



**Professional Engineers
Ontario**

GUIDELINE

U S E O F T H E P R O F E S S I O N A L E N G I N E E R ' S S E A L

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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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Contents

1. PEO Mandate and Criteria for Guidelines.....	3
2. Preface	3
3. Purpose and Scope of Guideline.....	4
4. Introduction	4
5. Purpose of Professional Engineer’s Seal	5
6. Recommended Procedures for Use of Seal	5
6.1 General	5
6.2 Sealing Single-discipline Documents	9
6.3 Sealing Multi-discipline Documents	9
6.4 Revising Drawings	9
6.5 Shop Drawings.....	9
6.6 Standard Drawings.....	11
6.7 As-Built and Record Drawings	11
6.8 Using Documents Sealed by Others	11
6.9 Translated Documents.....	12
7. Management of Engineering Documents	13
7.1 Document Approval	13
7.2 Control of Sealed Documents	13
7.3 Use and Control of Electronic Documents.....	14
7.4 Retention of Documents	15
7.5 Copyright Issues.....	16
8. Professional Responsibility and Liability.....	18
8.1 Professional Responsibility.....	18
8.2 Professional Liability	18
8.3 Sealing Fees.....	19
8.4 Penalty for Misuse of Seal.....	19
8.5 Ownership and Replacement of Seal	19
9. Questions and Answers	20
Appendix 1. Definitions	22
Appendix 2. Extracts From Regulation 941, <i>Professional Engineers Act</i>	24
Appendix 3. Amendment and Revision Submission Form	26
Appendix 4. PEO Professional Practice Guidelines	27

1. PEO Mandate and Criteria for Guidelines

Professional Engineers Ontario 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* and Regulation 941.
2. Guidelines are intended to define 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 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 defining 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.

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

2. Preface

In late 2002, the Professional Practice Committee (now Professional Standards Committee) formed a subcommittee comprising practising professional engineers and tasked this group with addressing questions regarding the proper use of the professional engineer's seal and investigating the requirements for secure use of electronic seals and signatures. The committee asked the subcommittee to prepare a guideline, which would include an explanation of the purpose of seals and sealing of documents, and the legal and liability issues associated with seals.

The subcommittee met for the first time on November 26, 2002, and submitted a completed draft of this document to the Professional Standards Committee for approval on October 20, 2004.

Following editing by staff and vetting by PEO legal counsel, the final draft was approved by Council at its meeting on January 20, 21, 2005.

This guideline is to be read in conjunction with section 53 of Regulation 941 made under the *Professional Engineers Act*, which describes the statutory requirements for the use of the seal.

3. Purpose and Scope of Guideline

The purpose of this guideline is to provide professional engineers with guidance on the proper use of the professional engineer's seal. The seal is the distinguishing mark of the profession and an indication to recipients and users of engineering documents that the content of the documents was prepared by or under the personal supervision of a professional engineer. The engineer, by affixing the seal, assumes responsibility and is answerable for the quality of the work presented therein. Proper use of the seal is essential, not only for complying with the *Professional Engineers Act*, but also for assuring the public that the seal represents the pro-

fession's commitment to standards of care and excellence.

The procedures outlined in this guideline are intended to make professional engineers aware of the level of diligence that is commensurate with the responsibility they assume and that is expected in their work. Use of the seal should not be automatic. It should be done only after the engineer has evaluated and accepted the responsibility he or she is assuming.

Please note that references in this guideline to professional engineers apply equally to temporary licence holders, provisional licence holders and limited licence holders.

4. Introduction

This guideline provides current PEO guidance and policy for use of the professional engineer's seal. It provides sufficient information for practitioners to resolve questions that arise in many common practice situations. Members have often asked PEO to clarify, for example, what changes to sealed documents are allowed, who, if anyone, should seal these, and how the changes should be identified. Others have asked whose seal should appear when more than one engineer has been responsible for preparing documents. The subcommittee reviewed numerous common situations to provide more explicit recommendations for proper practice.

Many people also suggested that PEO should prepare a detailed list of documents, divided into those that must be sealed, may be sealed, and should not be sealed. In preparing this list, consideration was given to drawings, feasibility reports, proposals, contracts, corporate letters, passport applications and other documents handled by professional engineers in the course of their business or professional activities.

Since the use of electronic documents, including their use for legal purposes, is becoming widespread, PEO recognized the need to provide guidance on

creating, applying and controlling electronic seals and signatures. The *Guideline to Professional Practice* recommends that "engineers apply their signatures and seals only to the hard copy" of drawings and documents. However, for various reasons, electronic copies of documents are now preferred for submissions and record purposes, and require electronic seals and signatures. This guideline, therefore, provides new policies and procedures to deal with the use of seals on electronic documents.

The sole authority for establishing rules for the use of seal is the *Professional Engineers Act*. This was recently confirmed by the case of *Professional Engineers Ontario v. Ministry of Municipal Affairs and Housing*, where the court found that no person or organization, other than Professional Engineers Ontario, can decide when or how the seal is to be used. As a result, professional engineers are not obliged to respond to requests or instructions to affix the seal to documents from any other party, including clients. The engineer, alone, must decide whether a document needs to be sealed and should refer to the policies and procedures in this document for guidance in making that decision.

5. Purpose of the Professional Engineer’s Seal

For the public, the seal constitutes the distinctive mark of the professional engineer. It must be used to identify all work prepared by, or under the direct supervision of, a professional engineer as part of professional engineering services rendered to the public. It assures the document’s recipient that the work meets the standards of professionalism expected of competent, experienced individuals who take personal responsibility for their judgments and decisions. The seal is important because it is a visible commitment to the standards of the profession and signifies to the public that a particular P.Eng. accepted professional responsibility for the document.

