



Professional Engineers
Ontario

GUIDELINE

Professional Engineers Reviewing Work Prepared by Another Professional Engineer

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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 1.

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1. PEO Mandate and Criteria for Guidelines

Professional Engineers Ontario (PEO) produces guidelines to educate 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 (PSC), reviewed and approved for publication by the full PSC and by PEO Council.

PEO 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 the necessary processes 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 expected practice by describing the required outcome of the process, identifying the engineer's duty to the public in the particular area of practice, and describing the relationships and interactions between the various stakeholders (i.e. government, architects, other engineers, clients).
4. Guidelines add value to the professional engineer licence for licensed engineers and for the public by outlining 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 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, or 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. On the other hand, following the guideline may not ensure that a member has provided services conforming to an acceptable standard. Determining whether a practitioner's service is acceptable will depend upon the circumstances of each case.

See Appendix 2 for a list of PEO professional practice guidelines.

2. Preface

Though professional engineers are often asked to review documents prepared by other professional engineers, PEO does not have any policies addressing this issue. Due to the large number of inquiries from members of the public, regulatory bodies and practitioners asking for policies or advice on this practice, PSC concluded a guideline for reviewing another practitioner's work was necessary.

During 2005, PSC prepared terms of reference for a subcommittee comprising both practitioners and representatives from regulatory bodies who had experience as reviewers of engineering documents. This group was asked to address questions about the proper role and responsibility for professional engineers conducting practice and technical reviews. The subcommittee was also instructed to prepare a guideline offering best practice recommendations for this activity.

The subcommittee met for the first time on December 5, 2005 and submitted a completed draft in May 2007. Following a reader review process, public consultations and PSC consideration, the draft was substantially revised. The final draft of the document was submitted to PSC for approval on October 18, 2011. The completed guideline was approved by Council at its meeting on November 11, 2011.

3. Purpose and Scope of Guideline

This guideline offers professional engineers conducting reviews of work prepared by other practitioners guidance on the professionally acceptable manner for carrying out such assignments. PEO considers the recommendations in this guideline to be commensurate with all professional responsibilities of practitioners.

The guideline is also intended to resolve confusion about whether reviews of work prepared by other practitioners should be assessments of a practitioner's professionalism and competence as demonstrated by the work (e.g. Is work complete and done properly? Is the practitioner aware of current standards, etc.?), or consideration of the work itself to determine whether it represents the best technical or most economically feasible approach to an engineering problem. Since practitioners can be asked to provide either type of reviews, PEO has developed recommendations for both activities.

The guideline covers the role of professional engineers who might be involved in providing these services as an employee or to a client. It covers all reviews carried out by professional engineers as part of their normal employment duties, such as reviews conducted by engineers employed by authorities, the review of shop drawings, and review for the purpose of quality assurance of engineering work carried out by colleagues within a business or other organization. The guideline also deals with reviews requested by a client seeking confirmation the originating practitioner has fulfilled terms of a contract of service with the client, or checking that the practitioner's work complies with technical or industry standards. Reviews can also be triggered by interested third parties, such as tenants, property owners or taxpayers, who are concerned about the impact a project might have on them or their community. In these cases, an engineer's review might be intended to provide technical support for a third party's civil or political actions. In other cases, an engineer's review might be used by a client dissatisfied with the work of a professional engineer in litigation against the professional engineer (see PEO's *Guideline on the Professional Engineer as an Expert Witness*).

NOTE: References in this guideline to professional engineers apply equally to holders of temporary licences, provisional licences and limited licences.

4. Introduction

The *Professional Engineers Act* and its regulations refer only once to the practice of reviewing work¹. That reference is in clause 77.7.ii, O. Reg. 941, which states that a practitioner shall:

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 is terminated.

This is a fairly specific but limited prohibition; as shown in section 6.5, it contains some general principles regarding the practice of reviewing another practitioner's work. This direction and the conflict of interest provisions of the *Professional Engineers Act* provide a suitable framework in most cases for determining rules for reviewing another engineer's work. This guideline states the preferred practices derived from these general principles, and addresses cases not explicitly covered by the statutory references.

Professional engineers should not object to having their work reviewed or to reviewing work of a colleague. Review of a practitioner's work by another engineer is a reasonable and, in the case of legislated requirements, necessary practice. As long as the practice is carried out objectively and fairly, it is consistent with a practitioner's ethical obligations, the association's responsibility to maintain high professional standards and the need to maintain the public's trust in the profession.

All practitioners should be aware of the broader implications of offering opinions on the work of another professional engineer. In some cases, the fact that a practitioner's work was subjected to a review can negatively impact the engineer's reputation. Even when the result of a review is not widely known, an unfavourable opinion of the work can permanently impair the relationship between a practitioner and a client or employer. To ensure reviews fulfill the legitimate goals of this practice in the most professional manner possible, reviewing

1. Other provisions that indirectly bear upon the practice of reviewing work are discussed in section 6.5.1.

engineers need to be aware of procedures for ensuring fairness, impartiality and completeness of the review process.

An objective assessment might identify deficiencies or problems in the reviewed work that need to be reported. What needs to be reported and to whom will vary from project to project and should be left to the reasonable discretion of the reviewing engineer. To properly report what is necessary, the reviewer must be clear about the distinction between real flaws in the work and professional differences of opinion.

Practitioners undertaking a review must be aware of such issues and take every reasonable precaution to deal with them in a professional manner. Appropriate measures to take into consideration are provided in section 6 of this guideline.

This guideline does not address practice reviews, which are intended to provide an opinion on whether the quality of the service provided by a practitioner in a specific situation is comparable to similar work done by peers. The reviewer will offer an assessment of whether the authoring engineer exhibited good engineering practice in providing the service to the client. The reviewer should provide an opinion as to whether the engineer whose work is being reviewed has followed appropriate industry-accepted methodologies, employed a logical design or analytical process, and properly considered all applicable regulations, standards, codes, and best practice design principles. The reviewer should verify that the authoring engineer undertook all necessary inquiries to identify particular requirements of the project, including, but not limited to, site visits, acquisition and review of such relevant documents as original drawings or equipment specifications and contacts with regulatory bodies. In general, a practice review assesses the methodology employed by the authoring engineer, not the quality, suitability or other aspect of the design, study or report produced.

A practice review does not address whether a design, technical report or other engineering work is accurate and appropriate for the client's needs, or is it an evaluation of the economic value of the design or the service provided by the authoring engineer.

Recommended best practices for carrying out practice reviews are provided in a separate PEO guideline.

