



**Professional Engineers
Ontario**

GUIDELINE

Professional Engineering Practice

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Notice:The Professional Standards Committee has a policy of reviewing guidelines every five years to determine if the guideline is still viable and adequate. However, practice bulletins may be issued from time to time to clarify statements made herein or to add information useful to those professional engineers engaged in this area of practice. Users of this guideline who have questions, comments or suggestions for future amendments and revisions are invited to submit these to PEO using the form provided in Appendix 3.

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1. PEO Mandate and Criteria for Guidelines

Professional Engineers Ontario (PEO) produces guidelines for the purpose of educating both licensees and the public about standards of practice. This is done to fulfill PEO's legislated objectives. Section 2(4)2 of the *Professional Engineers Act* states: "For the purpose of carrying out its principal object", PEO shall "establish, maintain and develop standards of qualification and standards of practice for the practice of professional engineering". The association's Professional Standards Committee is responsible for developing practice standards and preparing guidelines.

This guideline has been developed by a task group of the Professional Standards Committee, reviewed and approved for publication by the full Professional Standards Committee and by PEO Council.

Professional Engineers Ontario produces guidelines to meet the following objectives, which were used to develop the content of this document.

1. Guidelines are intended to aid engineers in performing their engineering role in accordance with the *Professional Engineers Act*, O. Reg. 941/90 and O. Reg. 260/08.
2. Guidelines are intended to describe processes required by regulatory, administrative or ethical considerations associated with specific professional services provided by engineers. They do not aim to be short courses in an engineering subject.
3. Guidelines provide criteria for acceptable practice by describing the expected outcome of the activity, identifying the engineer's duty to the public in the particular area of practice, and identifying the relationships and interactions between the various stakeholders (e.g. government, architects, other engineers, clients).
4. Guidelines add value to the professional engineer licence for licensed engineers and for the public by establishing criteria for professional standards of competence.
5. Guidelines help the public to understand what it can expect of engineers in relation to a particular task within the practice of professional engineering. By demonstrating that the task requires specialized knowledge, higher standards of care, and responsibility for life and property, guidelines help reinforce the public perception of engineers as professionals.

This guideline is not intended to establish a "one method of practice for all" approach to the practice of professional engineering. This guideline is not intended to replace a practitioner's professional judgment when providing professional engineering services. Subject to provisions in the guideline that incorporate professional conduct requirements or legal requirements, a decision by a practitioner not to follow the guideline will not, in and of itself, indicate that a member has failed to maintain an acceptable standard of work. Following the guideline may not ensure that a member has provided services conforming to an acceptable standard established by such other criteria as contracts or particular industry standards. Determining whether a practitioner has provided quality service will depend upon the circumstances of each case.

See Appendix 4 for a list of PEO professional practice guidelines and standards.

2. Preface

A review of the previous edition of this document by PEO staff found that it contained out-of-date references, information covered by other guidelines, and was lacking in guidance on several generic practice matters. PEO staff, assisted by the Professional Standards Committee, prepared this revised document. Following consultation with stakeholders and vetting by PEO legal counsel, a final draft of this document was submitted to the Professional Standards Committee for approval on October 18, 2011. The guideline was approved by Council at its meeting on March 2, 2012.

3. Purpose and Scope of Guideline

Through its guidelines, PEO strives to enhance the professionalism of its members and assist practitioners in describing their proper professional relationships with clients, employers and the public. This guideline is intended to provide practitioners and the public with a better understanding of the engineering profession, the means by which it is governed, and to explain the role, jurisdiction and purpose of Professional Engineers Ontario. It covers a wide variety of topics of general interest to the engineering profession in order to:

- inspire a shared vision for the profession;
- identify the values that are distinctive to the engineering profession;
- guide the professional judgment and actions of practitioners;
- promote a common understanding of what it means to be a member of the engineering profession; and
- establish criteria for a consistent quality of work that will maintain public confidence in the profession.

Note: References in this guideline to professional engineers apply equally to temporary licence holders, provisional licence holders and limited licence holders.

4. Introduction

This *Guideline for Professional Engineering Practice* has been prepared by the Professional Standards Committee of Professional Engineers Ontario. This document supersedes the original *Guideline for Professional Practice* published in 1988 and updated several times subsequently.

The definition of the practice of professional engineering is set out in section 1 of the *Professional Engineers Act*. This definition sets out a three-part test for determining whether an act is within the practice of professional engineering:

- Is it an act of planning, designing, composing, evaluating, advising, reporting, directing or supervising, or managing any of these acts?
- Does it involve the safeguarding of life, health, property, economic interests, the public welfare or the environment?
- Does it require the application of engineering principles?

If the work done by a person meets all three tests, the person is practising professional engineering. The definition applies to all situations where this particular combination of intellectual activity, societal protection and methodology exists, regardless of whether the position is in industry, government or consulting.

Professional practice is defined as the carrying out of those activities defined in section 1 of the *Professional Engineers Act* in a manner that is consistent with the values of the profession. The norms of professional practice are outlined by the Council of Professional Engineers Ontario. This committee, through its subcommittees, works with professional engineers and external stakeholders to describe the role of and the reasonable expectations on practitioners engaged in specific engineering activities.

5. Characteristics of a Profession

A true profession is an occupation possessing specialized skills and knowledge that are exercised for the benefit of society. Occupational groups gain professional status by demonstrating that people with specialized knowledge and techniques provide a service that is unique and more likely to serve the interests of society than others with different training. The professional's role can become clear only when members of a profession determine what distinguishes their activities from those of other occupational groups. Once the differences are clear, the profession can strengthen its position by emphasizing its members' expertise in those particular areas of knowledge and skill.

Engineering knowledge and skills are the result of tested research and experience, and the engineering profession has a well developed organization for the development and dissemination of knowledge and professional ideals. To properly carry out the professional services they undertake, practitioners are expected to obtain, through disciplined academic training and experience, and maintain a level of skill and knowledge consistent with the demands of their areas of practice. Every profession has well formulated standards of admission to ensure practitioners have been properly trained before entry.

Professional practitioners are expected to take responsibility and be accountable for their work. It is interesting to note that engineering is the only profession where the primary responsibility is to the third party, the "public". Ultimately, this overriding consideration subordinates an engineer's obligations to a client or employer. Practitioners are also expected to demonstrate behaviour that will encourage clients, employers and the public to trust the practitioners' discretion and judgment. To foster this behavior, professional engineers are expected to comply with a code of ethics. Compliance with the code ensures that practitioners exercise a high standard of care in their work and are aware of their role in protecting or promoting the interests of the public.

6. The Engineering Profession in Ontario

The engineering profession in Ontario is governed by the *Professional Engineers Act*, R.S.O. 1990, Chapter P.28 and its subordinate Regulation 941/90, R.R.O. 1990, and Regulation 260/08, R.R.O. 1990.

The Act defines the practice of professional engineering and establishes Professional Engineers Ontario (PEO) as the regulatory body responsible for regulating the practice of professional engineering and governing people and organizations carrying out work that falls within PEO jurisdiction. The primary mandate of any professional regulatory body is to protect the public from unqualified, incompetent or unfit practitioners. To carry out this function, PEO is granted powers to license qualified individuals, discipline licence holders who are found guilty of incompetence or professional misconduct as defined in O. Reg. 941/90, and enforce compliance with the licensing requirements of the Act.

Discipline is a key component of professional regulation. Professional engineers must conduct their work with competence and in compliance with laws and standards. Practitioners whose work is done incompetently or negligently will be subject to PEO's complaints and discipline process.

Complaints against members, temporary, provisional or limited licence holders, or certificate of authorization holders are usually referred to the Complaints Committee (section 23 of the Act). If this committee finds merit in the complaint, it is forwarded to the Discipline Committee for a formal hearing (section 28 of the Act). A finding that the practitioner has breached one or more provisions of the professional misconduct definition (subsection 28(2) of the Act and section 72, O. Reg. 941/90) can result in a fine; the award of the costs of conducting the hearing; a reprimand; terms, conditions and limitations on a licence or certificate; or a suspension or revocation of a licence or certificate. Furthermore, the finding and reasons may be published in the association's official publication and also become part of the engineer's permanent record with the association.

7. Licence

In most situations, a person requires a licence issued by Professional Engineers Ontario to practise professional engineering in Ontario. A licence is the granting of permission to perform an act that is otherwise legally prohibited. In the case of engineering, section 12 of the *Professional Engineers Act* first creates a ban on certain activities defined in section 1 and then, by creating an exclusion to the ban, extends permission to licence holders to perform any act covered by the definition of professional engineering within the range of permission granted by the licence.

However, not everyone performing work identified as the practice of professional engineering requires a licence, as the *Professional Engineers Act* includes the following exceptions to licensure:

- a person working under the supervision of a professional engineer taking responsibility for the work; and
- a tool and die designer.

