

Public guideline on assuming responsibility for the work of engineers-in-training

Notice

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About this Engineers Canada paper

This national Engineers Canada paper was prepared by the Canadian Engineering Qualifications Board (CEQB) and provides guidance to regulators in consultation with them. Readers are encouraged to consult their regulators' related engineering acts, regulations and bylaws in conjunction with this Engineers Canada paper.

About Engineers Canada

Engineers Canada is the national organization of the provincial and territorial associations that regulate the practice of engineering in Canada and license the country's 295,000 members of the engineering profession.

About the Canadian Engineering Qualifications Board

CEQB is a committee of the Engineers Canada Board and is a volunteer-based organization that provides national leadership and recommendations to regulators on the practice of engineering in Canada. CEQB develops guidelines and Engineers Canada papers for regulators and the public that enable the assessment of engineering qualifications, facilitate the mobility of engineers, and foster excellence in engineering practice and regulation.

1 Introduction

Provincial and territorial legislation requires that all persons practicing engineering be licensed in the jurisdiction where they work. Legislation usually includes an exemption which allows unlicensed individuals to assist in the practice of engineering provided that a licensed engineer assumes full responsibility for the work. This guideline was developed to provide guidance to engineers responsible for the work of engineers-in-training.

Engineers Canada provides the following related documents:

- » Public guideline for Engineer-in-Training Programs
- » Public guideline: Direct Supervision
- » Public guideline on the Code of Ethics
- » Public guideline on good character
- » Public guideline on the professional practice examination
- » Report on Core Engineers Competencies

2 Commitments

The regulator

The regulator should be committed to:

- » Encouraging employers to support the professional development of engineers-in-training.
- » Providing guidance to employers to develop a program that will allow for the growth of engineers-in-training into highly trained, ethical professionals.
- » Reviewing the overall strategies and performances of engineer-in-training programs.
- » Making recommendations for continual improvement.

The employer

In Canada, all engineering work must be approved by an engineer; although an engineer-in-training may perform engineering work the engineer-in-training cannot approve it. Therefore, organizations employing engineers-in-training to do engineering work should be aware that an engineer has to assume responsibility for the engineering work. Furthermore, an engineer-in-training will be licenced when he or she has acquired relevant experience under the supervision of one or more engineers licensed to practice in the engineer-in-training province of registration and in the field relevant to that of the engineer-in-training.

When the employer does not have an engineer to supervise and take responsibility for the engineer-in-training's engineering work, the employer must make arrangements with an outside engineer to take on the responsibility of that supervision and responsibility for the engineering work.

The employer should be committed to:

- » Supporting the professional development of engineers-in-training.
- » Implementing a structured program to facilitate the development of engineer-in-trainings.
- » Reviewing the overall strategies and performance of the program with a view to continual improvement.
- » Ensuring that a licensed engineer is responsible for the work of each engineer-in-training.
- » Employing an engineer to assume responsibility for the work of the engineer-in-training.

3 Responsibilities of the responsible engineer

By affixing his or her seal to a document, a responsible engineer assumes responsibility for the work of the engineer-in-training.

The responsible engineer must:

- » Be aware of the jurisdiction's requirements for licensure and provide opportunities for the engineer-in-training to fulfill those requirements.
- » Ensure that the work assigned is compatible with the engineer-in-training's education, comprise a variety of tasks of increasing responsibility and technical complexity, and provide the opportunity for the engineer-in-training to develop professional judgment and the ability to work effectively as part of a team.
- » Assist in the engineer-in-training's professional and technical development, to ensure that the engineer-in-training develops the core engineering competencies by providing counselling, encouragement and support as required, while assuming responsibility for the technical quality of the engineer-in-training's work.
- » Encourage the engineer-in-training to maintain a detailed experience record, which the supervisor reviews and validates from time to time, and to be used as a reference in preparing semi-annual progress reports to the regulator.
- » Provide the regulator with semi-annual reports on the progress of the engineer-in-training, where required.
- » Consider the welfare of the engineer-in-training as well as that of the organization.
- » Be prepared to serve as a referee when the engineer-in-training is ready for registration as a professional member, and comment on the applicant's technical competence, communication skills, ability to exercise professional judgment, integrity, ability to assume responsibility, ability to work effectively as part of a team, and ability to recognize his or her limitations with respect to the practice of engineering. [2]

The following are recommendations for the responsible engineer:

- » Be in the same area of practice as the engineer-in-training.
- » Ensure the accuracy of the work from a technical perspective.
- » Ensure the assigned work provides opportunities for the engineer-in-training to complete each of the experience requirements.
- » Provide an example of good work practices and organizational skills, such as note taking, logbook entries, calculations, and developing good filing and recording habits.
- » Ensure that assignments are progressive in complexity and responsibility, and lead towards the engineer-in-training becoming an independent professional.

