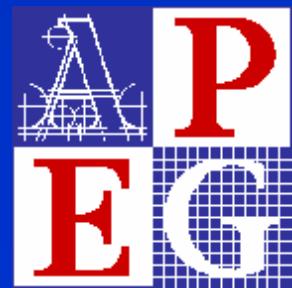
# **Engineers and Geoscientists: A History and the Professions**

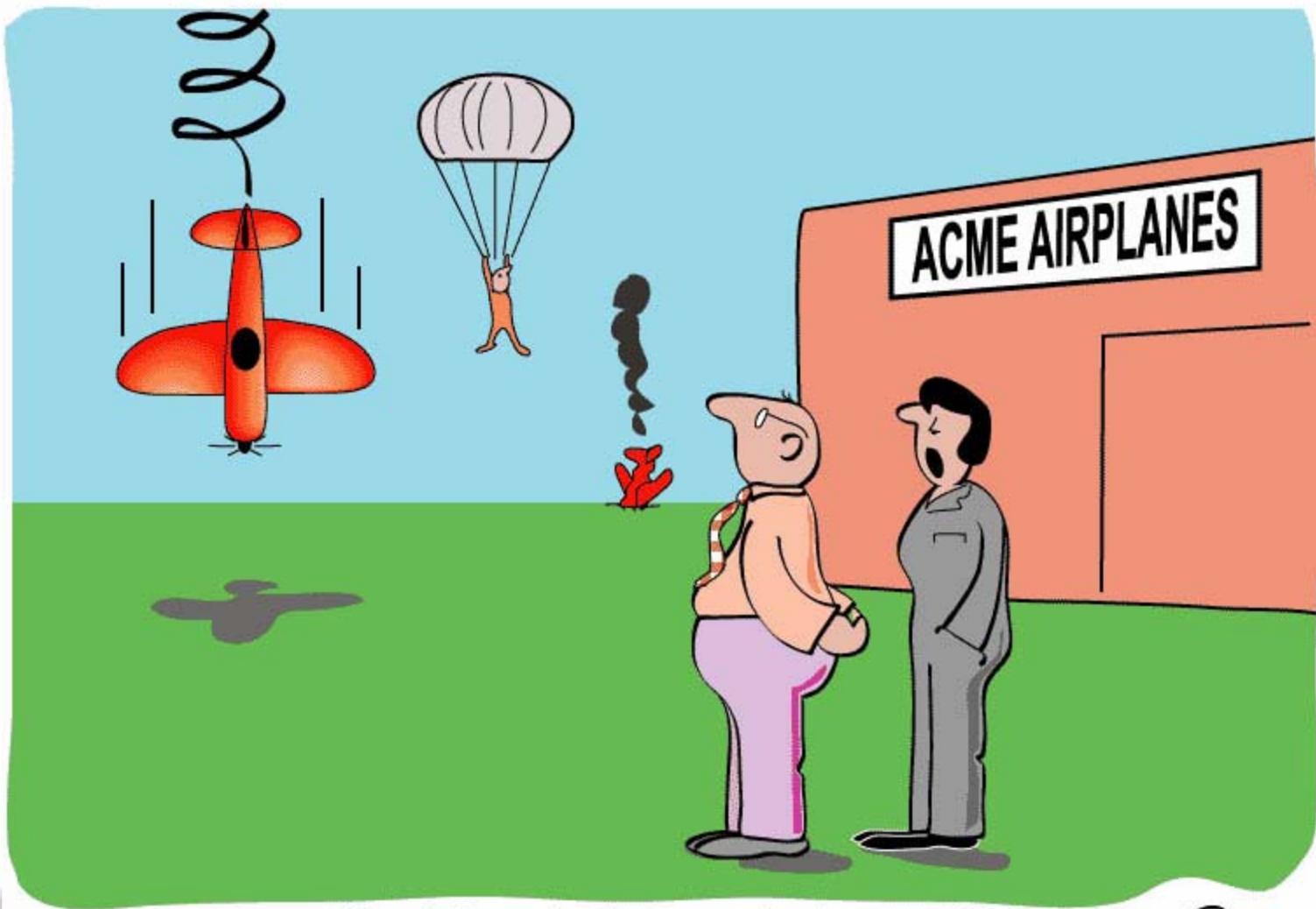
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Anne Garrett, P.Eng.  
APEGBC Executive Director & Registrar



January 15, 2004





"So... Is it true that before coming here as chief design engineer, you developed operating systems for PCs?"