7.1 Licence Classifications

There are four licence classifications provided by the *Professional Engineers Act*: licence, temporary licence, provisional licence and limited licence. Each licence classification has specific admission qualifications found in sections 33, 43, 44.1(1), and 46, O. Reg. 941/90. The temporary, provisional and limited licence permit restricted practice under conditions given in sections 44.(1), 44.1(2) and 45, O. Reg. 941/90. A practitioner's licence classification can be identified by the inscription on the practitioner's seal. The limited licence seal also contains a description of the restricted area of professional engineering in which that holder can practise.

According to the Act, "professional engineer" means a person who is granted a licence or a temporary licence by Professional Engineers Ontario. Professional engineers generally have an unrestricted right to practise professional engineering in Ontario, although terms, conditions and limitations may be imposed on a professional engineer's licence by the registration or discipline processes. This means professional engineers can practise in any area of engineering, as long as they are competent to do so. Professional engineers are expected to self-police their activities and accept assignments only for work for which they have the requisite knowledge and experience or can acquire the necessary knowledge in a reasonable amount of time.

Professional engineers licensed in other jurisdictions who are not residents of Canada and decide not to obtain a full licence but intend to provide engineering services for a project in Ontario can obtain a temporary licence.¹ The holder of a temporary licence is required to collaborate with a professional engineer licensed in Ontario. The collaborator must ensure that the engineering work prepared by the temporary licence holder complies with Canadian and Ontario codes, standards, and laws governing the work. The collaborator's role does not include contributing to the design, carrying out site inspections or any other engineering role. Of course, the collaborator can arrange to do these tasks but doing so would be in addition to carrying out the compliance review of the design, which is what the collaborator is required to do.

Section 44(2), O. Reg. 941, states that all final drawings, reports, and other documents prepared by the holder of a temporary licence must be co-signed and sealed by the collaborator. As in all multi-discipline situations where multiple seals are affixed to a document, each engineer is taking professional responsibility only for the portion of the work that engineer actually performed. In the case of a collaborator, that responsibility is generally only ensuring that the temporary licence holder has done work in accordance with appropriate standards, codes and laws. The collaborator should ascertain what standards, codes or laws apply to the project, make the designer aware of these, and check that the designer has used these in designing the work. If the design is based on foreign codes, the collaborator should compare these to those applicable in Ontario and determine whether the foreign codes are acceptable. If not, the collaborator should inform the designer of the discrepancies and direct the designer to make changes. Of course, if the collaborator makes the changes, the collaborator is now responsible for the design work or at least for that portion of the design that is changed.

Since collaborators are required only to verify that the work conforms to the applicable codes, standards and laws, the collaborator should not review the drawings and other engineering documents for technical accuracy. The design is the responsibility of the temporary licence holder. The two practitioners should apply their seals with notes indicating this difference of responsibility. The temporary licence holder and the collaborator should also have a written agreement that defines in detail what each party is providing to the work.

The limited licence is available to individuals who, as a result of 13 or more years of specialized experience, have developed competence in a particular area of professional engineering. The practice of professional engineering by the holder of a limited licence must be limited to the services specified in the limited licence (see section 45(1), O. Reg. 941/90). This licence is appropriate for technologists or scientists who need to take responsibility for work that is generally considered to be within the practice of professional engineering.

A provisional licence may be issued to an applicant for a professional engineer licence who has satisfied all of PEO's licensing requirements except for the minimum 12 months of verifiable and acceptable engineering experience in a Canadian jurisdiction. See section 44.1(2) of O. Reg. 941 for conditions applying to a provisional licence.

7.2 Consulting Engineer Designation

In addition to the licensing of individuals to practise engineering, O. Reg. 941/90 provides for the conferring of the designation of consulting engineer on professional engineers who fulfill the required qualifications. Only those individuals and firms authorized by this association to use the designation may call themselves consulting engineers.

A practitioner does not need to be a consulting engineer to engage in an engineering business. A certification of authorization is required for any business, including a sole practitioner, that provides or offers engineering services to the public [see Section 12(2)].

The association controls the use of the term consulting engineer by individual practitioners (section 56, O. Reg. 941) and the use of consulting engineers (or a variation thereof) by engineering firms (section 68, O. Reg. 941/90). To use either term, the practitioner or firm must obtain permission from PEO Council.

1. At the time of printing there was a legislative proposal to allow such applicants to obtain other categories of licences

7.3 Use of Titles

Under the *Professional Engineers Act*, the title “engineer” is reserved for professional engineers (meaning full licence holders and temporary licence holders), except for certain applications such as hoisting engineer and stationary engineer.

Examples of recently revised job titles where the word “engineer” has been replaced include:

- Project engineer changed to project manager, project coordinator, project analyst, project leader, project operator, or project specialist.
- Software engineer changed to software developer, software designer, or software analyst.
- Technical engineer changed to technical officer.
- Junior engineer changed to engineering trainee or junior designer.

*Use of the title “engineering intern” or its accepted abbreviation “EIT” is allowed for those who are registered in PEO’s Engineering Intern Program. Titles such as junior engineer, graduate engineer, and assistant engineer are not acceptable. Engineering graduates who are not professional engineers may use their engineering degree following their name, e.g. “B.A.Sc.”, or “B.Eng.”.

Unlicensed people may use their department name to describe their workplace responsibilities, e.g. metallurgical process engineer might change to metallurgical process engineering, or quality assurance engineer might change to quality assurance engineering. However, the titles “engineering specialist”, “engineering consultant” and “engineering professional” may be used only by professional engineers, i.e. holders of a full licence or temporary licence.

“Consulting engineer” may be used only by individuals so designated by PEO Council, and then only when they are currently engaged in the independent practice of professional engineering. This rule applies to all variations of “consulting engineer”, such as “structural consulting engineer”.

Apart from the abbreviation “LEL”, limited licence holders may use only the titles acceptable for unlicensed people.

8. Professional Responsibility

Professional responsibility refers to practitioners’ obligations to conduct themselves in accordance with the technical, legal and ethical standards of the profession, including the higher duty of care associated with professional status. Whenever practitioners act in their professional engineering capacity, they must be prepared to answer for their conduct in discharging their obligations to the profession and the public. Accepting this responsibility is part of the commitment made by each individual when accepting the exclusive right to practise afforded by a licence to practise professional engineering.

Good professional conduct includes practising only within one’s competence. Practitioners must realize that for both legal and ethical reasons they should not undertake assignments unless they honestly and reasonably believe that they are competent to carry out the work, or that they can become competent without undue delay, risk or expense to the client or employer, or that they will engage a competent licence holder to carry out work that is beyond their expertise. Practitioners who proceed on any other basis are not being honest with their clients or employers.

Failure to meet these requirements leaves practitioners open to scrutiny by their peers and their professional association, pursuant to section 72(2)(h) of O. Reg. 941/90. Refer to “professional misconduct” (section 72 of O. Reg. 941/90) and to “incompetence” (section 28(3) of the Act). It should be noted that incompetence can mean not only a lack of knowledge, skill or judgment, but also the suffering from a physical or mental condition that can interfere with the exercise of one’s professional judgment.

In assessing their own position, practitioners should be aware of the essential difference between “qualification” and “competence.” Dictionaries define qualification as “a quality or accomplishment which fits a person for some function, office or the like.” This includes the conferring of degrees and certification by technical bodies. It is a one-time, static thing that cannot be lost or diminished by time. On the other hand, competence is a “quality of having suitable skill, knowledge, or experience for some purpose.” Competence, then, is a dynamic quality that relates to the present task, assignment or activity. Practitioners need always to assess their competence to undertake the proposed assignment before agreeing to carry out the work. This will involve determining that their theoretical knowledge and practical experience in the field are of suitable

pertinence, extent and depth to enable them to provide a service that will be useful for the client or employer.

9. Engineer's Duty to Report

The duty to report is an essential component of an engineer's commitment to professionalism. In fact, it is so fundamental that most engineers probably don't realize that they are doing this daily when they identify designs, processes and procedures that are unsafe, unhealthy, or uneconomical (which is detrimental to the public welfare) and then take action to correct these problems. Indeed, no professional engineer should disparage or renege on his or her duty to report.

Professional engineers should know that their duty to report is rather limited, relating only to situations where they apply judgment based on their professional training, experience and competence. Though each professional engineer "shall regard the practitioner's duty to protect the public welfare as paramount" (section 77(2).i, O. Reg. 941/90), the duty to report isn't intended to make professional engineers full-time guardians of the public interest, responsible for pointing out all of society's faults. Instead, they are expected to report only on those issues that come to their attention during the course of their professional practice. This is why references to the duty to report emphasize clients and employers; rarely would professional engineers have sufficient awareness and knowledge of situations outside of their usual practice that they could be compelled to report them. And, unless engineers have the appropriate authority to make changes or order work, their duty is only to report, not to solve the problem. Often, the responsibility for solving the problem rests with someone else. The engineer is required only to make that person aware of the situation.