5. Definitions

The following definitions apply for the purposes of this guideline and might not be generally applicable in other situations.

- *Authoring engineer*: the professional engineer responsible for preparing the engineering document under review.
- *Good engineering practice*: well-known, widely available and generally acceptable behaviour proven by long-standing, constant and general use or acceptance. This behaviour includes, but is not limited, to:
 - o access to and understanding of theoretical and practical knowledge that generally corresponds to the state of the art in the professional engineer's field at that particular time;
 - o expression of technical information through graphical representation and/or written documents in sufficient detail to make engineering decisions by others unnecessary;
 - o awareness and consideration of customary design solutions;
 - o application of good judgment based on analytical skills; and
 - o adherence to current or applicable standards and codes published by recognized technical, professional and regulatory bodies.
- *Practice review*: a review of companies, organizations and/or departments providing professional engineering services, to assess the quality of practice in the workplace and the manner in which files, books and records are kept or to evaluate process and procedures for producing engineering work.
- *Practitioner*: a person holding a licence, temporary licence, limited licence or provisional licence issued by Professional Engineers Ontario.
- *Professional standards*: the expected outcome of a professional engineering service or the acceptable manner of carrying out a professional engineering task as described in regulations under the *Professional Engineers Act* or guidelines published by Professional Engineers Ontario, or, where there are none, by generally accepted professional engineering standards.
- *Regulatory Review*: a review of a document, conducted by representatives of a governmental or quasi-governmental

body, to determine whether the content of the document complies with regulations, bylaws or standards administered by that body.

- *Review*: an examination of the content of any type of engineering document prepared by or under the direct supervision of a professional engineer.
- *Reviewing engineer or reviewer*: the professional engineer reviewing the content of the engineering document.
- *Same employer*: a person or organization who ultimately benefits from the services of both the authoring and reviewing engineers.
- *Second opinion*: the alternative opinion provided when a second practitioner independently carries out an assignment already completed by another.
- *Technical review*: a review of a document to determine whether the engineering content of the work is correct, complete or suitable for the intended application.
- *Unlicensed person*: a person who does not hold a licence issued by Professional Engineers Ontario to practise professional engineering and who is not entitled to practise professional engineering except when delegated to do so under the direction of a professional engineer.
- *Work*: A drawing, design calculations, engineering report, specification or other document, containing directions, opinions or judgments of an engineering nature prepared by or under the supervision of the authoring engineer.

6. Reviewing Professional Engineering Work

6.1 Purpose of Review

A review of a practitioner's work can be undertaken for various reasons and in many different relationships. Reviewers can be colleagues in an organization, employees of government regulatory bodies, employees of client firms or other organizations using the engineer's work, or third-party engineers retained by a client to provide an independent assessment of the work. There are numerous circumstances, from corporate quality assurance to litigation against a practitioner, that can give rise to a request for a review. However, the developers of this guideline have identified two distinctly

different types of review: practice review and technical review. The two types are distinguished by:

- a) the reason for the review;
- b) the subject matter reviewed;
- c) how the party requesting the review intends to use the reviewer's report;
- d) the procedures to be followed in performing the review; and
- e) the responsibilities of the authoring and reviewing engineers.

In the most general terms, the essential purpose of a practice review is to assess an engineer's work or the service provided; it evaluates how the work was carried out. This is a judgment regarding the performance of the practitioner. Alternatively, a technical review assesses the correctness, completeness or appropriateness of the content in a document or drawing produced by an engineer. Technical reviews result in opinions regarding the quality of the output of the work, not how the engineer carried out the work. In other words, a practice review is an evaluation of the practice of a professional engineer, while a technical review is an evaluation of a design, analysis, calculation, instruction, or opinion.

Reviewing engineers should always clarify whether the client or employer is requesting a review of a practitioner's work or a second opinion.

A second opinion is a completely independent assessment of the situation, given to the client so the client has access to more information when making a decision. An engineer providing a second opinion takes a fresh look at the same situation provided to the first engineer and, without reference to the first engineer's work, proposes a solution, designs a concept, or makes recommendations. For instance, a homeowner who has found some cracking of exterior brickwork and suspects there might be structural problems with the house might hire an engineer who recommends costly underpinning of the foundation. Because the proposed work is expensive, the homeowner might decide not to proceed immediately but rather to get a second opinion. Clearly, what would be needed here is not a review of the first engineer's work, but rather a separate investigation and recommendation, which can be done without any consideration of the first engineer's work. Then the client, with or without an independent engineer's assistance, would decide which opinion to rely on.

In cases where a client is seeking a second opinion, the second engineer should not review the first engineer's work. In fact, reviewing the first engineer's work would be counterproductive, since this might influence or taint the second opinion.

Occasionally, a dispute can arise between client or regulator and authoring engineer about the suitability, applicability or compliance of a proposed design, report or other product of a professional engineering service. A review is not intended to be arbitration. The reviewer should be retained only to provide an opinion on the quality of the authoring engineer's work, not to settle a dispute or to offer opinions as to which party's position in a dispute is more credible.

6.1.1 Technical reviews

Technical reviews are undertaken to assess the suitability of a design, technical report or other output of an engineering service to determine whether it meets project requirements. Usually, these reviews are limited to performing random checks of engineering documents looking for technical errors. However, depending on a client's requirements, technical reviews can be extensive investigations of the methodology, design criteria and calculations used by the authoring engineer, as well as the correctness, appropriateness, economic viability or other attributes of the design decisions or study recommendations.

In addition to checking whether the appropriate methodology was applied correctly, the reviewer will verify the accuracy of calculations. Technical reviewers should also check to see that the applied standards, codes and other design criteria are appropriate for the project under review and that they were used correctly. In general, technical reviews are intended to make the following assessments:

- whether the completed work has met the objectives;
- whether the objectives set out for the work were reasonable;
- whether there were other options that should have been considered by the authoring engineer;
- whether the evaluation of options is comprehensive, unbiased and rigorous;
- validity of any assumptions made by the authoring engineer;
- validity of the conclusions or calculations;

- validity of recommendations; and
- fitness of the design or recommendations to the requirements.

The reviewer may comment on the appropriateness of the design, including opinions on its efficiency and economics, for the intended application. In the case of a technical report, the reviewer should comment on whether the recommendations are justified by the analysis or facts provided in the report. In addition to identifying shortcomings, misuse or lack of use of established industry standards, codes or design criteria, the review engineer may comment on the innovative, efficient, economical and other noteworthy aspects of the design or report.