Affixing the seal to a document is a statement by a professional engineer to others that they can,

with a high degree of confidence, depend upon the contents of the document for the furtherance of their projects. Since the outcome of a project depends on factors beyond the control of an engineer, however, a successful outcome cannot be guaranteed by an engineer. The seal is not, and should not be considered, a certification mark or warranty of correctness. According to the Supreme Court (*Edgeworth Construction Ltd. v. N. D. Lea & Associates Ltd.*), the “seal attests that a qualified engineer prepared the document. It is not a guarantee of accuracy”. Instead, it should be considered a “mark of reliance”, an indication that others can rely on the fact that the opinions, judgments, or designs in the sealed documents were provided by a professional engineer held to high standards of knowledge, skill and ethical conduct.

6. Recommended Procedures for Use of the Professional Engineer’s Seal

6.1 General

The use of the professional engineer’s seal is governed by section 53 of Regulation 941/90, made under the *Professional Engineers Act*:

“53. Every holder of a licence, temporary licence, provisional licence or limited licence who provides to the public a service that is within the practice of professional engineering shall sign, date and affix the holder’s seal to every final drawing, specification, plan, report or other document prepared or checked by the holder as part of the service before it is issued. R.R.O. 1990, Reg. 941, s. 53; O.Reg. 13/03, s. 16.”

This sentence specifies the minimum legal requirements for the use of seal. Engineers are reminded that they are legally required to use their seals in all situations that meet the above conditions. Use of the seal is not subject to specification by contract or work arrangements; an engineer cannot

ignore the obligation to seal documents on the grounds that this act is not included in his or her job description, or because a client did not request sealed documents.

The term “final document” describes any record, written or graphic, created for the purpose of transmitting information or instructions based on engineering expertise or judgment that is intended to be relied on by others. In general, “final” means “final for the purposes intended”. This distinguishes, for example, drawings prepared for building permit submission from construction drawings. Drawings submitted for building permits are final for that purpose, even though they may not contain all of the detail required for construction. Both sets of drawings need to be sealed. Drawings submitted with a building permit application must be complete for that purpose; in other words, they must con-

tain sufficient detail to enable the building official to perform the code compliance and due diligence reviews required prior to issuance of a building permit. Since standards with respect to detail may vary significantly from one municipality to another, professional engineers should acquaint themselves with local requirements before submitting documents.

The term “providing services to the public” causes considerable confusion among professional engineers trying to decide whether rules for the use of seal or the Certificate of Authorization apply to the work they do. The public, as understood within the *Professional Engineers Act*, is anyone other than the engineer or his/her employer. When an engineer is employed and all the engineering work done by the engineer is done entirely for the employer (even if the ultimate user is not the employer), the engineer is not considered to be providing services to the public. For instance, an engineer designing a consumer product manufactured by an industrial corporation (which is the engineer’s employer) is not providing engineering services to the public. The engineer provides services to the employer; the employer provides a product to the public. In this case, drawings do not need to be sealed. On the other hand, if a manufacturing company outsources design work, the engineer working for the consulting firm that produces the product design is providing (through the consulting firm) professional engineering services to the public (i.e. the manufacturing firm). In this case, the drawings must be sealed. However, there are situations where legislation requires that a professional engineer must do some particular task and that the seal must be affixed to documents to prove this. In these cases, the engineer must seal the documents, even when the services are being provided to the employer.

Proper use of the seal is essential, since universal compliance with these rules provides the following assurances to the public:

- *authorship*—signing and sealing identifies the doc-

ument was created by or under the supervision of a licensed professional engineer;

- *responsibility*—signing and sealing establishes that the individual identified by the seal assumes professional responsibility for the contents of the document or the portion of the contents of the document he or she prepared, and acknowledges that he or she can be held accountable for those contents; and
- *reliance*—by signing and sealing a document, a professional engineer attests to the fact that others can rely on the designs, decisions, opinions, judgments or other professional statements expressed therein.

The seal

The seal used on a document is the impression of the rubber stamp issued by PEO to all licence holders. An engineer must always retain full control over the use of the seal and any reproduction of the seal so that no one can use it without explicit authorization. Such authority should not be given unless the engineer had direct supervision of the work.

Professional Engineers Ontario also allows, but does not require, licensees to use electronic seals. An electronic seal is a facsimile of the impression produced by the rubber stamp in electronic format, either scanned or created as a drawing object by a software program. The electronic facsimile must be identical in size, shape, and content to the seal created by the rubber stamp. This impression has the same value as an impression generated by the original of the seal. An engineer must at all times retain full control over the electronic version of his or her seal. An engineer allowing another person to access an electronic seal could be held liable for any use made of the seal by that person.

The seal must be clear and legible when applied to the document, regardless of how it is applied. An electronic facsimile of the seal may also include an electronic facsimile of the engineer’s handwritten signature. However, the engineer

must maintain control over the signed seal and must use an appropriate security method (see section 7.3).

What to seal

Engineers must seal all final documents that are within the practice of professional engineering, provided as part of a service to the public. However, affixing a seal to a document does not turn it into something that is “within the practice of professional engineering”. The content of the document determines whether it is an engineering document. This includes all documents containing engineering calculations, expressing engineering opinions, or giving instructions based on engineering judgment.

Seals must be affixed to drawings, specifications, drawings or sketches accompanying change notices and site instructions, and studies containing technical information or engineering direction. Engineers should also apply their seals to forms for government or regulatory authority use that specifically require a professional engineer’s seal, such as a Commitment to General Review.

Reports providing technical information or engineering direction to the user must be signed and sealed. Drawings bound into reports need not be sealed individually, provided the document itself is signed, sealed and dated.