What should engineers do if in the course of carrying out their work they discover situations that endanger safety or the public welfare? Because each situation is different, engineers should judge how to proceed based on the particular facts of each case. In most cases, however, here is how you should try to deal with any situation you believe might endanger the safety or welfare of the public:

1. Assure yourself the problem is real and you have correctly assessed the potential harm that might result. Find and prepare all supporting information, such as legisla-

tion, codes, practice guides, calculations and technical manuals that will reinforce your opinion.

2. Determine whom you should inform. Because a professional engineer has obligations of fairness and loyalty to clients and employers and is also obliged to act as a faithful trustee or agent, initial disclosure usually is given to the practitioner's employer or client.
3. Advise the client or employer of the problem and suggest that remedial action should be taken. Take all reasonable steps to ensure the person is aware of the danger you believe might result from a failure to deal with the situation.
4. After a reasonable length of time, follow up with the client or employer to see if appropriate action has been taken. The engineer should advise the client or employer that, because of the engineer's duty under the *Professional Engineers Act* it will be necessary to take this matter to appropriate authorities if the client or employer does not take action.
5. It might also be helpful to review the situation with at least one independent engineer to obtain an opinion on the harm that might arise from the situation, if not corrected. This will provide the engineer with some corroboration and support. The other engineers might also provide suggestions on what action might be taken. But be aware of your duty to maintain confidentiality about an employer's or client's business. If possible, limit your discussions to in-house engineers. If you can't find in-house engineers, find engineers who can be considered impartial third parties.
6. In the absence of a resolution and where the situation is serious enough to warrant your ongoing concern, the matter should be escalated up the management chain. This should not be done without first informing the initial contact. Reiterate that as a professional engineer you are legally obliged to report a situation that, in your opinion, must be corrected.

Because professional engineers have obligations both to their clients and to the public, their obligations will occasionally conflict. On one hand, engineers are obliged not to disclose clients' or employers' confidential information and must avoid the use of such information to clients' or employers' disadvantage. On the other hand, article 72(2)(c), O. Reg. 941, provides that failure to report a situation that an engineer believes may endanger the safety or welfare of the

public would constitute professional misconduct on the part of the engineer.

9.1 Whistleblowing

Sometimes professional engineers find their advice is not accepted and that the client or employer has no intention of correcting the situation. If the engineer firmly believes that, after exhausting all internal resources, the health and safety of any person is being, or is imminently, endangered, it may be necessary to report these concerns to some external authority, such as a designated regulatory body, a government ministry or ombudsperson. Only in exceptionally rare cases would going directly to the media or a private watchdog agency be justified. Because professional engineers have obligations both to clients and employers, they must exercise discretion in bringing situations to the attention of people outside the business of their employers or clients.

As many people know, this is a risky proposition since the whistleblower is violating moral and legal obligations owed to the employer or client. No one should take this step without seriously considering whether it is necessary. If an engineer has reported the situation through the entire internal management chain, most people would agree that he or she has fulfilled the duty to report. But like civil disobedience, whistleblowing is sometimes the morally correct response to a intolerable situation, especially if people are in danger.

Any engineer faced with this decision may also contact PEO for guidance. The association can provide advice to a professional engineer who is dealing with an uncooperative or willfully negligent client or employer.

9.2 Incompetence or Misconduct

There is no explicit requirement in the Professional Engineers Act that requires PEO licence holders to report to the association apparent breaches of the rules of professional conduct by other practitioners. The Act refers only to the duty to report unsafe situations or situations that are detrimental to the public welfare. Where an engineer's incompetence or negligence creates a situation that meets these criteria, engineers who notice need deal only with that unsafe situation, in the manner described above. Since the duty to report refers only to situations rather than people, they are not compelled to report the individual to PEO. However, if an engineer is concerned that the incompetence or misconduct exhibited by another engineer is extreme and warrants action by the association, the engineer

should make a complaint, just like any member of the public. Since the profession's reputation can be adversely affected by any incidence of incompetence or misconduct, members of the profession who are aware of such behaviour should consider reporting it to be a prudent and practical decision.

10. Rules of Professional Engineering Practice

10.1 Use of the Professional Engineer's Seal

Every practitioner is issued a seal with their licence. Use of the seal is governed by section 53, O. Reg. 941, which requires every engineer, regardless of whether they are listed on a certificate of authorization, to seal documents prepared or checked by them that are issued to the public as part of a professional engineering service. PEO policies for acceptable use of the seal are described in the *Guideline for Use of the Professional Engineer's Seal*.

10.2 Relations with Clients and Employers

Managing client and employer expectations about the type and extent of services that can be provided by a practitioner is crucial to the successful conclusion of any assignment. Practitioners should serve their clients and employers with integrity and objectivity, making every effort to carry out assigned activities in a professional manner. However, it is also necessary to set realistic expectations about the kind of service a practitioner can provide and how quickly the work can be done.

Professional service begins with a full understanding of the client's or employer's needs. PEO recommends that, to avoid misunderstandings later, agreements between clients and practitioners pertaining to the provision of engineering services should be put into writing. The agreement should at least:

- identify the client organization and the contact to whom the practitioner will report;
- specify the fees and expenses to be charged to the client;
- declare any ongoing assurances or guarantees to be given by either party;
- declare any limitations to liabilities or services provided by the practitioner;
- describe any information the client will provide and in what form, and provide a schedule of when this information will be released;

- contain a scope of work detailing the services the practitioner is expected to provide;
- contain a list of items to be delivered by the practitioner;
- provide a schedule for completion of various phases of the work, submission of deliverables and payment of fees;
- identify any remedies for breach of contract by non-payment or by early termination of services by either party; and
- contain a right to terminate the agreement in appropriate circumstances.

Conflicts arising out of poor business relations or undefined terms in a professional service agreement can expose a practitioner to a complaint of professional misconduct.

Make sure an agreement calls for the client and third parties, such as contractors, to inform the practitioner of problems and/or changes to project definition at the earliest opportunity. Similarly, the practitioner should agree to inform the client, in writing and as soon as possible, of any situation that will delay the project or require alterations to the scope of work.

In many situations, professional engineers act as agents for clients or employers. Though clients and employers retain their legal responsibilities, professional engineers acting as agents undertake certain tasks on behalf of their clients and therefore are responsible for fulfilling those responsibilities. For instance, a practitioner may be asked to handle negotiations with a supplier on behalf of a client. By taking on this task, the practitioner is standing in for the client and often can bind the client. These responsibilities should be clearly identified in the contract between engineer and client or employer.

Practitioners should not accept assignments where the terms of reference and/or the project budget do not allow them to provide a service commensurate with their professional obligations to the client and the public.

Practitioners should accept only those assignments they are qualified to undertake on the basis of their knowledge of the client's or employer's needs and their ability to perform the specific assignment.

Practitioners should ensure that employers and clients understand that some situations might demand skills or knowledge that a practitioner does not possess, and that clients or employers might need to retain or pay for specialist services a practitioner judges to be necessary. If a client is

unwilling to retain or pay for necessary specialist services, a practitioner must determine whether this denial is sufficient cause for refusing the commission.

Practitioners should also ensure their prior commitments are not put at risk because of unexpected or unreasonable time demands caused by taking on new work. It is a practitioner's duty to set conditions beforehand and have arrangements made to meet time exigencies.

10.3 Assuming Project Begun by Another Practitioner

Occasionally, a practitioner will be asked to complete an assignment started by another practitioner. The *Professional Engineers Act* imposes no duties or obligations on practitioners taking on projects after other practitioners have been terminated. So, for instance, a second practitioner should not be concerned about whether a first practitioner was paid by the client. That is an issue between the first practitioner and the client. There is also no need for a second practitioner to get permission from a first practitioner to take over the project. It is a client's right to terminate and to retain whomever the client chooses. According to the *Professional Engineers Act*, a second practitioner needs only to obtain from a client assurance that a first practitioner has been terminated.

10.4 Due Diligence

Due diligence refers to the requirement that a person in a position of having duties to others take all reasonable steps to protect the interests of parties that might be affected by the person's actions before an incident occurs.

Being able to demonstrate due diligence is important as a legal defence against claims of negligence or charges of offences (e.g. occupational health and safety). A practitioner will have demonstrated due diligence if he or she has:

- identified all actual or potential hazards to the interests of the client, employer or public associated with the work;
- assessed the risk to the interests of any affected party associated with the identified hazards;
- taken steps to control or reduce those hazards; and
- communicated the risks to all affected parties.