Normally, a technical review would not be as comprehensive as an original design or analysis. In most cases, checks of random portions of the work would be performed rather than a review of each and every aspect of the authoring engineer's work. However, the thoroughness of review must be left to the discretion of reviewers, based on what they believe is necessary to adequately undertake the assignment and satisfy themselves that they have enough information to make sound conclusions. If warranted on the basis of concerns identified in the review, the reviewing engineer may advise the client or employer that a more comprehensive review is needed.

6.1.2 Regulatory reviews

A different type of review is that conducted by such regulatory bodies as municipal building departments, provincial ministries and their agencies, federal government agencies and PEO. In these cases, employees of the regulatory body review the practitioners' work submitted for approval purposes to confirm the work complies with prescriptive regulations, such as building codes and municipal bylaws. Except as described below, assessing regulatory compliance is a legal not an engineering matter and, therefore, does not have to be conducted by professional engineers. Individuals conducting regulatory compliance reviews must refrain from making engineering judgments. The compliance review must only compare information in the engineering documents with standards, codes or legislated requirements. For example, an unlicensed building official can make a judgment on whether the spacing between sprinkler heads in a given sprinkler system design is below or above the maximum spacing allowed by NFPA standards, since the

reviewer is required only to measure the design distance given on the documents and compare this to criteria prescribed in the standard.

When conducting compliance reviews, a regulatory body should report non-compliance issues only to the practitioner. Decisions on how to revise the document to deal with non-compliant issues must be left to the authoring engineer.

However, occasionally regulatory bodies undertake more rigorous reviews for technical adequacy, to determine whether designs meet performance standards or to assess designs that are not subject to prescriptive standards. For example, a building department may thoroughly analyze a proposed structural design to verify, for the municipality's own due diligence purposes, that the design is safe. A review of this kind must be performed by a professional engineer and should be done according to the terms of a technical review as described in this guideline.

Professional engineers employed by and conducting reviews on behalf of regulatory bodies should understand the mandate and the conditions under which the review is to be carried out. PEO recommends that regulatory bodies have written policies that specify the purpose of the review and the rules governing the procedures for carrying out this work.

6.1.3 Professional engineers providing reviews inside organizations

Professional engineers employed by engineering firms or other organizations might be called on to review the work of colleagues for various reasons. Such internal reviews can be practice reviews, to ascertain whether the authoring engineer is capable of doing assigned work or for personnel performance grading purposes, or technical reviews, for quality assurance purposes. When reviews are conducted by a colleague within an engineering firm, the reviewer might act like a problem-solving consultant and it is expected the relationship between the practitioners will be very cooperative, because the firm will ultimately be responsible for the outcome of the engineering service. For this reason, the authoring engineer's judgment may be overridden by a practitioner with more authority in the firm.² If the authoring engineer does not agree and is not willing to accept responsi-

bility for the changes imposed by the senior practitioner, the reviewing engineer should take responsibility for the entire engineering document by affixing his or her seal, or indicate and take responsibility for the changes to the document in which case both practitioners will seal the document.

Since both the authoring engineer and the reviewing engineer have the same employer, clause 77.7.ii, O. Reg. 941 applies; therefore, the authoring engineer must be notified that a review will take place. However, for reviews inside organizations individual notifications are not always necessary. In organizations where all drawings and documents are reviewed for quality prior to issuance or approval, a written corporate policy informing all practitioners that their work will be reviewed is sufficient notification. This practice applies only to regular reviews, including those undertaken as part of employee performance audits. In cases where the review goes beyond normal quality assurance due to concerns over an individual's ability to perform assigned tasks, the practitioner must be notified before the work is reviewed.

6.1.4 Pre-construction and similar reviews

It is also possible that an authoring engineer's work will be reviewed by a professional engineer employed by a contractor, fabricator, manufacturer or other person who will use the engineer's design to construct or manufacture a product for which the reviewing engineer's employer will then be responsible. In such cases, the person or organization using the design may be reviewing the engineering documents as part of its due diligence appraisal. After all, a firm producing a product or undertaking a project needs to be able to rely on the accuracy and completeness of the precursor engineering work, so has the right to check the design to ensure it is not faulty. In such a case, someone other than the authoring engineer's client or employer is requesting the review and the review is intended to protect the public or the user of the design rather than to judge the professional engineer. Since the review is initiated by someone other than the employer or client of the authoring engineer, clause 77.7.ii, O. Reg. 941 does not apply. The reviewing engineer does not need to inform the authoring engineer a review is taking place.

These reviews, like technical reviews, should assess the suitability and correctness of the design, instructions, directions,

2. A professional engineer's judgment on a matter of engineering cannot be overridden by an authority who is not a professional engineer. A non-licensed person can decide not to accept an professional engineer's judgment, can ask for changes to an engineering design or report, or can provide alternative criteria on which the engineer is expected to make a judgment but the judgment, opinion, or engineering decision must be made by a licence holder. See the *Guideline for Professional Engineering Practice* for more information on the interactions between practitioners and non-licensed authorities.

or other engineering output prepared by the authoring engineer. Therefore, these reviews should be carried out according to the guidance provided in Section 6.1.2. However, the standard of suitability or correctness in this case is not industry norms, but rather the willingness of the reviewer's organization to rely on the work. A practitioner reviewing documents that the practitioner's client or employer will rely on has a duty to protect the interest of the client or employer and the review should reflect this duty.

6.2 Review Procedures

6.2.1 General principles

Checking of work must be as thorough as required by the scope and kind of review; in other words, the extent of checking will need to be project specific. The extent of checking is always subject to the reviewer's reasonable discretion and dependent on judgments about how best to adequately undertake the assignment. The reviewer must always be satisfied the conclusions, whether positive or negative, regarding the quality of the documents or of the authoring engineer's service are based on proper assessment of the items under review.

Thoroughness of review must be based on the principle of fairness; that is, a review must be thorough enough to provide the client or employer with sufficient information to resolve outstanding questions and to warrant the opinions made by the reviewer about the quality of the work. If a review is not thorough enough, the reviewer might miss issues that should be brought to the attention of the client or employer. In this case, the reviewer's service would be inadequate.

On the other hand, a review must not be taken to the point of criticizing irrelevant, minor issues. A reviewer should not report on spelling errors, poor grammar, poor drafting or other aspects of the form of a document, unless these problems cause a document to be ambiguous, difficult to understand, or create the possibility for mistaken application by those relying on the document.