Engineering documents completed by staff engineers for use solely by their employers for work within the employers’ businesses (in-house documents) are not required to be sealed under the *Professional Engineers Act*. However, there may be cases where overriding legislation requires an employee engineer to seal in-house documents. For example, if a company chooses one of its staff engineers to perform a Pre-Start Health and Safety Review under the *Occupational Health and Safety Act*, the written report prepared as part of the review must be sealed. The fact that seals are not required on in-house documents does not preclude the engineer from affixing his or her seal. Since the application of a seal to a document does not impose any addi-

tional liabilities on the engineer, this practice has been adopted by several large organizations as part of their internal quality assurance program.

What not to seal

Draft or incomplete documents and documents of a non-engineering nature (personal or business correspondence, contracts, leases, sales brochures, passport applications, etc.) should not be sealed. Requirements for sealing of documents are legislated by the *Professional Engineers Act*. Certain demand-side legislation requires that particular tasks having public interest implications be done only by those having qualifications specified in the legislation, and subsequently lists a number of occupations as qualified persons. In cases where legislation includes professional engineers as only one category of qualified person (e.g. *Condominium Act*, *Brownfields Statute Law Amendment Act*), professional engineers should not affix their seals to any documents required pursuant to the legislation, unless the work performed clearly falls under the definition of “the practice of professional engineering” under the *Professional Engineers Act*.

A request by an employer, client or regulatory official for a professional engineer to affix his or her seal to a document is not a sufficient reason for doing so. For example, an employer may ask an engineer to seal a notice that contractors have been paid. Since this is not an engineering document, the engineer should not affix his or her seal, even if the engineer prepared the notice.

Professional engineers are not notaries public and the professional engineer’s seal cannot be used for purposes where a notary seal is required.

Contracts and other legal business documents are sealed with a corporate seal, if the business entity is a corporation. If not, signatures suffice. Professional seals are not to be used for this purpose. Passport applications, birth certificate applications and other documents that identify professional engineers as suitable guarantors require only the guarantor’s signature followed by the “P.Eng.” designation.

Who seals

The engineer who is taking professional responsibility for the work must seal documents. This is generally the professional engineer who provided the largest contribution to preparing the documents, or, where junior staff did the work, by the engineer who closely supervised the work. (See below for information relating to multidisciplinary projects, or projects where several engineers contributed large amounts to the final document.)

Under section 75 of Regulation 941, PEO licence holders are not permitted to use, or refer to, their professional seals in company logos, advertising, letterhead, business cards, or other promotional materials.

In general, draft or preliminary documents should not be sealed and should be clearly marked as “Draft”, “Preliminary”, “For Review Only”, “For Discussion”, “Not for Construction”, or some other indication that the documents are not ready for anyone to rely on the contents. Professional engineers should closely control such documents and not release them to anyone who might depend on the validity of the contents.

If it is necessary to sign and seal preliminary documents (such as to fulfill the requirements of a regulatory agency), this guideline’s recommendations for sealing final documents should be followed. Signed and sealed preliminary documents should be clearly marked as incomplete and restricted to the particular use for which the document was released.

Some company officials mistakenly assume they are supposed to seal all documents because the engineering firm is legally liable for any problems arising from the work. This is a misunderstanding of the purpose of the seal. Sealing a document creates no legal liability. The seal identifies the engineer taking personal and professional responsibility for the content of the documents. It is appropriate that the professional engineer responsible for preparing the documents is the person

held accountable by the professional body if something goes wrong. Hence, only that person should seal them.

Another common misperception is that only the holder of a certificate of authorization (C of A) is entitled to seal documents. This is false; there is no connection between the C of A and a seal. The right and obligation to use a seal are conferred by the P.Eng. licence.

Procedure

The engineer’s signature and the date on which the document was sealed, handwritten (as opposed to block letters) within or beside the stamp, must always be included. Initials alone are not acceptable. The engineer’s handwritten signature is an authenticating mark that complements the seal. The handwritten signature affixed to the document can be an electronic facsimile of a handwritten original, although for security reasons it is preferable that the signature be affixed to plans and specifications in a manner that is separate from that of the seal.

Engineering documents cannot be signed by a proxy, i.e. by another person signing on behalf of (“per”) the individual identified on the seal. Each professional engineer must ensure that a facsimile stamp is not used to imprint a copy of his or her handwritten signature on the document.

Final specifications and reports must be sealed on the cover of the bound document, or on a separate seal sheet within the document. Individual drawings within a bound document do not need to be sealed.

Seals and signatures shall be placed on all original final documents. Because of the risk of sealed originals being copied and distributed without an engineer’s knowledge, engineers should assure that an effective and secure document control system appropriate for the risks associated with the particular circumstances is in place (see section 8.2).

6.2 Sealing Single-discipline Documents

Engineering designs and other documents are usually prepared by at least one engineer and then reviewed, though not in detail, for adherence to concept or corporate standards by a supervisory or approving engineer. For documents covering work within a single discipline and developed by a single engineer, or by others under his/her direct supervision, that engineer must seal the document. For documents covering work within a single discipline but developed by several engineers, the document should be sealed by the engineer responsible for coordinating the work of the team, or by the supervisory engineer if he or she was sufficiently involved in overseeing the work.

Where engineers review or verify documents, they should not affix their seals. Instead, they should insert their initials in a “Verified by” or “Reviewed by” box on the document.

When more than one engineer within a single discipline contributed to and had decision-making authority regarding the work, each engineer willing to take responsibility may seal the document.

6.3 Sealing Multi-discipline Documents

For a project covering work within several engineering disciplines, all documents within a particular engineering discipline must be sealed by the engineer taking responsibility for work within that discipline, with an indication or qualification of which discipline is implied by the seal. The supervisory or coordinating engineer (if there is one) should also apply his or her seal to indicate that the work of the various disciplines has been coordinated. If only one signature and seal is used, it should be that of the engineer taking responsibility for the work, generally the coordinating engineer.