- » Demonstrate the importance of subscribing to the *Code of Ethics* and practising to the benefit of the public;
- » Certify the documentation of the work experience (such as log book entries) prepared by the engineer-in-training for the purpose of obtaining professional status;
- » Keep the engineer-in-training apprised of their performance and make suggestions for improvement.
- » Provide management development and practical experience opportunities.
- » Promote the engineering profession and the aims of the association to engineers-in-training.
- » Increase awareness of activities and duties at different levels of the organization.
- » Encourage participation in industry, technical and professional societies.
- » Assist the engineer-in-training in locating professional development and technical training opportunities.

4 Responsibilities of the engineer-in-training

It is the responsibility of the engineer-in-training to comply with all applicable legislation. The engineer-in-training should:

- » understand and comply with the requirements of the regulator's engineer-in-training program;
- » be an active participant in their own training process;
- » document all work experience and professional development activities in a format that is acceptable to the regulator;
- » develop effective communication, decision-making and leadership skills;
- » use their intellectual and analytical abilities to further their professional development; and
- » take responsibility for the development of their own careers.

In recording and reporting work experience, the engineer-in-training should be:

- » as concise as possible;
- » specific in describing work and identifying roles in larger projects;
- » use the word "I" frequently;
- » identify progression wherever possible;
- » identify gaps in their engineering experience timeline;
- » if confidentiality of projects is a concern, consult with their employer and the regulator, and
- » flag the difference between similar work experience reports.

The engineer-in-training should demonstrate the following five criteria when describing work experience:

- » Application of theory - analysis, design, synthesis, devising testing methods, implementation methods.
- » Practical experience – function of components as part of a larger system, limitations of practical engineering, significance of time in the engineering process, knowledge and understanding of codes, standards, regulations and laws.
- » Management of engineering - planning, scheduling, budgeting, supervision, project control, risk assessment.
- » Communication skills - written work, oral presentations, presentations to the general public.
- » Social implications of engineering – determining the value or benefits of the engineering work to the public, putting appropriate safeguards in place, relationship between the engineering activity and the public, role of regulatory agencies.

5 Definitions

Engineer: An engineer is an individual who has been issued a license to practice engineering by a provincial or territorial engineering regulatory body after demonstrating that they have the requisite education, skills, knowledge and experience. An engineer is sometimes referred to as a licensed engineer, a registered engineer or an engineer.

Engineer-in-training: A candidate for engineering licensure who has met the academic and good character requirements, and is in a period of on-the-job training to accumulate work experience and an understanding of:

- » the application of the relevant Regulations, By-laws, Code of Ethics and Professional Standards of Conduct in a professional environment;
- » the responsibilities of participating in a self-regulated profession; and
- » the importance of an engineer's relationship with clients, employers, the regulator and society.

Equivalent terms: junior engineer, engineering interns, mentor, member-in-training[1].

Mentor: A person who provides advice, coaching and support to aid and stimulate the engineer-in-training towards achieving his or her license to practice. A mentor does not necessarily assume responsibility for the work of an engineer-in-training. (Regulators Guideline for Mentoring Programs)

Regulator: A body empowered by legislation to establish the standards for admission to the profession and to regulate the practice of engineering in a province or territory.

Responsible engineer: An engineer who assumes responsibility for the engineering work of an engineer-in-training, and is licensed in the jurisdiction where the engineer-in-training is performing work.

[1] The term “engineer-in-training” is used in Prince Edward Island, Newfoundland and Labrador, New Brunswick, British Columbia and Nova Scotia. “junior engineer” is used in Québec, “engineering interns” in Ontario as well as Manitoba and “member-in-training” in Saskatchewan, Alberta and Northwest Territories.

[2] Note: Situations where an engineer-in-training and responsible engineers have a personal relationship can present real or perceived conflicts of interest and are best avoided. If a relationship exists, regulators may require additional references.