6.2.2 Scope of work

Professional engineers are asked to review the work of other practitioners for many reasons and under various employment arrangements. Before accepting any assignment, practitioners should, in consultation with their clients, prepare a detailed scope of work and affix this to their contract for services.

At a minimum, a reviewing engineer should insist that a contract clearly identify the type of review to be undertaken, the reason for the review, the documents that will be reviewed and the current relationship between the authoring engineer and the client. In cases where notification according to article 77.7.ii, O. Reg. 941 is required, a contract must obligate the client to inform the authoring engineer a review will take place or authorize the reviewing engineer to make the notification.

Reviewing engineers should also ensure that clients are aware of professional responsibilities and ethical obligations described in this guideline; if possible, these responsibilities and obligations should be explicitly stated in the contract.

The scope of work should also define how thorough a review is expected to be. The level of detail examination and analysis undertaken by reviewers conducting technical reviews will depend on the nature of the work, although it should be assumed that performing a technical review will not be as comprehensive or time consuming as performing the original engineering work. A reviewer must use reasonable judgment to assess when a full review is applicable.

A contract should clearly specify the deliverables to be submitted to a reviewer by the authoring engineer. It should further identify whether the relevant information is to be submitted directly by the authoring engineer or through the client. The information upon which a review is based needs to be clearly identified. However, for various reasons, including the possibility of litigation against the authoring engineer, a reviewer should not always expect to obtain all available information. Obviously, a client can ask an authoring engineer to turn over to a reviewer all documents that the client has a legal expectation of obtaining from the author.

However, a client generally does not have a right to all documents produced by the authoring engineer during commission of the work. In general, a reviewing engineer should expect to receive only those documents delivered by an authoring engineer as the final output of the service to a client.

In cases where a reviewing engineer is hired by a party other than an authoring engineer's client, the reviewer may have to work with only publicly available information. Usually, this will be an authoring engineer's final plans or reports, but occasionally these may not be available. A review of a proposed design or report should not be based on speculation about the data, client instructions or other data an

authoring engineer relied upon. If information needed to assess the work is not available, a reviewing engineer should refuse to provide an opinion or assessment, or limit the scope of review to issues that can be properly assessed with the reasonably available information.

It is important that the mandate given to a reviewer, both orally and in writing, is worded neutrally and does not suggest the desired outcome. If a client or employer states or implies that a practitioner should slant the review in any way, the reviewing engineer should inform the client or employer that the reviewer is professionally obliged to remain independent and express no bias in performing this service.

Reviewing engineers must identify and clarify at the outset of an assessment the end use(s) of the findings of a technical review. Reviewing engineers should inform clients of any disclaimers or limitations that might be included in their review reports.

Reviewing engineers should prepare, and include in the scope of work, a plan to conduct their technical reviews that identifies the documents to be reviewed, resources available to the reviewer, methodology of the review, format of the review report, protocol of communications between the reviewer and other parties, confidentiality considerations, schedule for the review, and other relevant considerations. Such a plan, submitted to a client prior to undertaking a review, will establish the independence of the reviewing engineer and minimize the risk of potential conflicts of interest or misunderstandings.

As a review progresses, the plan and/or scope of work for the review might need to be modified if additional items of concern are identified. Though time allocated for review should be discussed and agreed upon at the start of the assignment, the contract should provide an option for the reviewer to request and be granted additional time and changes to the scope of work.

6.2.3 Basis for review

As a normal part of the process, reviewing engineers will have to distinguish between the positive and negative aspects of the engineering work and point out things that are incorrect, unclear, unsubstantiated or problematic in the original document. Reviewers will sometimes need to report negatively on aspects of the work done by another professional engineer; that is their role. However, reviewing engineers

might also believe they are expected to be critical and to find things that, though not necessarily wrong or detrimental, can be cast in a negative way. Reviewers should ensure that the manner in which they report negative assessments is consistent with the articles in the Code of Ethics describing practitioner's duties to other professional engineers. These duties are given in article 77.7., O. Reg. 941, which states:

“A practitioner shall,

- i. *act towards other practitioners with courtesy and good faith, ...*
- iii. *not maliciously injure the reputation or business of another practitioner”.*

To be fair to an authoring engineer, this procedure should be conducted in an objective and consistently applied manner. For this reason, reviewers should adhere to the following process for deciding what is wrong in an engineering work.

The first step of all reviews is to ascertain what assessment criteria apply. Clearly, to be objective, both the technical and professional aspects of a practitioner's work must be measured against the normal practice for professional engineers carrying out similar work. Professional engineers must comply with all legislated standards and codes, but best practices commonly used by practitioners familiar with a particular industry are not always legislated. However, many of these codes and unofficial standards, especially those provided by technical associations such as CSA, IES, IEEE, ASHRAE and ASME, are so thoroughly endorsed by practitioners working in certain industrial sectors that failure to use these standards would be contrary to commonly accepted rules of practice. In such cases, all practitioners are expected to comply with these standards. Reviewers should outline what relevant standards, codes, legislation and conventions of the particular industrial sector are pertinent to the work and should clearly distinguish whether adherence to these “standards” is considered obligatory or discretionary.

The other important criterion for making judgments in a review is a comparison of the work with examples of good engineering practice. Good engineering practice comprises well known, widely available and generally acceptable behaviour proven by long standing, constant, and general use or acceptance by the majority of practitioners working regularly in that area of practice. Work that is consistent with

the principle of good engineering practice can be produced only by practitioners who:

- have access to and understanding of theoretical and practical knowledge that generally corresponds to the state of the art in the professional engineer's field at that time;
- express technical information through graphical representation and/or written documents in sufficient detail to make engineering decisions by others unnecessary;
- show an awareness and consideration of customary design solutions; and
- make judgments based on analytical skills.

Based on such information, reviewers should identify what can be reasonably considered to be the customary procedures and practices for similar work to that under review that should have guided the authoring engineer. The *sole object of the review is to establish whether the work meets these criteria*. A reviewer's role is not to state how he or she would have handled the work.

It is imperative for reviewers to do research to back up their views. This research may include reviewing publications by standard-setting organizations (including PEO), reading basic engineering textbooks and professional literature, and consulting with other practitioners for a sense of the generally accepted view within the profession on the issue. In some cases, reviewers might need to make site visits to research conditions pertinent to the work under review.