6.4 Revising Documents

All sealed documents are considered to be final documents. However, occasionally such documents need

to be edited, altered or amended, either during the course of the project, or as part of a new project. To ensure that engineers are not unknowingly accepting responsibility for work they did not do, it is important that documents, once sealed, are not altered without undergoing an appropriate revision process.

Where alteration of documents sealed by another engineer is required for an ongoing project, the following procedure should be followed: The original seal is to remain and the engineer altering the documents is to add his or her seal, clearly identifying the alterations and who is responsible for them.

Where alteration of documents (particularly drawings) sealed by another engineer for a completed project is required for a new project, the following procedure should be followed: The documents used as the basis of the new work should be clearly identified by a note, a drawing method (e.g. lighter or ghosted lines), or an identifying mark, as work previously done by others; the original seal is not to appear and the engineer altering the documents is to add his or her seal, clearly identifying the alterations and who is responsible for them.

There is no need for the practitioners who prepared the original documents to be made aware of changes to their documents. In every case, the practitioner making changes assumes responsibility for the changes and the effects of those changes on the entire design or report. This is the reason that the engineer making the changes must identify his or her changes and then seal the document. By sealing, that practitioner acknowledges that he or she is taking responsibility for the changes.

6.5 Shop Drawings

Generally applicable design details developed by manufacturers or standards organizations, verified by testing and/or approved by government bodies, do not need to be sealed. However, details or subsystem designs produced by manufacturers or contractors for specific projects, or applications that require professional engineering design or judgment, needed for coordination by the design engineer, must be sealed,

to ensure there is consistent delineation of design responsibility for all aspects of the work.

For structural steel shop drawings, the building design engineer designs the members and overall stability system and is responsible to indicate member connection forces as required by professional practice standards. Structural steel detailers use this information to produce shop details and connections for the steel members. Many of the connections use standard details from the Canadian Institute of Steel Construction (CISC) handbook, which have been developed over time by qualified engineers. However, there are usually some connections that are similar to, but not exactly the same as, standard connections. Further, most drawings by the building design engineer do not indicate all connection forces at all locations, and the engineer preparing shop drawings is often required to provide engineering calculations based on area loads. To address varied conditions, erection drawings submitted for review to the building design engineer should be sealed by an engineer whose responsibility is to ensure the adequacy of all of the steel connections. The seal should also be qualified by a note stating that the design responsibility is “For Connections Only”. This engineer should also seal all shop drawings if they are issued to the building designer. As an alternative to the above, the connection design engineer can issue a signed and sealed letter to the building design engineer stating that all detail drawings have been prepared and reviewed under the connection design engineer’s supervision.

The requirements for timber connectors are similar to those for structural steel, and shop drawings should be handled similarly.

A professional engineer must seal drawings for pre-manufactured custom timber roof trusses that are not covered by Part 9 of the Ontario Building Code.

For concrete reinforcing, building design drawings generally indicate specific and typical details that are used by detailers to provide bar lists in accordance with standard bending lengths and details. Since there is no professional engineering judgment required, bar lists do not need to be sealed. However, the detailer should provide a written statement that all bending details conform to Canadian Standards Association (CSA) standards.

Seals are also required on any documents relating to contractor-designed systems, such as (but not limited to) sprinklers, pressure piping and control systems, or custom-manufactured components, such as (but not limited to) switchboards, motor control centres, pressure vessels, process machinery and elevators.

All shop drawings should be provided to the design engineer for review and coordination prior to fabrication or installation. Professional engineers preparing shop drawings should be aware that their obligation to “cooperate in working with other professionals engaged on a project” (subsection 77.6, Regulation 941) includes providing design engineers with all the information they require for design, coordination, or review in a timely manner. Failure to provide such information could cause delays, redesign or lawsuits that would negatively affect the design engineer, and could be construed as professional misconduct by the engineer preparing the shop drawings.

Occasionally, an engineer finds it necessary to seal shop drawings prepared by others. For example, an Ontario representative of a company in the United States may need to act as agent for that company to assure compliance with provincial laws. Since the sealing engineer will take responsibility for the content of the documents, he or she must be competent in the design area and must thoroughly review the drawings to ascertain whether he or she will accept responsibility, before agreeing to seal the documents.

Professional engineers acting as the agents of people or organizations receiving materials are often required to review shop drawings prepared by others for the purpose of confirming compliance with the specifications and drawings of the devices, systems, structures, and other apparatuses indicated on the shop drawings. Engineers should note that this review is for the sole purpose of ascertaining conformance with the general design concept and does not indicate an approval of the design details. In other words, the reviewing engineer is not taking responsibility for the design. Therefore, reviewing engineers must not affix their seals to shop drawings. If any party requires that the drawings be marked with an indication that a review has taken place, a separate and distinct “shop drawing” stamp should be used.

NOTE: The law clearly limits responsibility for a reviewing engineer to matters within the engineer's professional competence. However, engineers often take on more responsibility than they should. This happens because contractual provisions or actual conduct by the engineer expand the scope of drawing review into matters that should be the responsibility of others. To protect themselves, professional engineers should never provide services without a signed agreement that clearly describes the scope of services to be provided, clearly limits the obligations of the engineer, and clearly assigns the risks that the engineer will assume. Engineers should assume only risks that are within their ability to control and never those where the performance of a third party, such as a contractor or supplier, might have an effect on the outcome.

To avoid liability for information contained in shop drawings, the reviewing engineer's organization should explicitly limit the scope of the engineer's review, both in the contract and on the shop-drawing stamp itself. Shop-drawing stamps should include language that strictly limits any implied approval, by noting that the scope of the submittal review is limited to determining conformance with the design intent and the information provided in the project documents.