B. Brownung

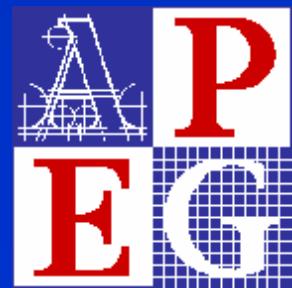
# Agenda

- History of the Professions
- Canadian Specifics
- The Iron Ring
- Self-Governed Associations
- Professionalism

# History

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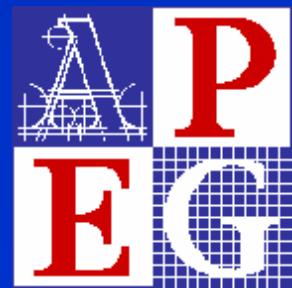
- Military → Civil
- Master Builder → Architect
- Evolution of the Disciplines
- Still Evolving
  - Aerospace
  - Software Engineering
  - Biotechnology
  - Nano-engineering



# The Canadian Professional Engineer

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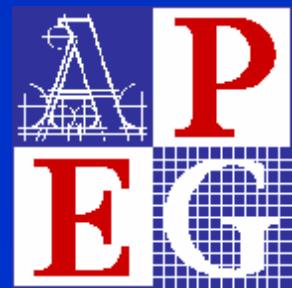
- 1919 – Representatives from the Engineering Institute of Canada created Model for Provincial Legislation
- Engineering Failures Were The Impetus
- Focus: Protection of Public from “Quackery” & “Charlatans”



# The BC Professional Engineer

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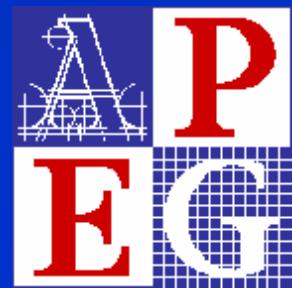
- BNA Act defined Federal & Provincial jurisdictions
- 1920: APEBC created by Act of Legislature to Regulate The Practice of Engineering
  - Defined “Engineering”
  - Provided Exemptions
  - Registration (Licensing) Framework
  - Management by Council/Committee of Members



# The BC Professional Engineer

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- 1955: Welfare Of Members Added
- 1990: Geoscience Added – APEGBC
- 2004: Technologists and Technicians will be added

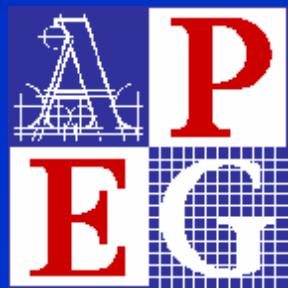


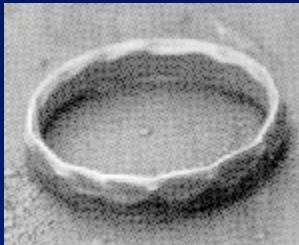


# The Iron Ring

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- 1923: E.I.C. Past - President
- Tangible Reminder: Ideals & Responsibilities of Engineers
- “Ritual of the Calling of an Engineer” – *Rudyard Kipling*
- Corporation Of The Seven Wardens

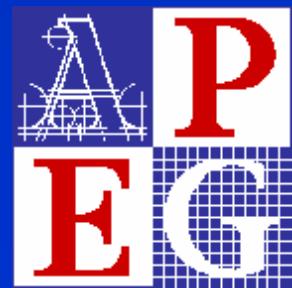




# The Iron Ring

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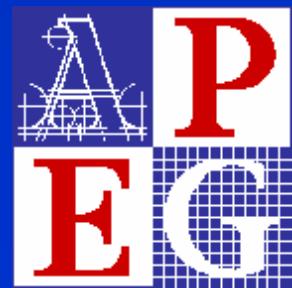
- Conferred at Graduation
- Does Not Confer Right To Practice as an Engineer
- P.Eng.
  - Responsibility to Profession
  - Granted On Completion Of Training Period
- Go The Distance → **P.Eng.**



# Self-Governance & APEGBC

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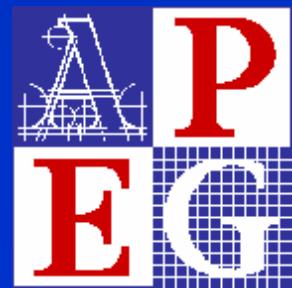
- APEGBC **IS** its Members
- Self-Regulating
- Governed by a Council
  - 13 elected members
  - One Faculty appointee if none elected
  - 4 lay members appointed by Lieutenant Governor



# Engineers & Geoscientists Act

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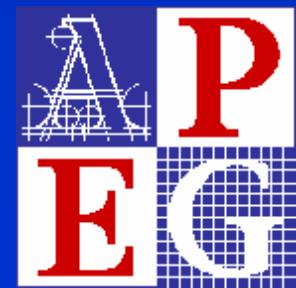
- Professionalism based on concept of:
  - Competence and Ethical Behavior
  - Adherence to Code of Ethics
- Act Charges Profession to
  - Ensure only qualified persons registered
  - Ensure competent and ethical practice