Clients or regulatory bodies might ask authoring engineers to submit design calculations and other information that is not normally considered part of the final documents. Unless there is a contractual or legislated obligation to do otherwise, authoring engineers should not provide documents generated during commission of the engineering services. However, it is acceptable for reviewers to request any data defining design or study parameters, client requirements communicated to the authoring engineer, equipment specifications or other information that would reasonably be expected to be needed by the reviewing engineer to carry out the review. Authoring engineers should consider whether these documents are necessary for conducting fair reviews, and provide them on an as-needed or temporary basis.

Reviewing engineers should not ask for the qualifications of an authoring engineer. Licensed practitioners are required

to take on and carry out engineering assignments only when they are competent to do so. This assessment of competence is made by the authoring engineer. Reviewing engineers should not be expected to evaluate the qualifications of authoring engineers or provide opinions as to whether an authoring engineer is qualified to do the work in the documents. Reviewing engineers should contact PEO if there are concerns about the competence of an authoring engineer based on the quality of the work under review, but should not report this to the client.

A reviewing engineer should not ask a client or an authoring engineer to disclose the fee or salary paid to the authoring engineer for the work under review. Practitioners must always provide sufficient time and effort to undertake their work in a manner consistent with the norms of the engineering profession. Standards of professionalism are not negotiable with clients or employers and do not vary with fee or salary. Therefore, reviewers have no need to know how much an authoring engineer was paid for the work being reviewed; a review judges the quality of the work according to professional standards not the fee received. The quality of the service should always be judged against the standard of professional care appropriate for the task.

6.2.4 Communications between reviewer and other parties

During a review, the reviewing engineer might need to communicate with various parties, but must always adhere to the requirements of confidentiality (article 77.3, O. Reg. 941). Before communicating with anyone other than a client, including an authoring engineer, a reviewing engineer must advise the client of the identity of the parties with whom he or she proposes to communicate, and of the intended purpose for the communication. The reviewer must obtain approval from the client, preferably in writing, for the communication. The reviewer should maintain a record of all significant communications with the client, the authoring engineer and any other party contacted during the review. Significant communications should be confirmed by a letter, fax or email.

A client's approval is not mandatory if during the review the engineer uncovers a situation that constitutes an imminent risk to public safety. If all efforts to obtain the client's approval to notify the authoring engineer or another party have been exhausted, a reviewer has a professional obligation,

given in article 72(2)(c) of O. Reg 941, to advise those parties capable of mitigating the risk of the identified danger.

If a reviewer is an employee of a government agency or regulatory authority, the reviewer may, depending upon his or her position in the organization, be able to communicate with the authoring engineer without seeking approval from the individual who submitted the engineering document for regulatory review. However, direct communication with the authoring engineer should be limited, recorded and copied to the submitter.

When requested to review a design or study, reviewing engineers should ensure they fully understand the intent and scope of the design or study to be reviewed. Reviewing engineers should obtain this information from their clients and, if the client approves, from the authoring engineer responsible for the work. If the objectives of the client and the authoring engineer do not agree, a reviewing engineer should discuss the differences with both parties to obtain a common understanding of the objectives of the work under review. If the parties cannot reach a consensus, the reviewer should base the review on the intent and scope provided by the client, although the review report should record, but not comment on, the discrepancy between the expectations of the client and the understanding of the authoring engineer about the original assignment.

6.2.5 Reporting

Practitioner retained to review engineering documents by the authoring engineer's client or a third party should always provide a written report on completion of the review. The review report should contain an introduction that identifies the individual who authorized the review, the authoring engineer and the purpose of the review. The report should also describe the basis under which the review was conducted, including a brief description of the item under review, a summary of documentation provided to the reviewer and of communications made during the review, and a description of the reviewer's methodology for conducting the review. The review should document the reviewer's findings and should fully describe the information upon which opinions are based; the reviewer should reference particular legislation, codes or standards upon which findings are based.

The only output of a review is a report. A technical review does not include making or recommending changes to the

authoring engineer's design or report. A review should only identify problems and concerns regarding errors, omissions, failure to meet client expectations or noncompliance with standards and regulations. A reviewer should deal only with the presented design and should neither make suggestions about better designs nor report how the reviewer would have approached the task differently.

A review report that contains statements of engineering judgment is an engineering document and must be sealed if it is provided to someone outside an engineer's firm. This will be the case for technical reviews, but not for regulatory reviews. By sealing a report, a reviewing engineer is accepting responsibility for the opinions in the report, not for the work that was reviewed.

In some cases, clients might ask reviewers to provide a second opinion, in which case it is appropriate to suggest other approaches. However, these opinions should not be provided in the context of a review; that is, the reviewer should not make comparisons between the original and alternative designs. Reviewing engineers should also be careful about how these suggestions might be used. It is possible a client might use a reviewer's opinions as directions for making changes to the original engineering documents, even though the reviewer did not intend them to be used that way. Any written document or oral report commenting on the findings of a review should be prefaced by a statement that the opinions expressed are only for consideration and are not intended as modifications to the original documents.

Reviewing engineers must clearly distinguish among facts, assumptions and opinions in their preparation of reports and professional statements. Professional opinions should be clearly stated and should include clear indications of the constraints within which an opinion holds, and the relevant qualifying circumstances, facts and assumptions.

When expressing an opinion, always give reasons for it and respond to the arguments that the authoring engineer and others could make against the reviewer's opinion. Acknowledge that the reviewer is expressing an opinion and others might come to different conclusions. Do not convey the impression that there is only one right answer, the reviewer's, and everyone else is wrong. Never express an opinion unless it is founded on adequate knowledge and an honest belief the opinion is justified.

The reviewing engineer must focus on the issues, not the person. Criticism of the design, content of the report or an authoring engineer's methodology is entirely reasonable; attacks on the competence or character of the authoring engineer is not. Negative comments aimed at the person rather than the facts can be construed as libel (written defamation of character or reputation) or slander (oral defamation) and could, in some cases, lead to lawsuits against the reviewer. However, such claims are unlikely to succeed when a reviewer simply reports facts about the work (not the person) and acts in good faith (even if the reviewer's opinion ends up being incorrect).

Accordingly, reviewers should be careful about language in reports or in conversations with clients. The tone of a report should be professional and objectively neutral. Reviewers should try to avoid using negative adjectives and should not include accusatory or inflammatory language. Remember that authoring engineers will be, and have a right to be, defensive about their work and professional reputations.

Reviewers should not express opinions on whether an authoring engineer met professional standards of competence or conduct. It is also inappropriate for reviewers to comment on whether another professional engineer is practising in accordance with the *Professional Engineers Act* Code of Ethics. These assessments are made through PEO's complaints and discipline processes.