6.6 Standard Drawings

Some organizations prepare drawings of common components or arrangements for use in project documents prepared by others. These drawings are usually treated as generic standards and should not be sealed by the person responsible for creating the document.

When used, standard drawings should always be incorporated into drawings or other documents. It is the duty of the engineer sealing and taking responsibility for the project documents to ensure that the standard drawings are appropriate and correct for the current project.

6.7 As-built and Record Drawings

Professional engineers should use the following distinction between as-built and record drawings. Drawings referred to as "as-builts" are prepared by a third party, or by the engineer using information furnished by the

contractor or other field staff. Record drawings are those prepared by the reviewing engineer after verifying in detail the actual conditions of the completed project. For some projects, this verification may require frequent or continuous presence on site. The distinction between as-built and record drawings determines whether drawings representing the final state of the project should be sealed.

Because professional engineers are responsible for the content of drawings bearing their seals, as-built drawings should not be sealed, since the engineer is not responsible for the content of these documents.

Some of the information provided on as-built drawings might be changes authorized by the engineer during construction. Other information might reflect changes initiated by other parties due to site conditions or other causes. Changes by the engineer will already have been documented by change orders, sealed sketches, or sealed reports, so there is no need to seal the as-builts. Where changes are by others, although the engineer will have a responsibility to advise the client whether the change was the result of a safety concern or a contravention of codes or standards, the engineer should not be forced to seal the documents, since to do so might imply that the changes were part of the engineer's design. If as-builts are produced by making changes to the original construction drawings, the seal should not be applied, or should be removed if already in place, and the drawings marked "as-built drawings". In place of the seal, there should be a note referencing the original sealed drawings.

Sealing of drawings with record information might imply to some parties that the engineer is providing some type of warranty or certification of the construction. This is never the case, since the contractor is always responsible for construction.

6.8 Using Documents Sealed by Others

Because members of the public, including other professional engineers, may be relying on the information in sealed documents, the profession-

al engineer's seal should be considered to be a mark of reliance, providing assurance of the competence and professional standards of those who prepared the documents. However, it does not guarantee an absolute lack of error in a document. A professional engineer using a document sealed by another as the basis of further work should verify the information as part of standard due diligence procedure.

Often engineers must use documents, particularly drawings, prepared and sealed by other engineers as the basis for new projects. Since copyright of the documents always remains with the author, engineers must not use documents prepared by others as part of a new design without the express consent of the author. For example, a design for an electronic HVAC control system created as part of an earlier project cannot be copied by another engineer for a new project *even if the two projects are for the same client*. Unless permission is granted, an engineer's design cannot be part of the work for any project the engineer is not involved with.

Drawings of completed projects can be used as background information for new projects if an engineer indicates on the new drawings (by using lighter or different coloured lines, dashed or dotted lines, notes, etc.) the portions that are not part of the current project. For example, if an engineer were required to modify an existing electronic HVAC control system, the original document could be copied onto the new drawing so that the modifications would be shown in context. The existing control system would not be part of the current project. The engineer who prepared the new drawings would take responsibility (and credit) for the design modifications and their effect on the overall system. Though the original drawings were sealed and therefore can be considered to be reliable, it is the responsibility of the engineer producing the new drawings to decide whether he or she should confirm the accuracy of the original plans and the suitability of that design by inspecting existing conditions.

Portions of written documents should not be copied, or unreasonably large sections extracted and used in other documents, without permission of the author.

Occasionally, a professional engineer will need to revise

drawings sealed by another engineer. Where the revisions are a new project involving modifications to an existing structure, system, machine, apparatus or other device, the engineer should treat the drawings as background information. The original engineer's seal should not appear on the drawings. The engineer responsible for the modifications must seal the drawings.

Where the revisions will be made to documents that are the basis of a new or incomplete project, the modifications made to the documents are to be clearly indicated by a method such as "bubbling" of revised sections or notes. The seals of both the original engineer and the engineer responsible for the revisions must appear on the document with clear indications of which part, original or revision(s), each seal refers to. As a professional courtesy, the engineer responsible for the revisions should inform the original engineer of changes made to the document.

6.9 Translated Documents

Professional engineers are occasionally required to provide documents in a language other than their usual working language. Where documents contain the same information in two or more languages, practitioners are encouraged to identify one language that will govern in the event of a discrepancy between the two texts. However, in some situations either legislation or the client will require that two languages be given equal status and, therefore, it is important that the practitioner ensure the two texts have identical meanings.

The practitioner may seal documents in two or more languages, provided he or she is fluent in each. Alternatively, engineers collaborating on a project may seal documents in the language(s) in which each is fluent. For example, one engineer may seal the English version of a document and another engineer may seal the French version.

If the practitioner is not fluent in the required language(s), he or she may engage the services of a translator who is experienced in translating technical documents and who declares in writing that the translated text is identical in meaning to that

of the original. The translator should be certified by a recognized certification body. If not, the declaration should be notarized. The practitioner can seal both the original and translated documents based on this declaration.

In some cases, the client may provide translations of unilingual documents prepared by the practitioner. The practitioner should ask the client to provide a declaration stating that the meaning of the translated text is identical to that of the original.

7. Management of Engineering Documents

7.1 Document Approval

Engineering documents should be issued for use as the final step in a document approval process requiring the approving design or supervising engineer to seal the document only after verifying it for accuracy and completeness. Every organization preparing engineering documents should have a formal process for preparing, authorizing, distributing and retaining those documents. A document approval process does not need to be a complex, multi-levelled bureaucratic activity with multiple double-checking processes. However, it should, at least, include the following stages:

- checking to ensure a document is complete and accurately expresses the output of the engineer's design or analysis;
- verifying to ensure the document meets the requirements of the work as expressed by codes, standards, PEO guidelines, contractual arrangements and other articles defining the scope of work; and
- approval by a professional engineer who acknowledges that the document meets professional standards and attests to this fact by sealing it.