10.5 Report Writing

A report is a record of the engineering service provided that may be referenced by people unfamiliar with the project and, possibly, with engineering work in general. Therefore, a report must clearly identify the project, the time period in which the service occurred, the date on which the report was completed, the parties to whom the report is addressed, and the engineer(s) who prepared and take(s) responsibility for the work. The report must provide contact information for the engineering firm, should identify the client and explain the terms of reference for the project. The practitioner should explain what work was done and how this service fulfilled the objectives set by the client.

Any report prepared as part of a professional engineering service should be a complete description of the work taken and the opinions or directions made on the basis of that work. All engineering reports need to contain:

- the purpose of the report;
- a clear description of the work involved to create the report;
- specific identification of drawings, blueprints, photographs, documents, manuals and other reference material used;
- references to legislation, standards, or guidelines that are relevant to the work;
- where judgments or opinions are made, details of the reasoning that led to the report's conclusion or findings;
- identification of all responsible people contributing to the report; and
- professional engineer's seal.

An engineer may express an opinion in the conclusion of a report; however, it is important to show how the opinion was formed from the data presented. If this is not possible, the engineer should clearly state that no final opinion was reached, and the reasons why. The practitioner must assess the information gathered during investigations and analyses to determine if it is sufficient to form a conclusion. If it is, the conclusion may be written; it should be carefully worded, so that it may be read in a positive sense. The use of unnecessary disclaimers can dilute, if not negate, the effect of the report, but the wording should accurately reflect the degree of certainty of the engineer's opinion.

It is important to ensure that a client is not misled by an overly favourable report or by a practitioner's failure to give proper emphasis to adverse considerations. To ensure clarity in reports, practitioners should refrain from using subjective appraisals and such qualitative language as "good condition" or "severely compromised" unless these terms have specific definitions that will be understood by most people familiar with the work or are defined in the report. Instead, practitioners should use quantitative and verifiable language; that is, practitioners should express their observations and conclusions in objective, preferably numerical, terms.

For some projects, a client may request a practitioner to provide preliminary reports at various stages. These preliminary reports serve only one purpose: to inform the client about the progress of the investigation. As the investigation is not yet complete, no conclusions of any kind should be included in the report.

Before preparing the final² report, the practitioner may discuss the facts and conclusions with the client, to obtain appropriate guidance about what should be included. The professional engineer must accept final responsibility for the report, and thus must not permit the client to exert undue influence on its final form. Nevertheless, it is important the professional engineer clearly understand the precise issues the client wishes to have included in the report. A pre-completion meeting may tend to reduce the need for repeated revisions to cover all issues of importance to the client.

An engineering report may be read by people who do not have significant technical knowledge. Therefore, the language and writing style should be simple and direct, and the use of abbreviations and technical terms should be avoided where possible. Care should be taken to observe the proper rules of grammar, spelling and punctuation. While the body of the report must be simple, brief and couched in non-technical language, appendices intended to be read by knowledgeable individuals can be included.

10.6 Giving Opinions

A professional opinion is any guidance involving an application of professional knowledge provided to a client, employer or others that they will rely upon or at least take into consideration in making their own decisions. Because

2. "Final" in this context means final for the purpose intended. See the *Guideline for the Use of the Professional Engineer's Seal* for more information on this distinction.

these parties are relying on the opinion, a practitioner will be responsible for the contents of this guidance. Therefore, practitioners should offer opinions only when asked or when they have knowledge of facts that might affect the interests of their clients or employers.

When providing opinions, identify the facts relied on and any factors that, if they arise, might alter or negate the opinion. All opinions should be supplied in writing. If provided orally, a practitioner is advised to follow up with a memo, letter or email to ensure a client or employer has a clear explanation of the opinion and the facts and reasons leading to it.

Since professional engineers are professionally bound to express opinions only when such opinions are based on adequate knowledge and sound conviction, practitioners must engage in sufficient investigation and analysis to provide a thoroughly considered opinion. It is important that engineers decide how much work is required to provide clients with the assurance that they seek. However, engineers should be fully aware of their clients' needs, and must address only these, avoiding unnecessary work.

Engineers should inform clients about the need for all calculations, analyses, and necessary tests to produce technical opinions, and ensure that clients are fully aware of possible consequences, if required work is not authorized.

Professionals do not have to be providing advice or giving opinions as part of a formal relationship with a client or employer to incur liability. Even offering advice about engineering-related matters in an informal setting, such as a social gathering ("gratuitous advice"), could expose a practitioner to litigious claims. For this reason, professional engineers should follow the example of doctors and lawyers and refrain from offering opinions or advice except when properly engaged in a client-practitioner relationship.

10.7 Communications

Practitioners should record all communications during a project in sufficient detail to be able to recreate the events months or even years later. For this reason, emails or letters are preferable to oral communications. Since much of the communication happening during a project is oral, practitioners should become accustomed to keeping journals. Notes should be taken of any conversations or meetings. Phone logs should be used to keep track of calls made and attempted.

In any oral communication, the important parts of the conversation should be rephrased and repeated back to the client, employer, contractor or other party for verification that each party understands and agrees to points made. Clearly restating at the end of a conversation any points of agreement and decisions will help avoid miscommunications and the resulting problems.

10.8 Retaining Documents

Professional engineers produce many documents in the course of carrying out their assignments. Practitioners producing documents for clients often find that storage of these documents is costly and want to dispose of them when they no longer serve a purpose to the engineering firm. Unlike certain corporate documents, there is no legal requirement under the *Professional Engineers Act* or other legislation stipulating how long engineering documents, including drawings and specifications, must be retained. Generally, the documents belong to the person or firm that created them and that person or firm is at liberty to do with them as they see fit. Each engineering organization can decide on its own rules for retaining and disposing of the documents it produces.

However, practitioners should always inform clients about their firms' document retention policies and confirm they are acceptable to clients. A practitioner should learn whether a client has special document requirements at the initial meeting and these requirements should be specified in the agreement. This should include obligations on the practitioner to protect, store or destroy documents related to the project.

At the conclusion of a project, a practitioner should provide a client with sufficient copies of all final documents, either in hard-copy or electronic format. The number of copies and the format should be stated in the client-practitioner agreement or contract.

10.9 Confidential Information

Section 77(3) of O. Reg. 941/90 covers confidentiality, making it clear that professional engineers should not divulge any information sensitive to their clients' or employers' business to third parties, unless expressly or implicitly authorized by their clients or employers or required by law to do so. Unreserved communication between practitioners, clients or employers is essential to effective delivery of professional services. Clients/employers must feel that all

correspondence between themselves and their engineers are completely secure. They are entitled to assume this to be the case, without making any request as to the maintenance of confidentiality. They are also entitled to assume that the duty of confidentiality will survive the professional commission that required it, and continue indefinitely after the termination of contracts or relationships.

In preparing material for technical publications, practitioners should be particularly careful to avoid inadvertent disclosure of confidential information, and should seek approval or consent of affected parties before submitting any client-specific information for publication.

Professional engineers are also expected to avoid using information for the benefit of themselves or third parties, or to their clients' or other practitioners' disadvantage. Engineers are expected to decline employment or a commission that would require disclosure of such information.

Generally, employers are able to protect their proprietary rights as confidential information, while employees are free to use the skill, expertise and knowledge that have been acquired during employment. Employed engineers may be concerned as to the precise obligation upon them when changing employment within their field. It is generally considered that engineers may apply in new positions any general knowledge or expertise gained in old positions, as long as it falls into a "state of the art" category. However, engineers are not entitled to apply in new positions information gained in old positions that is of a proprietary nature and considered to fall into the category of "trade secrets".

For example, an engineer works for company X, which is in the business of mineral exploration. The engineer is responsible for compiling and analyzing data regarding drilling, leading to determination of mineral reserves. The engineer, in the course of employment, gains skill and experience in analyzing data for sites within this particular geological formation. The practitioner also acquires confidential information regarding mineral reserves on land worked by X. The engineer then leaves the employ of company X and joins a competitor company Y, which proceeds to buy land adjoining the property based on the engineer's knowledge of confidential information. Though the engineer can apply the specialized knowledge and skills learned at X to carry out analysis of the site, revealing the

confidential information to Y is a breach of an outstanding obligation to the previous employer.

Since in the course of their assignments practitioners might need to discuss aspects of projects with third parties, they should ask clients to stipulate which disclosures need to be kept confidential. It may well be worthwhile for professional engineers to make this distinction clear to their clients in certain situations. This stipulation should be included in the agreement for services or employment contract.

Occasionally, clients or employers might wish to keep secret dangerous or potentially dangerous situations. There should be no doubt, however, as to how a professional engineer must act in such cases, since all professional engineers are obliged to "regard the practitioner's duty to public welfare as paramount". For information on how to proceed in these cases, including a discussion of the exceptions to the duty of confidentiality, see Section 9, "Duty to Report". Practitioners who find themselves in such circumstances should seek legal advice before contravening the duty of confidentiality.