Reviewing engineers might consider including a disclaimer limiting the use of the report to the client for the stated purpose.

6.3 Dealing with Reviewer's Recommendations

Although practitioners subject to review might be concerned about the outcome of this process, the best approach is to wait until a review is completed and then deal objectively with the reviewer's comments. Authoring engineers should not try to communicate with reviewers during the review process to try to influence the review or to obtain advance knowledge of its outcome.

After a review is completed, the authoring engineer might want to communicate with the reviewer to obtain clarifications of the reviewer's opinion. Such communications should not be an attempt to persuade the reviewer to change his or her opinion. They should be confined to supplying missing or misunderstood facts to the reviewer and to making requests for explanations of any confusing portions

of the opinion. Both the request and response should be provided in writing and made through the client or party requesting the review. Direct contact between authoring and reviewing engineers should not be done without approval of clients or parties requesting a review.

If an authoring engineer responds to a review in writing with reasoned arguments, a reviewer should carefully consider the arguments and may provide an addendum to the original report, if necessary. However, a single response should be sufficient. Repeated objections from authoring engineers, especially if they are belligerent, should be considered unprofessional conduct and reported to PEO.

The core principle governing the practice of professional engineering is that authoring engineers must always be fully responsible for their designs, reports or other engineering documents; decisions to make changes to documents must be left entirely to authoring engineers. Professional engineers should not be compelled by employers, clients, regulators, or other practitioners to make changes to their work they are not willing to accept. If an authoring engineer agrees to make the changes suggested by a reviewer, this should be noted in writing.

In some cases, a client or employer may be persuaded by a review or second opinion that changes to the original document are necessary or an alternative approach is more appropriate for the client's or employer's needs. If an authoring engineer is unwilling to comply with a request to make such changes, a client may decide to retain a different practitioner to modify the existing design or prepare a new one. If a reviewer is asked by a client to provide a design based on a reviewer's recommendations, the contract with the authoring engineer should be terminated before the reviewer is hired to continue the work. Contracts for review and provision of engineering services for altering documents should be separate.

If a review is conducted by a regulatory authority, it might result in a negative decision regarding an application, or a request that an authoring engineer make revisions to the design or report. In such cases, there is usually a right of appeal; this right should be exercised if an authoring engineer is satisfied with his or her work and its compliance with the applicable provisions. Practitioners should not allow themselves to be pressured into adopting changes to work they will be responsible for. However, in the absence

of a successful appeal, an authoring engineer is bound by the ruling and must act accordingly. There are two options available to authoring engineers:

- 1) make changes that are consistent with both the ruling and the authoring engineer's professional engineering judgment, or
- 2) withdraw the design and the application.

Regulatory reviews will often result in statements that an authoring engineer did not provide enough information or sufficient argument for report findings. A regulatory body may ask for resubmission of information by the authoring engineer. In many cases, a regulatory authority is legally entitled to ask for any information necessary for its purposes, so practitioners must comply with such requests for resubmission.

6.4 Qualifications of Reviewer

Since making judgments and expressing opinions about the quality of engineering service, technical content of engineering documents or appropriate means of dealing with engineering problems are acts of professional engineering, reviewers must be holders of a licence issued by PEO. An unlicensed person can review engineering documents for compliance with prescriptive codes and standards; however, all technical reviews must be conducted by people licensed to practise professional engineering.

Professional engineers providing such services as a technical review to a client must hold a Certificate of Authorization (C of A) or be employees of a C of A holder. Holders of Cs of A must comply with the insurance provisions found in Regulation 941/90. Professional engineers providing review services to anyone other than their employers without a C of A are violating the *Professional Engineers Act*.

Practitioners subject to a review expect that the review will be fair. To conduct a fair review and express a professional opinion, a reviewer must have sufficient expertise in the area of practice to properly assess the content of the engineering document. To do this, a reviewer must have, according to article 72(2)(h) of O. Reg. 941, a thorough understanding of the generally accepted practices appropriate for the area of professional engineering relevant for the work being reviewed. "Generally accepted practices" refers to usual methodologies and knowledge accepted by the majority of practitioners in that field. It is not what a reviewer would personally do (which is often higher than the minimum

standard). Reviewers should also consider the possibility that an authoring engineer's practices are consistent with those of a legitimate minority school of thought; that is, despite the fact that an authoring engineer's methods and approach are not consistent with best practices, they are justifiable, recognize basic engineering principles and are based on sound reasoning. Best practices are always open to revision; therefore, practitioners should not be penalized for being innovative. In some cases, local knowledge might also be pertinent to a review. Local knowledge refers to methods or standards particular to a specific geographic area, such as municipal by-laws, and to ordinary practices within specific industries. Reviewers must make themselves familiar with the local knowledge applicable to the work under review. To carry out a fair review, reviewers must be capable of themselves carrying out work of the kind under review.

6.5 Ethical Obligations

The ethical obligations of professional engineers are prescribed in section 77, O. Reg. 941, otherwise known as the Code of Ethics for the profession. Practitioners are at all times expected to govern their behaviour in accordance with all principles of the code. However, some articles have specific relevance to technical reviews.

6.5.1 Obligations of reviewing engineers

- **Notification.** The primary ethical obligation for reviewing another professional engineer's work is given in article 77.7.ii, O. Reg. 941, which states that a practitioner shall:

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.

If a client or employer asks a practitioner to review the work of another engineer who is still engaged on a project, either through employment contract or an agreement to provide professional services, the reviewer should undertake the assignment only with the knowledge of the other practitioner. This notification should be made by the client or employer; however, it is the responsibility of the review engineer to ensure that the client is aware of the requirement for notification and carries out this requirement.

Article 77.7.ii explicitly states that it applies only in those cases where the same employer (including clients

for professional engineers providing services to the public) requests the engineer to review the work of another practitioner. Clearly, the important matter in this section is the relationship between the practitioner and the employer/client. The obligation applies only during the period in which that professional relationship exists. The purpose of this section is to protect the authoring engineer's relationship with the client/employer by prohibiting other professional engineers from secretly, though usually not maliciously, interposing themselves into this relationship. The purpose of such a notification is to ensure transparency of intention between professional colleagues.

Practice review often occurs in organizations where engineers are expected to have their work routinely reviewed as part of an ongoing quality assurance program. This is usually part of a standard quality assurance program in which every document is reviewed before it is issued. If so, every professional engineer in the organization knows that his or her work will be reviewed. There is no need for the reviewing engineer to notify the design engineer if the review process is explicitly stated as company policy.