7.2 Control of Sealed Documents

Professional engineers responsible for sealing documents should ensure that their organization implements a document management process that prevents the possibility of:

- others altering sealed documents without the knowledge of the author;
- removal, or duplication and unauthorized use, of seal; and
- unauthorized use of documents.

To provide this protection, the document management process should incorporate the following, non-exclusive, features:

- procedures that assure a document was prepared by competent personnel;
- procedures that assure all engineering documents have been prepared by or under the supervision of a professional engineer;
- procedures that assure the design, report, or other output of engineering work complies with all applicable regulations, codes, standards, practices, guides;
- a sealing procedure to ensure that all engineering documents are signed and sealed by the professional engineer taking responsibility for the work before any documents are issued to the public;
- procedures that assure data integrity by prohibiting unauthorized and/or undocumented changes;
- procedures to identify unauthorized copies of final documents and to prevent their being sealed;
- procedures to ensure all preliminary engineering notes and drawings are destroyed at the conclusion of the design phase of a project;

- records retention procedures such that the records to be retained are selected by the professional engineer responsible for sealing the documents;
- procedures for validating records before storage;
- established document retention periods; and
- protection of records against loss or inadvertent destruction.

Would PEO consider a lack of proper control of documents to be a matter of negligence or professional misconduct? According to section 72(2)(e) of Regulation 941, the “signing or sealing a final drawing, specification, plan, report or other document not actually prepared or checked by the practitioner” is an act of professional misconduct. Presumably, this also applies to cases where an engineer knowingly allows another person to use his or her seal on documents the engineer did not prepare or check. Therefore, all professional engineers should ensure that they seal only documents they are thoroughly familiar with. There is nothing in the *Professional Engineers Act* that deals specifically with an engineer unknowingly allowing his or her seal to be used by others. However, since the seal is an important symbol of the trust relationship between the profession and the public, an engineer who fails to control his or her seal may be regarded as exhibiting unprofessional conduct, especially if the unauthorized use of the seal resulted in physical or financial harm to members of the public.

7.3 Use and Control of Electronic Documents

Ontario’s *Electronic Commerce Act*, 2000, gives legal recognition to electronic documents, even in cases where the document exists only in electronic format. It defines electronic documents as documents “created, recorded, transmitted or stored in digital form or in other intangible form by electronic, magnetic or optical means or by any other means that has capabilities for creation, recording, transmission or storage similar to those means”. By this definition, a draw-

ing created using a computer drafting package, a faxed copy of a letter, and a report stored on a compact disk are all electronic documents. Consequently, PEO has revised its previously expressed opinion, as stated in the *Guideline to Professional Practice* (1988, revised 1998), that “engineers apply their signatures and seals only to the hard copy of the information”. Recognizing that electronic documents in Ontario now have the same legal force as paper documents, use of seals on electronic format documents is now allowed. This includes the use of scanned and electronically drawn seals on electronic documents and scanned copies of sealed original hardcopies. The principles applying to sealing paper documents apply equally to engineering documents created, stored, distributed, or used in electronic formats. The problems associated with use of documents given in section 7.2 of this guideline also apply to electronic documents.

Because electronic documents can easily be changed and copied with no obvious indication, engineering organizations must have well documented processes to support the authenticity and validity of documents with electronic signatures and seals. Managing electronic documents in workflow and providing an audit trail is vital to validating document authenticity. Consequently, professional engineers responsible for sealing electronic documents must ensure that their organizations adopt a method of creating, archiving and distributing electronic format documents that will:

- control and protect the electronic facsimile of the seal and signature;
- ensure document integrity, i.e. documents are not altered once signed, without undergoing the revision process; and
- allow verification of the identity of the practitioner originating the document.

Electronic documents can be issued for use only if the authentication procedure maintains the integrity of the documents and the authenticity of the seal and signature. Document recipients must, in turn, ensure they have a process to assure that a document they receive has been authorized and has not been tampered with. Document originators must also be able

to provide a paper copy of their electronically sealed and signed documents.

Given these requirements, organizations planning to issue and distribute electronic engineering documents should implement some form of document security. There are many forms for such security, ranging from use of image files that are not as easily edited, to password protected files, to public-key/private-key encryption systems. The security method employed should be appropriate for the distributed document's risk of alteration or improper use. The engineer should make this assessment after considering the following.

- How trustworthy is the recipient of the documents?
- How will the recipient use the documents?
- Does the recipient have a secure document storage and control process?
- Are you concerned about tampering of the document?
- Are you concerned about removal and reuse of your seal and signature without your knowledge?
- Are you concerned that the recipient may reuse the document for purposes other than the one for which you are specifically accepting responsibility?

If it is impossible to use such a procedure, any seals or signatures appearing on the document must be removed. This unsealed document cannot be used for the purposes contemplated by the *Professional Engineers Act*, and must include a notice to this effect.

An electronic document that has not been approved by a professional engineer can be transmitted to others; however, no authenticating mark (seals or signatures) should be affixed to the document. The name of the author should always be indicated on any non-authenticated engineering document sent to a third party. To avoid confusion, this document must include a notice that it is transmitted for information or coordination purposes only. For example, an engineering firm may store a sealed hard copy of final drawings and issue unsealed copies for information that bear, in place of a seal, the note "Refer to Design Office for sealed originals". An engineer-

ing document that is transmitted without a seal or signature and without such a notice(s) is considered to be a document that does not require authentication, i.e. it is not a final version of an engineering document issued for use. Anyone possessing the document should not rely on its contents.