For example, a practitioner may be asked to sign a document that prevents the engineer from discussing the contents of the engineer's report with anyone other than the client or the client's lawyer under any condition. The underlying threat is that any discussion regarding the report with others would constitute a breach of contract. The practitioner completes the assignment and in the report strongly recommends certain actions be taken by the client with respect to the adverse environmental impact caused by the client's operations. After several months, no actions have been taken by the client and the practitioner, concerned about the lack of response, feels obliged to report the problem to somebody. The practitioner will need to consider whether the paramount duty (section 77(2)(i), O. Reg. 941/90) obliges the practitioner to notify authorities of the client's environmental impacts in contravention of the confidentiality agreement. It is prudent to reference such exceptions in any confidentiality assurance provided.

PEO advises that practitioners who have knowledge of an employer's proprietary information and those who have signed non-disclosure, non-compete or similar agreements with their employers should obtain legal advice before moving to a competing employer.

10.10 Volunteering

Though practitioners' professional engineering knowledge and experience might be beneficial to condominium boards, non-profit groups, social organizations and other civic institutions, practitioners involved as volunteers in such organizations should not provide such engineering services as design, analysis, or the offering of professional opinions. Practitioners should limit their input to explaining technical matters to co-volunteers and constituents, outlining the need for professional engineering input and preparing requests for proposal for engineering services. A practitioner's expertise is helpful in carrying out these non-engineering tasks.

The *Professional Engineers Act* makes no distinction between providing professional engineering services for a fee or on a volunteer basis. The individual or volunteer organization providing professional engineering services will need a certificate of authorization. Also, providing services as a volunteer does not make one immune to liability. Since either the client or a third party affected by the work can bring a lawsuit against the engineer or the volunteer organization, volunteers are urged to investigate their need for professional liability insurance.

10.11 Data Gathering at Beginning of Project

10.11.1 Data to be obtained

At the beginning of any engineering project, a practitioner should review and become familiar with all information, such as standards, manuals, equipment and material specifications, and contract documents, relevant to the project and available to the practitioner. A search of available technical literature, such as journals and trade magazines, for best practices and experiences of other practitioners engaged in similar projects can be useful.

Practitioners should also become familiar with applicable federal and provincial regulations and, for certain kinds of engineering work, municipal by-laws. All provincial statutes, including the *Ontario Building Code Act* and the regulations under the *Ontario Water Resources Act*, the *Environmental Protection Act*, and the *Occupational Health and Safety Act* are available on the E-laws website (<http://www.e-laws.gov.on.ca>). The Justice Laws website (<http://laws.justice.gc.ca>) is the online source of the consolidated Acts and regulations

of Canada. A list of regulations that affect many professional engineers is given in Appendix 2.

Preliminary research conducted at the beginning of a project might also involve reviewing drawings and reports prepared by other professional engineers. According to the code of ethics, there is an obligation to notify these other practitioners only if they are still employed or retained by the client.

10.11.2. Site investigations

Many engineering projects depend on having accurate knowledge of the existing conditions present at the site of a proposed project. Such information can be obtained only through a personal inspection of the site by the practitioner or a delegate who is well informed

Practitioners should be sure to obtain equipment nameplate data; dimensions; detailed views of parts of the site, structures and/or equipment; and samples, where appropriate.

In all cases, the information should be documented and preserved for future use. It is important that all information be properly identified and recorded. Using the following list, engineers should record:

- time, place and location of site investigation(s);
- where, when and from whom information was obtained;
- what the information is to be used for; and
- names and descriptions of things (equipment, structures, property, etc.) studied.

Often, an engineer or client will arrange for tests of existing equipment, structure or site materials, such as soil or water, to be carried out by an independent testing agency or by a qualified tradesperson. Whenever possible, engineers should witness these tests to ensure they are performed according to their detailed instructions, particularly when reliance must be placed on a relatively small number of tests.

Though visiting a site is important, professional engineers have no right of trespass. They are entitled to be in a public place, but can access private property only with the express permission of the owner.

11. Conflicts of Interest

Employers and clients must be able to trust practitioners. But trust cannot be maintained when relevant information is not shared. The problem is to determine what information is relevant and when it should be shared. This depends

on being able to recognize situations when practitioners should tell clients and employers about an interest that might appear to affect their judgment. Disclosure of conflicting interests does not mean a practitioner is admitting a lapse in judgment will happen or that the practitioner is susceptible to pressure. Informing clients and employers of circumstances that might negatively affect their interests simply recognizes their right to make decisions about how to deal with these situations.

Although engineers have always been faced with conflict-of-interest situations, serious problems have been rare. However, as society becomes more litigious and as issues become more entwined, the problem of conflict of interest is increasing for the professions generally, including engineering. As professionals, engineers must be aware of what constitutes conflicts of interest and how to avoid them.

Regulation 941/90 made under the *Professional Engineers Act* clearly describes the circumstances that create a conflict of interest. In section 72(2)(i) it states that “failure to make prompt, voluntary and complete disclosure of an interest, direct or indirect, that might in any way be, or be construed as, prejudicial to the professional judgment of the practitioner in rendering service to the public, to an employer or to a client” shall constitute professional misconduct. To know when disclosure is appropriate, a clear understanding of what causes a conflict of interest is needed.

The two main features of a conflict of interest are:

1. an interest of the practitioner or another party who can benefit from the practitioner’s actions; and
2. an obligation or duty owed by the practitioner to another person (usually a client or employer) that can be adversely affected by any action taken by the practitioner to secure that interest.

The primary problem with a conflict of interest is not the existence of competing interests, but the fact that pursuing one or more of these interests makes it necessary to place duties secondary to the interests. In the case of professional engineers, official duties include the paramount duty to protect life, health, property, economic interests, the public welfare or the environment in those situations that require the application of engineering principles.

Note that according to section 72(2)(i), O. Reg. 941/90, the misconduct is a result of *failing to tell* all the parties about an

interest that *conflicts, or may appear to conflict, with a duty*; this implies that having conflicting interests is not in itself an unethical or illegal act. After all, people sometimes end up facing conflicting interests in situations created by others.

For instance, an engineer who is the manager of quality assurance at Company C finds out that the purchasing manager has contracted with a new supplier of precision plastic components; unfortunately, the production manager at that firm is the QA manager’s spouse, a fact unknown to everyone at Company C. The QA manager did not create this situation and though there is no immediate pressure on this engineer, a potential conflict exists. As long as the QA manager does not let circumstances sway professional judgment there is no wrongdoing. But can all parties, even those unaware of the situation, be certain that there will be never be pressure to accept a bad lot of plastic parts? The absence of wrongdoing by the QA manager does not negate the obligation to report the situation to senior management at Company C.

The simplest and most effective way to deal with potential conflicts of interest is to be forthright and talk to the appropriate parties about any circumstances that could reasonably lead those parties to question the practitioner’s judgment. In most cases, there will either be no perceived conflict (i.e. the parties are willing to accept the situation) or steps can be taken to eliminate the possibility of one occurring.

By obtaining the agreement of all interested parties that there is no conflict of interest, engineers reduce the possibility of litigation and charges of professional misconduct. If agreement cannot be found, engineers have no option but to withdraw their services, thereby avoiding an embarrassing investment in services by clients and eliminating the possibility of costly litigation.

11.1 Situations with the Potential for Conflict of Interest

The following examples illustrate some of the conflicts of interest that can confront professional engineers who provide engineering services or products.

11.1.1 Case A

Engineers can most often become involved in conflicts of interest when they are confronted with the possibility of working for more than one client on the same project.

For example, a land owner hires a professional engineer to carry out a planning study regarding the development of a piece of land. The engineer prepares the report, time passes, and the developer does not request or need any further information from the engineer. The engineer is paid for all the work done. The municipality in which the development exists is in need of an engineering opinion that involves, among other things, this same land. It therefore contacts the engineer who prepared the report for the developer because of the engineer's expertise in the type of work and previous experience with the municipality. The engineer is now faced with the problem of possibly working for two different parties, each of whom is involved with the same issue. What should the engineer do?

Before accepting an assignment from the second party, the engineer must recognize there is a potential conflict of interest. A prudent engineer will explain to the municipality's representative that a report was prepared for one of the land developers. The municipality might well deem this to be a conflict and select another engineer for the assignment, thereby ending the potential conflict. Alternatively, the municipality could decide there is no conflict and be willing to continue with the engineer. However, this does not resolve the engineer's potential conflict, because the developer, who is the first client, is not party to this decision. The engineer should advise the municipality that the assignment will be accepted only if the developer agrees in writing that there is no conflict. Once that written agreement is obtained, the second assignment can be accepted. If no waiver is provided, the municipality may agree to retain the professional engineer generally but obtain a different one for this specific land owner.