However, it might happen that one engineer is asked to review the work of another, even though a review process is not part of the organization's standard procedures. This might happen if people in the firm are concerned about the work of that engineer or because the project is a difficult one and the organization is being cautious. In cases like these, because the review is not a standard procedure, the authoring engineer must be notified.

A client who has retained a professional engineering firm to provide engineering services might hire a second firm to check the work of the first firm because the client:

- (a) is required by law to have a practice review done (as is the case for much environmental work);
- (b) wants to be assured the work is the best possible for its needs and, therefore, is doing a form of quality assurance;
- (c) is unsure of the quality of the practitioner's work and wants a review done to settle that question; or
- (d) is commencing a lawsuit against the authoring engineer and needs a review to obtain an expert opinion to support the claim.

Such reviews can occur in cases where the engineering firm is still under contract [except probably in case (d)] or after the engineering firm's contract is terminated because the work has finished. While the work is underway (i.e. the engineering firm is under contract), there is a professional relationship that must be protected; therefore, notification of the authoring engineer is necessary. After the contract is terminated, there is no longer a professional relationship between the client and the engineering firm and, according to the principle set out in article 77.7.ii., there is no requirement to notify the practitioner.

In many cases, the review is part of a regulatory requirement. That is, the engineer's work is reviewed at the request of someone other than the client or employer. For instance, professional engineers employed in regulatory agencies, such as municipal building departments, provincial ministries, and federal government agencies, review engineers' work submitted for approval purposes to confirm the work complies with regulations and standards. Since the review is initiated by someone other than the employer or client, the review does not interfere with the professional relationship and article 77.7.ii. does not apply.

- **Confidentiality.** Practitioners must consider themselves at all times to be engaged in a professional relationship with their clients and employers. A professional relationship is built on trust and requires practitioners to comport themselves in ways that are conducive to gaining and maintaining that trust. This duty is expressed in section 77.3, O. Reg. 941:

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.

A reviewer should not communicate directly with an authoring engineer or any other person regarding the review unless he or she has sought and obtained permission from the client or employer. Reviewers' contractual obligations are to their clients or employers; the review report should be submitted only to them. In the absence of serious safety concerns, there is no obligation

for reviewers to disclose their findings to an authoring engineer or anyone else after the review has been completed. Disclosure of the findings should take place only if allowed or requested by the client.

The usual practice for regulatory reviews is to have the reviewing engineer communicate directly with the authoring engineer to resolve concerns raised during the review process or to make recommendations regarding means to comply with regulatory standards. This is acceptable practice if an authoring engineer's client is aware beforehand that this communication will take place. The authoring engineer should consider notifying the client of the substance of any communication.

Any information received from an authoring engineer, especially proprietary information such as trade secrets, must also be treated as confidential disclosures. To avoid an allegation about plagiarizing or appropriating innovative ideas or private commercial information, a reviewer's best protection is to be conscientious about relying, even unconsciously, on the reviewed work in future projects undertaken by the reviewer. The possibility for these charges can be reduced by either returning all information received from the authoring engineer or, if a copy needs to be kept for accountability purposes, storing it in a place where it cannot be easily retrieved. If a reviewer is working on a project similar or related to that to be reviewed, he or she should consider declining to do the review if accepting the assignment could lead to concerns that the reviewer might violate confidentiality.

- **Good faith.** Article 77.7.i, O.Reg. 941, sets out an obligation for all practitioners to "act towards other practitioners with courtesy and good faith". Acting in good faith refers to being motivated by one's conviction as to the truth of one's opinions or the rightness of one's actions. For a practitioner providing professional engineering services, compliance with the Code of Ethics determines the rightness of an action. Assessments regarding the truth of one's opinions are a personal matter grounded in the make-up of an individual's character. Every practitioner must be realistic about their own judgments and confident that the exercise of their knowledge and skills generally leads to reliable results while allowing for the possibility of error. Practitioners can make good

assessments of other engineers' work only on the basis of sound assessments of their own abilities.

- **Fairness.** According to article 77.1.i, O. Reg. 941, practitioners have a duty "to act at all times with fairness" to their associates, including other members of the profession. Fairness is the principle that must guide any person who has discretion about the distribution of burdens and benefits among people in a group. In the case of a review, practitioners have freedom to make opinions about the work. Those opinions may benefit or burden the client, authoring engineer or other parties in various ways, depending on the nature of the opinion and the consequences created by the opinion.

A reviewing engineer must not make statements or allow publication of all or any part of a review report in a manner that might be considered detrimental to the reputation, professional status or financial interests of an authoring engineer for malicious reasons. The reviewing engineer must not participate in any such activity at the request of the client or employer unless publication of the report is required by freedom of information or other legislation.

However, the duty of fairness does not prohibit a professional engineer from reporting facts or expressing an honest opinion that might have a negative consequence on another practitioner or the client. Occasionally, a reviewing engineer may be called to provide testimony based on the review on behalf of the client or employer in a court action against the authoring engineer. When called to do so, the reviewing engineer should provide this testimony in accordance with articles 77.2.iii and 77.8 of O. Reg. 941. Any practitioner called to appear before a tribunal or court to provide an opinion on work carried out by another professional engineer should consult the guideline *The Professional Engineer as an Expert Witness* for guidance on the proper role and professional conduct in providing this service.

All practitioners have a duty to the public and the profession to report to PEO situations where there is a possibility that practitioners might be acting in a manner that is incompetent or negligent. If a reviewer finds the work under review is of such unprofessional quality that the reviewer believes the authoring engineer is practising professional engineering in a manner that is

not conducive to the public interest, the reviewer must inform PEO.

- **Conflict of interest.** Another problem that might arise when providing professional services is a relationship between a practitioner and one or more parties that could be perceived as a conflict of interest. The main feature of a conflict of interest is a conflict between two or more competing interests and a duty of the practitioner. A conflict of interest arises when a practitioner has difficulty discharging his or her duties to another person whose interests can be affected by the practitioner's actions. The conflict occurs when either the practitioner or a third party have interests that, to be realized, require the practitioner to ignore or subordinate the other person's interests. Ignoring or subordinating that person's interests would be a violation of the practitioner's duty. Generally, the duty that needs to be protected is a duty owed by the practitioner to the client or employer; however, practitioners have duties to many other people, including other practitioners, which can also be threatened by conflicting interests.

Sections 77.2.i, 77.3 and 77.4 of O. Reg. 941 deal with an engineer's responsibility to avoid situations of real or perceived conflict of interest. The general principle regarding a practitioner's obligations in such situations is given in section 77.4:

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.