# Engineering Profession

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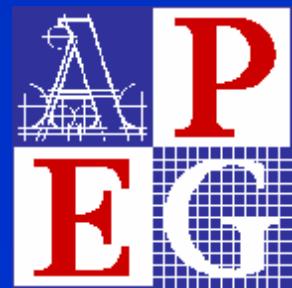
- What is a Profession?
  - Vocation (not a job)
  - Requires Specialized Knowledge
  - Long and Intensive Training
  - High Standards of Achievement and Conduct



# ENGINEERING PROFESSION

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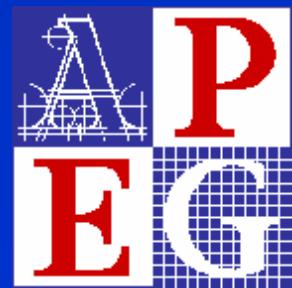
- What is a Professional?
  - Commitment to Continual Learning
  - Render Service to the Public
  - Place Public's Needs Ahead of Their Own



# ENGINEERING PROFESSION

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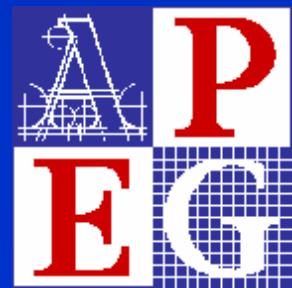
- What is a Professional Engineer?
  - In Canada, someone who has met knowledge and training requirements **AND**
  - Is licensed by a provincial or territorial Association of Professional Engineers
- You **MUST** be licensed to practice engineering



# Engineers & Geoscientists Act

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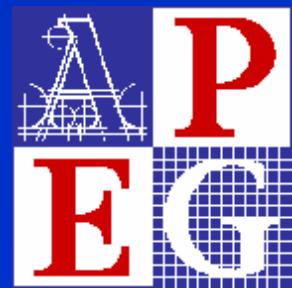
- Registration Qualifications
  - Canadian Citizen or Permanent Resident of Canada
  - Graduate from an accredited Engineering Program, or has passed assigned exams
  - Minimum of 4 years relevant work experience
  - Is of good character and repute



# Engineers & Geoscientists Act

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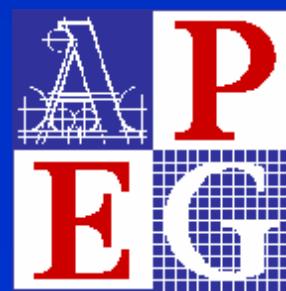
- Professional Practice Compliance
  - Quality Management
    - Retention of complete design files for 10 years
    - Concept reviews of structural designs
    - In-house design checks
    - Field reviews of projects during construction
  - Practice Reviews
    - General review of members practice
    - Technical review when a “product” is produced
  - Complaint Process
    - Investigation
    - Discipline



# Engineers & Geoscientists Act

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- Prohibition on Practice- Enforcement
  - Prohibits anyone **NOT** registered from
    - Engaging in the practice of professional engineering or geoscience
    - Assuming the title of professional engineer or professional geoscientist
    - Holding oneself out as an engineer or geoscientists if not registered
- Industrial Exemption
  - **NO** exemption for industry
  - All who practice must be registered



# Canadian Council of Professional Engineers

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**CCPE**

**CEAB**

Accredits University Programs

**CEQB**

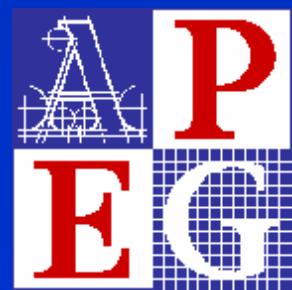
Sets Standards & Provincial Agreements

**CEIC**

Negotiates International Agreements

**CERC**

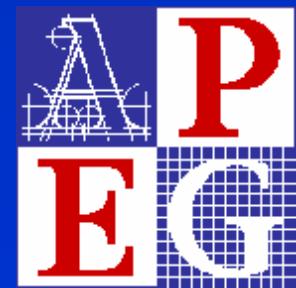
Researches the Profession



# Canadian Engineering Accreditation Board

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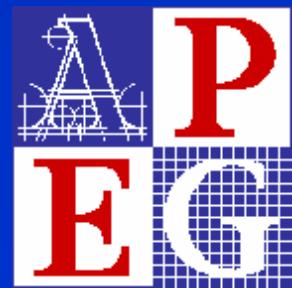
- Accreditation of all engineering/applied science programs
  - Over 200 programs
  - More than 30 schools
- Monitors accreditation foreign countries to facilitate mobility
- Guidance to the countries in establishing accreditation systems