11.1.2 Case B

In some circumstances, an engineer might be requested by one client to provide expert opinion against another client for whom the engineer had regularly provided services in the past. The dispute does not involve any services provided previously by the engineer, but is simply a case of one loyal client retaining the engineer on a matter that involves another loyal client on the other side. The engineer has no previous knowledge of the issue. Clearly, there is no con-

flict of interest in this example, but there is an important business decision for the engineer to deal with. Prudent engineers may decide to step away from this assignment.

11.1.3 Case C

This case illustrates a conflict of interest that might occur in circumstances involving an situation in which practitioners are privy to privileged or confidential information.

Engineering firm ABC is retained to investigate the collapse of a large warehouse on behalf of the contractor who constructed it. A senior engineer employed by ABC is assigned to this project to work closely with the contractor's lawyer and chief engineer. The owners of the warehouse also retain an engineering expert through their lawyer. This engineer is employed by XYZ Engineering and works closely with the owner's lawyer and building manager.

During litigation investigations, ABC's senior engineer is assisted by a junior engineer who carries out calculations, reviews drawings, and accompanies the senior engineer at the occasional meeting with the contractor's lawyer and chief engineer. Both experts prepare reports, and litigation drags out for a considerable time. ABC's junior engineer is assigned to several other projects in the interim, and years pass without any further participation on the warehouse collapse.

Eventually, the junior engineer leaves ABC and is hired by XYZ to work in the bridge design department. The contractor's lawyer learns that XYZ has the junior engineer on staff. The contractor's lawyer applies to the court seeking a declaration that the firm XYZ is ineligible to continue to act for the owners because it is now in possession of the contractor's privileged and confidential information through the junior engineer who worked on the case for the contractor.

The Supreme Court of Canada concluded that such a situation constitutes a conflict of interest in certain instances involving law firms; it has been suggested that engineering firms could be exposed to the same conditions. For instance, even though the junior engineer in this example was never assigned to the warehouse case by new employer XYZ, there is a strong presumption that confidences are shared among engineers; to the courts, this could be enough to create the appearance of a conflict of interest.

This situation is difficult to prepare for, yet can potentially be very damaging to the engineering firm's client, since years of effort could be devalued. This would leave the cli-

ent very vulnerable as the trial date approached. To avoid problems, XYZ should either obtain the agreement of ABC and its relevant clients or set up at the time of hiring a formal administrative separation of the junior engineer from all information and discussions on the matter. Legal advice should be sought.

11.1.4 Case D

Engineers are often active outside their particular engineering activities, serving with charitable groups, boards of directors, political parties, etc. From time to time, while participating in one of these non-engineering groups, circumstances will put engineers in positions where they might be required to participate in selecting or appointing an engineer to provide engineering services to the non-engineering group. This could put engineers working with the non-engineering group in a conflict of interest if their own engineering firm is in competition for this assignment. Engineers should recognize this conflict and refuse to participate in the selection process, after explaining the circumstances to the group they are serving.

11.1.5 Case E

It is not uncommon for small municipalities that cannot afford to have a permanent municipal engineer on staff to retain a consulting engineer to fill that role. That engineer, for all intents and purposes, fulfills the duties of the municipal engineer. In this example, an engineer providing these services to the municipality has another client who is in the land development business. The developer requests the engineer to provide services on a project that the developer intends to carry out on land owned within the municipality for which the engineer provides the ongoing municipal engineering duties.

In this particular situation, municipal approvals are required. The engineer recognizes there is a potential conflict of interest if assistance were provided to the developer, because of the confidential information the engineer has with respect to the ongoing work done previously for the municipality. Also, in approving work carried out by the developer on behalf of the municipality, the engineer would be trying to serve two clients on the same work and therefore would be in further conflict. The engineer decides correctly to turn down the work for the developer, so the ongoing work for the municipality can be performed without such conflict.

11.1.6 Case F

Engineer M works in company XYZ that develops and sells products and services to a wide variety of customers. Friend N runs ABC Services, a small company that sells a specialized product very different from those produced by XYZ. Engineer M has ideas for improving the product sold by ABC Services and offers to assist N. Engineer M develops the design on her own time using resources made available at ABC Services by N.

Because the product is not a competitor for those sold by XYZ and M is not using XYZ resources, M's work on the product does not directly conflict with her obligations to her employer. However, according to sections 72(1)(i).4 and 77.5, O. Reg. 941/90, engineer M is required to notify her employer about these "moonlighting" activities. This is necessary so the employer can be advised of circumstances that might appear to be a conflict if discovered in the future. The best course of action is to make all parties aware of the situation at once and allow the parties the opportunity to be assured that a conflict does not exist.

12. Certificate of Authorization

The *Professional Engineers Act* requires that every individual practising professional engineering hold a licence, and every business entity (sole proprietorship, partnership or corporation) offering services to the public hold a certificate of authorization granted by the association. The term "providing services to the public" is used in O. Reg. 941/90 to denote arrangements other than employment where the practitioner is undertaking engineering work for the benefit of at least one person. This can be as a sole proprietor, as an employee of an engineering firm, or as an employee for a firm manufacturing custom-designed equipment. The "public" in this context is any person or corporate entity external to the provider of the engineering services.

The term "providing professional engineering services to the public" is used in conjunction with two specific regulatory issues mentioned in the *Professional Engineers Act*: the sealing of engineering documents and the need for a certificate of authorization. A person is providing professional engineering services when he or she undertakes any of the activities considered to be within the practice of professional engineer-

ing for the benefit of an employer or “the public”. For the purposes of all regulatory directives regarding engineering practice, “the public” is considered to be anyone other than the practitioner or the practitioner’s employer. Therefore, a practitioner is providing professional engineering services to the public when the work is done for the benefit of an individual, corporation, government or other entity that is not the engineer’s employer. Work done by a professional engineer solely for the employer’s use within the employer’s domain is not considered to be work done for the public, even if the employer is a public institution, such as a provincial or municipal government, school board, or crown corporation. However, if the work involves the practice of professional engineering, it must be done by or supervised by a professional engineer, even if it is solely for the employer’s benefit. The only exception to this is the so-called “industrial exception” described in section 12(3)(a) of the Act.³

This legal requirement is not eliminated in cases where the practitioner or business is providing engineering services for free or as a volunteer (see Section 10.9).

For more information on the C of A, please refer to *Certificate of Authorization Requirements: An Information Guide* (http://peo.on.ca/index.php/ci_id/22445.htm).

13. Part-time Entrepreneurship

The term “moonlighting” is understood to describe any instance where individuals who are engaged full-time by an employer as their principal means of livelihood offer or undertake professional engineering services for a different and separate employer or client, conducting such work in hours outside those of regular employment.

This practice has obvious possibilities for conflict of interest if there is failure to fulfill the obligations owed, either explicitly or implicitly, to the employer by contract of employment. The code of ethics refers to this practice in article 77.5, O. Reg. 941/90, which outlines the limitations that may be placed on such services.

It must be borne in mind that every entity, whether it is an individual, partnership or a corporation, that offers or pro-

vides professional engineering services to the public, (i.e. to a person or business other than the entity’s employer) requires a certificate of authorization. This applies to practitioners operating a part-time engineering business.

14. Advertising

Practitioners holding a certificate of authorization are allowed to advertise their engineering services as long as the advertising is done in a professional and dignified manner. The advertising must describe the practitioner’s services and experience in a factual manner without exaggeration.

Section 75 of O. Reg. 941/90 governs the use of advertising by a practitioner or firm. The regulation expressly forbids the use of a member’s engineering seal or the seal of the association in any form of advertising engineering services. This includes the use of these seals on business cards and letterheads. A violation of section 75 could expose the practitioner to a complaint of professional misconduct.

Practitioners should avoid advertising that:

- claims a greater degree or extent of responsibility for a specified project or projects than is the fact;
- fails to give appropriate indications of cooperation by associated firms or individuals involved in specified projects;
- implies, by word or picture, that a practitioner is solely responsible for the engineering of a product, system or facility that was either designed in collaboration with others or was not the result of the practitioner’s work;
- denigrates or belittles another professional’s projects, firms or individuals;
- exaggerates claims as to the performance of a project;
- illustrates portions of a project for which the advertiser has no responsibility, without appropriate disclaimer, thus implying greater responsibility than is factual; or
- directly or indirectly criticizes a practitioner or the employer of a practitioner.

Firms holding a valid certificate of authorization are allowed to use both the PEO logo and the statement “Authorized by the Association of Professional Engineers of Ontario to offer professional engineering services” on their business docu-

3. Again, there is a legislative proposal at the time of printing to remove the industrial exception at section 12(3)a.

ments and advertising. Contact PEO for information on permissible formats and for reproduction materials.