Note that according to the *Professional Engineers Act*, 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 the existence of conflicting interests is not in itself an unethical or illegal act. For this reason, a reviewer should notify a client, before beginning the review, of any pre-existing relationship between the reviewer and the authoring engineer. These relationships will not necessarily disqualify the practitioner from taking on the assignment, but that decision should be left with the client.

Though the code of ethics and misconduct provisions of O. Reg. 941 deal specifically with a practitioner's

obligations to avoid conflict with a client or employer's interests, in the case of review, a reviewer should also consider, out of an abundance of caution and an obligation of professional fairness, any potential for conflict with an authoring engineer's interests. Specifically, practitioners subject to review might have concerns about the neutrality of the reviewer, since he or she is selected by the client or employer. An authoring engineer should know who has retained a reviewer and whether the relationship between the reviewer and that person can in any way taint the objectivity of the reviewer. A reviewer should avoid any suspicion that he or she was chosen because of a known and pre-existing view on an issue or because the reviewer hoped to gain a benefit, other than a fee for service, from a client. These recommendations apply only in those cases where an authoring engineer must be notified about the review.

According to article 72(2)(i).5, O. Reg. 941, one particular act that could be construed as a conflict of interest is "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". Of course, in the case of a professional engineer hired to review another practitioner's work, the reviewing engineer provides opinions and, in return for these opinions, is paid by another party. It is possible that people, including an authoring engineer, might perceive a reviewer as being involved in a conflict of interest. The issue boils down to whether a professional engineer is providing his or her own opinion or whether he or she is simply providing the opinion desired by a client.

An authoring engineer or others might also presume that a reviewer has a commercial conflict of interest if the reviewer is retained by a client to replace the authoring engineer. To avoid an allegation of stealing a client, a reviewer should never do anything that might be viewed as soliciting work during the review process. During the review, the reviewer should immediately halt any conversation or other communication suggesting the reviewer might be retained by the client to replace the authoring engineer, unless the relationship between the client and the authoring engineer has already been terminated. In most contexts, a reviewer should simply decline to accept any work related to the work under review.

Reviewers must recognize the potential for creating appearances of conflict of interest and ensure their behaviour is, at all times, consistent with the limited purpose of providing a review of a practitioner's work. Practitioners must conduct a review in accordance with the Code of Ethics.

6.5.2 Obligations of an authoring engineer

An authoring engineer must treat a reviewer with respect and cooperate with all reasonable requests made by the client or the reviewing engineer. When asked to determine whether engineering work meets a professional standard, a reviewing engineer is performing a legitimate and necessary service. Practice review is an important feature of a self-regulating profession as it demonstrates that the profession can place the public's interests over the interests of its members.

When asked, an authoring engineer shall provide all requested information to a client or a reviewer, unless there are reasonable grounds to refuse. Reasonable grounds include requests for information not directly related to the documents under review, proprietary information that can commercially benefit the reviewing engineer or client, confidentiality concerns where there are different employers and personal information such as resumes and academic transcripts.

7. Questions and Answers

The following questions from professional engineers and answers from PEO are intended to demonstrate how the principles outlined in this guideline can be applied to specific situations.

Q: *Who decides on the proper course of action if an authoring engineer and a reviewing engineer disagree? Does the client have to hire a third engineer to make that decision?*

A: Choosing which of two professional opinions to accept is not an act of professional engineering and so can be done by anyone. When a person obtains opinions from two different doctors, that person is not practising medicine when the person make the decision to follow the advice given by one of the two or to ignore both. If both professionals agree, a client has the choice to proceed or not. If the professionals disagree, a client can choose the option that is more acceptable for the client's requirements. It is still the professional's responsibility to carry through with the work in a professional manner. Professionals provide advice and carry

out instructions only within the mandate given to them by a client or employer. Decisions are always made by clients or employers, unless they have delegated decision making to the practitioner. If a client decides a reviewer's recommendations make the most sense and tells the first engineer to revise his or her work accordingly, the first engineer can agree (if the engineer is convinced the recommendations are valid) or refuse and terminate involvement with the project if the client insists on implementing the proposed changes. If either engineer believes refusing to accept his or her opinion will result in a health and safety issue, that engineer is required under article 72(2)(f) to "present clearly ... the consequences to be expected." However, the decision of how to proceed still rests with the client or employer (albeit, without the participation of the professional engineer if the safety issue is not properly addressed—in which case the professional engineer may have a duty to report the concern to an appropriate authority).

Q: *How much responsibility does a reviewing engineer take for the reviewed work?*

A: None if the reviewing engineer does not change the work in any way, and if recommendations for changes are given to the authoring engineering, who is allowed to independently make the decision to incorporate the suggested changes in the work. However, a reviewing engineer should be clear that the information provided in the review is not to be used by the client or employer for any other purpose than an appraisal of the authoring engineer's work.

Q: *If a client makes a decision on the basis of a reviewing engineer's opinion, how responsible is the reviewer?*

A: Professional engineers are responsible for every opinion they provide. For that reason, practitioners should provide opinions only on those matters for which clients or employers have sought advice and, then, only if the practitioner has sufficient information to make an objective opinion.

Reviewing engineers should inform their clients or employers that opinions given in a review of another practitioner's work are *not* intended as directions to the client, employer or other party to make changes to the report or design.

Q: *If a reviewing engineer goes beyond reviewing the work and carries out tasks such as site investigation and testing, does this affect the reviewing engineer's liability and responsibility?*

A: When reviewing another engineer's work, a reviewing engineer should deal only with the information in an authoring engineer's documents. The reviewer should not collect new data to redo the authoring engineer's work.

If the reviewer carries out testing, site inspection or other engineering work, the reviewer is likely providing a second opinion or preparing a new design. Reviewing engineers are responsible and liable for this original work.

Appendix 1: Amendment and Revision Submission Plan

Guideline:

Statement of proposed amendment or revision:

Reason:

Submitted by: _____ Date: _____

Mail: Professional Engineers Ontario
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Attention: José Vera, P.Eng., Guidelines and Standards Development Coordinator

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Email: practice-standards@peo.on.ca

Appendix 2. PEO Professional Practice Guidelines and Standards

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. Guideline to Professional Practice (1998)
13. Human Rights in Professional Practice (2009)
14. Land Development/Redevelopment Engineering Services (1994)
15. Mechanical and Electrical Engineering Services in Buildings (1997)
16. Professional Engineer as an Expert Witness (2011)
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 and 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)



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