However, the seal and signature discussed in this guideline should not be confused with a security tool known as an "electronic signature", which is encrypted alphanumeric data used as personal electronic identifying information that people attach to a document to permanently associate themselves with the document. It is not an identical electronic copy of a handwritten signature obtained by scanning or electronic pen. An electronic signature is, however, intended to have the same legal force and distinguishing effect as the use of a signature affixed by hand. For this reason, an electronic signature must be:

- unique to the person using it;
- capable of verification;
- under the sole control of the person using it; and
- attached to, or associated with, data in such a manner that it authenticates its own attachment to the particular data using it and the integrity of the data transmitted.

Regardless of the document management system used, professional engineers assume full responsibility for the security of their electronic seal and must ensure that it appears only on documents they have prepared and for which they will accept responsibility.

7.4 Retention of Documents

The *Professional Engineers Act* does not require that engineers retain engineering documents for a set length of time. Retention of documents is therefore done at the discretion of the engineer, employer, or client. Though documents are often kept for reference purposes in anticipation of future work, they are retained mainly

in case of possible legal action against the member or firm. Documents should be kept for as long as it is likely that a project might have an action against it.

A person's right to exercise legal action for claims is governed by the *Limitations Act*, 2002, which states, "no proceeding shall be commenced in respect of any claim after the 15th anniversary of the day on which the act or omission on which the claim is based took place". However, many errors and omissions in engineering work will be identified fairly soon after an engineer's work is completed, so a shorter period may be reasonable for retaining documents that might be required for one's defence against future lawsuits. Of course, this will depend on the type of work done and the likelihood of litigation in that area of practice. Professional engineers should consult with their insurance companies before destroying documents.

All sealed hardcopy and electronic format documents must be stored in a manner that prevents unauthorized use of the document and/or the professional engineer's seal. Unauthorized use is defined as any use other than the one for which the engineer explicitly affixed his or her seal to the document. Though all documents and the contents created by an employee engineer remain the property of the firm, no sealed document should be used without permission of the engineer.

7.5 Copyright Issues

Copyright is a form of ownership interest that arises automatically whenever a new intellectual work, such as this guideline, is created. It applies to all original written and artistic works, including plans, drawings, calculations, reports, and other results of an engineer's work. Copyright gives the owner the right of control over the document content and the right to sue for compensation if someone copies the work. However, copyright is not absolute. Under the "fair dealing" principle, people are allowed to make copies of all or a portion of a work for research, private study, review, or reporting. For example, if an organization's procedure manual quoted from this guideline, and attrib-

uted the quote, it would not violate the copyright owned by PEO.

Generally, copyright automatically belongs to the author or authors. However, contractual relationships, including implicit common-law contracts between employees and employers, affect the ownership of copyright. Usually, employment contracts dictate that if a creative work is prepared as part of the normal work provided by an employee for an employer, the employer is the owner of the copyright. Employee engineers, either explicitly or implicitly, sign over to their employer copyright and other intellectual property rights on all intellectual output, including inventions, when they enter into employment relationships.

In other cases, copyright, like any other piece of property, can be freely transferred by contract. However, copyright law requires that all transfers of ownership be in writing and that the transfer be unambiguous. Occasionally, in a contract between an engineer and a client, the contract may stipulate, usually at the client's request, that the client is assigned all copyright in the works prepared under that contract. In most cases, however, an engineer creating plans for a project retains copyright in the plans, even though the plans themselves may belong to the client. Unauthorized use of engineering plans by anyone, including the client, can constitute infringement of copyright.

The distinction between the intellectual work and the physical manifestation of, or medium that carries, the work must be understood to properly assert one's rights over intellectual property. Copyright applies only to the intellectual work and exists separately and apart from the medium, which is a form of real property. For example, a person buying a paperback is free to read, mark-up, re-sell, or destroy the paperback. However, because the copyright remains with the author, the purchaser cannot make copies of the book for resale and cannot quote the text without attribution. For an engineer's purposes, the ownership of the copyright of the content of plans is separate and apart from the ownership rights of the plans themselves. In typical engineer-client relationships, the client owns the output of the engineer's work (plans, reports,

drawings, etc.) and is entitled to use those plans for the purpose they were obtained. Under certain circumstances, the client can also sell the plans. For example, a developer may have hired an engineer to provide a design for municipal servicing of a property. If, after receiving the plans, the developer decided to sell the site, the plans could be part of the property transferred.

Occasionally, engineers experience a situation where they are dismissed by a client part of the way through the design process. Certainly, the plans prepared to that point belong to the client, but it is debatable to what extent the client can use the content of the plans, for which the engineer holds copyright. Courts often use a “value” approach that looks at what the client and the engineer expected to spend or make at certain points in the project. If a design is stolen in a case where the engineer could have expected to receive substantial fees for completion of the design, the engineer is usually entitled to large damages in copyright. Conversely, if the engineering work is largely bought and paid for, the courts will allow the client a great deal of discretion in using existing plans.

Generally, professional engineers are not as preoccupied by copyright issues as are artists, musicians and writers. However, engineers should be aware of these issues, since they, like artists, are occupied in converting ideas, including opinions, judgments and design concepts, into such tangible content as drawings and reports. Engineers aware of these issues will be better prepared to protect both their ideas and themselves from charges of improperly using others’ creations. The most likely scenario leading to copyright infringement is where a second engineer obtains a copy of the first engineer’s plans and copies them either in total or in part. This can routinely happen when an engineer refers back to the “reference” copies kept from his previous employment (where copyright belongs to the former employer), or when an engineer obtains copies of documents from a client. (See section 6.8, *Using Documents Sealed by Others*, for more information on this topic.) Since the *Professional Engineers Act* defines professional misconduct to include failure to make reasonable provision for complying with

applicable statutes, it is possible that a breach of copyright by a practitioner might be considered professional misconduct.