# Canadian Engineering Qualifications Board

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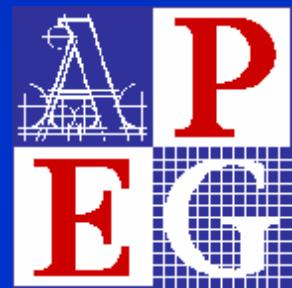
- Establishes national guidelines for
  - Professional engineering qualifications
  - Standards of practice, ethics, continuing competence
- National mobility agreement
- Examination syllabus for listed and non-listed institutions



# Canadian Engineering Resources Committee

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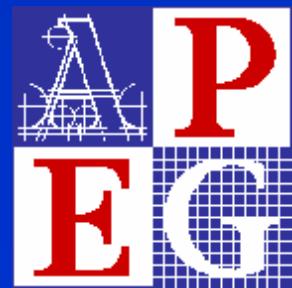
- Horizon watcher for profession
- Surveys, analyzes and publishes info on
  - Employment
  - Skill sets
  - Continuing competence
- Gender and diversity issues



# Canadian Engineering International Committee

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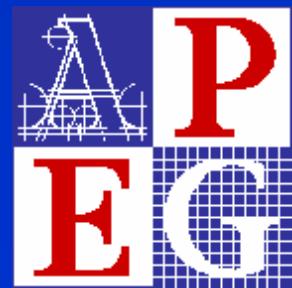
- Evaluates international accreditation programs to facilitate mobility
- Negotiates international mobility/recognition agreements
- Current agreements
  - Washington Accord - US, Can, GB, IR, NZ, AUS, SA, HK
  - France
  - Costa Rica, Austria (by program)



# Canadian Engineers Mobility

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- Within Canada
  - June 1999 mobility agreement signed by all 12 associations
  - Recognizes equivalency of academic training and experience across Canada
- Within US
  - Associations are working bi-lateral agreements with adjacent States
  - NAFTA does not address this issue
- Rest of The World
  - CEIC negotiations and agreements

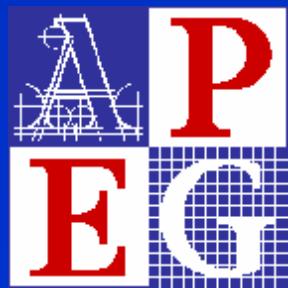


# APEGBC

## Beyond the Regulations

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- Primary Role – Regulation and Governance of the Professions
- Secondary Role – Member Value and Benefits
  - Public/Government Relations
  - Member Services
    - Continuing Professional Development
    - Student Programs
    - Affinity Programs

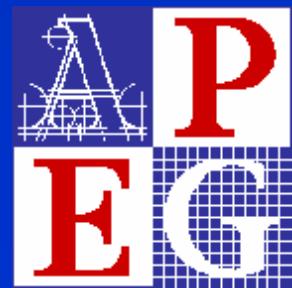


# APEGBC

## Beyond the Regulations

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- Public/Government Relations
  - Increase Industry, Government and Public Awareness of the Value of the Professions
  - Encourage Use of P.Engs. and P.Geos. By Industry
  - Encourage Students to Consider Careers in Engineering and Geoscience

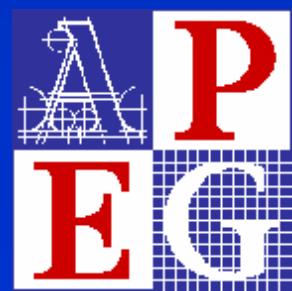


# APEGBC

## Beyond the Regulations

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- Continuing Professional Development (CPD)
  - Encourage Lifelong Learning
  - Assist Members to Access Affordable and Relevant Continuing Education
  - Provide Reporting Systems for Members to Log CPD Activity
  - Annual Conference

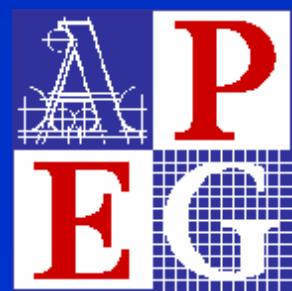


# APEGBC

## Beyond the Regulations

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- Other Member Services
  - *Innovation* Magazine/Newsletters
  - Increased Commitment to Electronic Communication (E-mail, web site)
  - Branch/Division Networks
  - Employment Assistance/Mentoring
  - Affinity Programs to Generate Financial Savings for Members and Additional APEGBC Revenue



# Part 1 - Summary

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- P.Eng. - Your Pathway to Success
  - Choices Made
  - Choices to Come
  - Go the Distance – Professional status awaits you