15. Professional Standards

As the administrator of a self-regulating profession, the Council of PEO is responsible for regulating the practice of professional engineering by ensuring that practitioners conform to generally recognized norms of practice. It is universally recognized that adherence by practitioners to quality standards for professional services plays an important part in shaping both the role and the image of the profession. To ensure that this can be done, the *Professional Engineers Act* gives PEO Council the authority to establish, develop and maintain standards of practice that must be adhered to by all competent practitioners.

Practitioners can benefit from benchmarks that help them determine the proper level of service they need to provide. However, professional engineers are expected to rely on their own judgment in deciding how to fulfill the tasks entrusted to them. For this reason, instead of dictating rigid rules, PEO's professional standards describe the required outcome of an engineer's activities and leave the method of accomplishing these goals to the discretion of the engineer.

Professional standards prescribed by PEO Council can be found in O. Reg. 260/08, a regulation under the *Professional Engineers Act*. The current version of this regulation can be found on the provincial government's E-laws website (<http://www.e-laws.gov.on.ca>).

16. Practice Guidelines

In addition to prescribed standards, PEO publishes guidelines providing advice and recommendations to practitioners on best practices.

An important purpose for PEO's guidelines is to explain the role of a professional engineer to the public, especially clients and employers. Often those who hire engineers do not realize the extent of the legal and ethical obligations imposed on engineers because of their professional status. Since practitioners are responsible for both performing work competently and complying with the *Professional Engineers Act*,

it is important that practitioners, not clients or employers, decide how to carry out professional engineering assignments. By demonstrating that a project requires specialized knowledge, a professional standard of service, and responsibility for life and property, guidelines provide engineers with a means to justify their assessment of the scope of work for each project for which they accept professional responsibility.

Since professional engineers function within what is often a very complex legal, technical and social environment, it is important for them to know how to fit into a larger endeavour. Often, in addition to an employer's or client's expectations, an engineer engaged to perform a specific task must respond to many particular duties derived from the code of ethics or demand-side legislation. Guidelines, although not mandatory standards, are considered by peers within the profession to be persuasive indicators of what is considered to be minimum acceptable performance. They are intended to aid engineers in performing their engineering role in accordance with the *Professional Engineers Act* and subordinate regulations by interpreting how these determine the appropriate scope of services to be provided in certain areas of practice.

Since the ethical and statutory obligations set out in the *Professional Engineers Act* and other legislation are broadly defined, practice guidelines interpret the legislative requirements and explain how these impose specific duties in narrow areas of practice.

In most cases, the guidelines provide a general definition of the roles and responsibilities of professional engineers and are intended to advise practitioners of what would normally be expected of a reasonable and prudent engineer practising in a particular area. They are not intended to specify each and every aspect of a particular task. Instead, guidelines outline a set of core services or issues that practitioners should consider. It is not intended that all services listed in a scope of practice be provided on all projects. However, engineers should be aware of all the services reasonably associated with the task.

However, guidelines should also not be considered as limiting the scope of services that might be necessary to fulfill the duties of a professional engineer. Engineers must exercise professional judgment in recommending to employers or clients which services should be applied to each project, depending on the project's size and complexity. The guidelines should not be considered as a means of reducing or otherwise limiting an engineer's responsibility for the outcome of services rendered.

PEO guidelines are not intended to be short courses in an engineering subject. Practitioners are expected to be competent in their area of work by virtue of education and experience before engaging in professional practice. PEO

guidelines are also not prescriptive manuals, since they do not provide detailed instructions for undertaking a task such as design. When practitioners need information regarding criteria for design, they should refer to the best practice standards established by the research and experience of other practitioners in their area of work. These discipline-specific standards are prepared by technical associations or learned institutions, such as the Institute of Electrical and Electronics Engineers Inc. (IEEE) or the American Society of Mechanical Engineers (ASME). Practitioners should be familiar with all aspects of the *Professional Engineers Act* and its regulations. The sections provided in this guideline have particular relevance to professional practice.

Appendix 1. Extracts from Regulation 941/90

Practitioners should be familiar with all aspects of the *Professional Engineers Act* and its regulations. The sections provided in this guideline have particular relevance to professional practice.

1. Professional Misconduct

Section 27 of the *Professional Engineers Act* gives the Discipline Committee the authority to hear and determine allegations of professional misconduct or incompetence against a practitioner. The following section of O. Reg. 941/90 identifies those actions or omissions by a practitioner that can be used as the grounds for a discipline case by the association.

72. (1) In this section,
“harassment” means engaging in a course of vexatious comment or conduct that is known or ought reasonably to be known as unwelcome and that might reasonably be regarded as interfering in a professional engineering relationship;
“negligence” means an act or an omission in the carrying out of the work of a practitioner that constitutes a failure to maintain the standards that a reasonable and prudent practitioner would maintain in the circumstances. R.R.O. 1990, Reg. 941, s. 72(1); O. Reg. 657/00, s. 1(1).
- (2) For the purposes of the Act and this Regulation, “professional misconduct” means,
- (a) negligence,
 - (b) failure to make reasonable provision for the safeguarding of life, health or property of a person who may be affected by the work for which the practitioner is responsible,
 - (c) failure to act to correct or report a situation that the practitioner believes may endanger the safety or the welfare of the public,
 - (d) failure to make responsible provision for complying with applicable statutes, regulations, standards, codes, by-laws and rules in connection with work being undertaken by or under the responsibility of the practitioner,
 - (e) signing or sealing a final drawing, specification, plan, report or other document not actually prepared or checked by the practitioner,

- (f) failure of a practitioner to present clearly to the practitioner’s employer the consequences to be expected from a deviation proposed in work, if the professional engineering judgment of the practitioner is overruled by non-technical authority in cases where the practitioner is responsible for the technical adequacy of professional engineering work,
- (g) breach of the Act or regulations, other than an action that is solely a breach of the code of ethics,
- (h) undertaking work the practitioner is not competent to perform by virtue of the practitioner’s training and experience,
- (i) failure to make prompt, voluntary and complete disclosure of an interest, direct or indirect, that might in any way be, or be construed as, prejudicial to the professional judgment of the practitioner in rendering service to the public, to an employer or to a client, and in particular, without limiting the generality of the foregoing, carrying out any of the following acts without making such a prior disclosure:
 - 1. Accepting compensation in any form for a particular service from more than one party.
 - 2. Submitting a tender or acting as a contractor in respect of work upon which the practitioner may be performing as a professional engineer.
 - 3. Participating in the supply of material or equipment to be used by the employer or client of the practitioner.
 - 4. Contracting in the practitioner’s own right to perform professional engineering services for other than the practitioner’s employer.
 - 5. Expressing opinions or making statements concerning matters within the practice of professional engineering of public interest where the opinions or statements are inspired or paid for by other interests,

- (j) conduct or an act relevant to the practice of professional engineering that, having regard to all the circumstances, would reasonably be regarded by the engineering profession as disgraceful, dishonourable or unprofessional,
 - (k) failure by a practitioner to abide by the terms, conditions or limitations of the practitioner's licence, provisional licence, limited licence, temporary licence or certificate,
 - (l) failure to supply documents or information requested by an investigator acting under section 33 of the Act,
 - (m) permitting, counselling or assisting a person who is not a practitioner to engage in the practice of professional engineering except as provided for in the Act or the regulations,
 - (n) harassment. R.R.O. 1990, Reg. 941, s. 72(2); O. Reg. 657/00, s. 1(2); O. Reg. 13/03, s. 19.
- v. competence in the performance of any professional engineering services that are undertaken.
2. A practitioner shall,
 - i. regard the practitioner's duty to public welfare as paramount,
 - ii. endeavour at all times to enhance the public regard for the practitioner's profession by extending the public knowledge thereof and discouraging untrue, unfair or exaggerated statements with respect to professional engineering,
 - iii. not express publicly, or while the practitioner is serving as a witness before a court, commission or other tribunal, opinions on professional engineering matters that are not founded on adequate knowledge and honest conviction,
 - iv. endeavour to keep the practitioner's licence, temporary licence, provisional licence, limited licence or certificate of authorization, as the case may be, permanently displayed in the practitioner's place of business.

2. The Code of Ethics

Practitioners are bound as an obligation of their licence to practise professional engineering to comply with the code of ethics given in section 77, O. Reg. 941/90. The code of ethics is a set of principles and rules that describe the kinds of professional conduct that are considered appropriate or inappropriate by the profession. Practitioners must apply these rules in governing all their professional assignments. Decisions and choices made by practitioners must reflect the values and principles set out in the code.

77. The following is the Code of Ethics of the Association:

1. It is the duty of a practitioner to the public, to the practitioner's employer, to the practitioner's clients, to other members of the practitioner's profession, and to the practitioner to act at all times with,
 - i. fairness and loyalty to the practitioner's associates, employers, clients, subordinates and employees,
 - ii. fidelity to public needs,
 - iii. devotion to high ideals of personal honour and professional integrity,
 - iv. knowledge of developments in the area of professional engineering relevant to any services that are undertaken, and
2. A practitioner shall act in professional engineering matters for each employer as a faithful agent or trustee and shall regard as confidential information obtained by the practitioner as to the business affairs, technical methods or processes of an employer and avoid or disclose a conflict of interest that might influence the practitioner's actions or judgment.
3. A practitioner must disclose immediately to the practitioner's client any interest, direct or indirect, that might be construed as prejudicial in any way to the professional judgment of the practitioner in rendering service to the client.
4. A practitioner who is an employee-engineer and is contracting in the practitioner's own name to perform professional engineering work for other than the practitioner's employer, must provide the practitioner's client with a written statement of the nature of the practitioner's status as an employee and the attendant limitations on the practitioner's services to the client, must satisfy the practitioner that the work will not conflict

with the practitioner's duty to the practitioner's employer, and must inform the practitioner's employer of the work.

6. A practitioner must co-operate in working with other professionals engaged on a project.
7. A practitioner shall,
 - i. act towards other practitioners with courtesy and good faith,
 - ii. not accept an engagement to review the work of another practitioner for the same employer except with the knowledge of the other practitioner or except where the connection of the other practitioner with the work has been terminated,
 - iii. not maliciously injure the reputation or business of another practitioner,
 - iv. not attempt to gain an advantage over other practitioners by paying or accepting a commission in securing professional engineering work, and
- v. give proper credit for engineering work, uphold the principle of adequate compensation for engineering work, provide opportunity for professional development and advancement of the practitioner's associates and subordinates, and extend the effectiveness of the profession through the interchange of engineering information and experience.
8. A practitioner shall maintain the honour and integrity of the practitioner's profession and without fear or favour expose before the proper tribunals unprofessional, dishonest or unethical conduct by any other practitioner. R.R.O. 1990, Reg. 941, s. 77; O. Reg. 48/92, s. 1; O. Reg. 13/03, s. 21.

Appendix 2. Provincial Legislation of Interest to Professional Engineers

Legislation	Topics covered
Ontario Building Code, O. Reg. 350/06	Standards for building construction; requirement for general review of construction by professional engineer; rules and procedures for obtaining building permits
Fire Code, O. Reg. 213/07	Requirements for fire prevention and protection in buildings and for industrial and commercial operations
<i>Occupational Health and Safety Act</i> Construction Projects, O. Reg. 213/91,	Personal safety requirements on construction sites; design standards for scaffolding, shoring and other temporary works; requirements for review of temporary works, tower cranes and other construction equipment by professional engineers
<i>Occupational Health and Safety Act</i> , Industrial Establishments, Reg. 851	Personal safety requirements for workers in industrial facilities and logging operations; requirements for pre-start health and safety reviews by professional engineers; standards for machine guarding, material handling, handling molten metals; protective equipment; confined spaces; fire prevention
<i>Occupational Health and Safety Act</i> , Mines and Mining Plants, Reg. 854	Standards for electrical and mechanical equipment, mine hoists and railways; protection of workers; requirements for reports by professional engineers
<i>Safe Drinking Water Act</i> , 2002	
<i>Safe Drinking Water Act</i> , 2002, O. Reg. 128/04	Certification of drinking water system operators and water quality analysts
<i>Safe Drinking Water Act</i> , 2002, O. Reg. 170/03	Engineering reports for drinking water systems
<i>Environmental Protection Act</i> , R.S.O. 1990, c. E.19	
Records of Site Condition, O. Reg. 153/04	Requirements for record of site conditions for brownfield sites
Waste Management, R.R.O. 1990, Reg. 347	Rules for handling, transporting and disposing of waste of various kinds
<i>Ontario Water Resources Act</i>	Permits for taking water from ground or well sources; licences for well drillers and well technicians
<i>Nutrient Management Act</i> , 2002, O. Reg. 267/03	Requirements and standards for design of nutrient storage containers, liquid nutrient transfer systems, anaerobic digesters
<i>Technical Standards and Safety Act</i> , 2000	Creates the Technical Standards and Safety Authority for the purpose of enhancing public safety by harmonizing and ensuring compliance with technical standards in a number of areas, such as boilers, pressure vessels, elevators, fuel handling and distribution, and amusement rides; responsible for licensing facilities and registering technicians in areas of its responsibility

Legislation	Topics covered
Propane Storage And Handling, O. Reg. 211/01	Requirements for licensing facilities; certification of operators; standards for safe operation of facilities; risk assessment by professional engineer
Elevating Devices, O. Reg. 209/01	Definition of elevating devices; requirements for elevating devices to be constructed to specific standards; licence required for elevating device; elevating devices to be designed by professional engineers; designs to be approved by TSSA; criteria for design submissions; testing and maintenance requirements; contractors require licence
Oil and Gas Pipeline Systems, O. Reg. 210/01 Gaseous Fuels, O. Reg. 212/01 Fuel Oil, O. Reg. 213/01 Compressed Gas, O. Reg. 214/01 Liquid Fuels, O. Reg. 217/01	Standards for design and construction of fuel distribution and handling facilities; requirements for licensing of facilities; duties of owners of facilities
Boilers and Pressure Vessels, O. Reg. 220/01	Criteria for the construction, maintenance, use, operation, repair and service of boilers, pressure vessels and piping; registration of equipment; registration requires equipment drawings prepared by a professional engineer
<i>Electricity Act, 1998</i> Licensing of Electrical Contractors and Master Electricians, O. Reg. 570/05	Restricts operation of an electrical contracting business to person licensed under the Act; business shall have master electrician responsible for all electrical work done by the business; a professional engineer working for the electrical contracting business may be licensed as a master electrician
<i>Public Transportation and Highway Improvement Act, R.S.O. c. P.50</i>	Powers and procedures for acquiring land and highways; designation of highways; restrictions related to each type of highway
Standards for Bridges, O. Reg. 104/97	Requirement for biannual inspections under direction of professional engineer of every bridge to verify structural integrity
<i>Highway Traffic Act, R.S.O 1990, c.H.8</i>	Traffic laws; vehicle and operator licensing; vehicle safety requirements; dealing with driving or vehicle offenses
Standards to Determine Allowable Gross Vehicle Weight for Bridges, O. Reg. 103/97	Gross weight limit for bridges to be determined and set by two professional engineers

Appendix 3. Amendment and Revision Submission Form

Guideline:

Statement of proposed amendment or revision:

Reason:

Submitted by: _____ Date: _____

Mail: Professional Engineers Ontario
101-40 Sheppard Avenue West
Toronto ON M2N 6K9

Attention: Standards and Guidelines Coordinator

Fax: (416) 224-1579 or (800) 268-0496

Email: practice-standards@peo.on.ca

Appendix 4. PEO Professional Practice Guidelines and Standards

Practice Guidelines

1. Acoustical Engineering Services in Land-Use Planning (1998)
2. Acting as Contract Employees (2001)
3. Acting as Independent Contractors (2001)
4. Acting under the Drainage Act (1988)
5. Building Projects Using Manufacturer-Designed Systems & Components (1999)
6. Commissioning Work in Buildings (1992)
7. Communications Services (1993)
8. Engineering Services to Municipalities (1986)
9. Environmental Site Assessment, Remediation and Management (1996)
10. General Review of Construction as Required by the Ontario Building Code (2008)
11. Geotechnical Engineering Services (1993)
12. Human Rights in Professional Practice (2009)
13. Land Development/Redevelopment Engineering Services (1994)
14. Mechanical and Electrical Engineering Services in Buildings (1997)
15. Professional Engineer as an Expert Witness (2011)
16. Professional Engineering Practice (2012)
17. Professional Engineer's Duty to Report (1991)
18. Project Management Services (1991)
19. Reports for Pre-Start Health and Safety Reviews (2001)
20. Reports on Mineral Properties (2002)
21. Reviewing Work Prepared by Another Professional Engineer (2011)
22. Roads, Bridges and Associated Facilities (1995)
23. Selection of Engineering Services (1998)
24. Services for Demolition of Buildings and Other Structures (2011)
25. Solid Waste Management (1993)
26. Structural Engineering Services in Buildings (1995)
27. Temporary Works (1993)
28. Transportation and Traffic Engineering (1994)
29. Use of Agreements between Client and Engineer for Professional Engineering Services (including sample agreement) (2000)
30. Use of Computer Software Tools Affecting Public Safety or Welfare (1993)
31. Use of the Professional Engineer's Seal (2008)
32. Using Software-Based Engineering Tools (2011)

Performance Standards

1. General Review of Construction of a Building (2008)
2. General Review of Demolition and Demolition Plans (2008)

Notes



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