Engineers should take steps to prevent misuse of drawings. Under the international copyright conventions to which Canada belongs, nothing need be done to preserve copyright once a work is created. But to give notice to others who may have access to the work, a notice in the form “(c) 2004 ABC Corporation” is sufficient to inform others they might be infringing the copyright if they make copies. Copyright may be registered with the federal government, but there is no requirement to do so. In addition to affixing a copyright notice to all documents, include a note that they can be used only on the project for which they were prepared.

Transferring copyright in drawings to a client is a risky proposition. The law does recognize certain protections for an engineer when an owner of drawings uses them for a purpose for which they were not designed. However, contracts should make it clear that any transfer of engineering documents, including drawings, to the client is on the terms that:

- the documents are instruments of professional service only;
- they are to be used only in connection with the project that is the subject of the agreement;
- the client agrees to indemnify the engineer for any liability issues that arise from the drawings; and
- the client provides additional compensation for the risk of this added liability.

Controlling the distribution of copies is a good practice and is where proper sealing practices come into play. Master originals can be sealed, provided the sealing engineer ensures that the masters are stored and access is controlled. Copies should be distributed only on an as-needed basis and only the copies that need to be sealed should be sealed. For example, usually only the contractor and the building department must have sealed copies of the drawings for a building project. In fact, in most cases, even the client does not need a set of sealed design drawings.

8. Professional Responsibility and Liability

8.1 Professional Responsibility

Professional responsibility refers to engineers' 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 individuals act in their capacity as professional engineers, they must be prepared to answer for their conduct in discharging their obligations to the profession and to the public. The seal is an indication of who is taking professional responsibility for the content of a document. By affixing the seal, a professional engineer agrees to take the responsibility and to be accountable for any deficiency of skill, knowledge or judgment found in his or her work. Should a complaint be made regarding a document that is alleged to demonstrate negligence or incompetence, the engineer who seals the document is answerable to Professional Engineers Ontario.

Accepting this responsibility is part of the commitment made by each individual when accepting the exclusive right to practise afforded by the professional engineer's licence. Consequently, the use of the seal is not optional. Failing to seal an engineering document provided as part of service to the public is a violation of the *Professional Engineers Act*. The implications associated with failing to seal a final drawing are the same as any act of professional misconduct: The P.Eng. would be disciplined by PEO, and there have been discipline cases in which one of the charges was failing to seal.

8.2 Liability

A liability is a legal obligation resulting from a duty, or a promise to do something. To say a person is liable is to indicate that they are the person responsible for fixing the problem, paying the debt, or compensating the victim of the wrongful act.

A liability may arise from contracts, either express or implied, or in consequence of torts committed. Since contracts are essentially promises, they indicate an agreement by the parties to accept obligations they would not normally have. Lack of a written contract does not mean there are no obligations on the parties. In the absence of a written contract, the parties of a transaction, such as a fee-for-service relationship, will be bound by common law and other norms including, in the case of professional engineers, the *Professional Engineers Act*, PEO guidelines and standards of practice expected of reasonable practitioners.

A tort is an act, done deliberately or through carelessness, that causes harm or loss to another person. Since, in an orderly society, all people are expected to conduct themselves so as to avoid causing foreseeable harm to other people or their property, a person responsible for a tort can be required by a court to pay damages to the injured party. This obligation to take reasonable care is known as a duty of care. The duty of care is, however, more stringent for those, such as professional engineers, who are expected to possess specialized knowledge and who occupy a position of trust within society. Professional engineers, therefore, like other professionals, owe a special duty to clients and third parties to perform their services with the degree of knowledge, skill and judgment ordinarily possessed by members of the profession. They are also required to provide professional engineering services in the manner a reasonably prudent engineer would under the same or similar circumstances. The special duty of care arising from professional status does not imply that professional engineers are subject to infinite risk, since the law does not expect or require perfection. Unsatisfactory results, alone, are not necessarily evidence of lack of skill or proper care; as long as an engineer has exercised that degree of knowledge, skill and judgment possessed and used by the average practitioner, it is unlikely that a court will find him or her liable.

for negligence, despite unsatisfactory results having occurred.

Failure of an engineer to sign and seal an engineering document does not relieve the engineer of legal liability, since sealing of documents by engineers has nothing to do with the question of liability for negligence. Engineers are liable because they prepared the documents, or because they supervised or approved them, not because they signed or sealed them. Similarly, affixing a seal does not necessarily impose on an engineer the burden of any additional civil liabilities. The courts assign liability on the basis of the facts, not on whether the document is sealed.

However, engineers who knowingly sign and seal engineering documents that they did not prepare, supervise, or check, may be sued for fraud or negligence, if the misrepresentation results in some party suffering damages. In addition, since this is a violation of the professional misconduct provisions of Regulation 941, the engineer can be disciplined by Professional Engineers Ontario.

8.3 Sealing Fees

Sealing of engineering documents is an integral part of the role of a professional engineer and cannot be considered an additional service. No fee shall be charged for affixing the seal to documents prepared by the engineer during the course of employment or as part of any engineering services provided to a client.

Though it is reasonable, within limits, for professional engineers to provide services to review and then seal documents prepared by another person, engineers must never “sell their seals” by merely affixing their seals to documents they have had no part in preparing or thoroughly reviewing, either for payment or as a favour. Such conduct is a violation of section 72(2)(e) of Regulation 941 under the *Professional Engineers Act*. It is also unwise since, by sealing, the engineer

acknowledges professional responsibility for the content of the documents.

8.4 Penalty for Misuse of a Seal

Anyone who illegally uses an engineering seal may be found guilty of an offence under section 40 of the *Professional Engineers Act* and may be fined up to a maximum of \$10,000 for a first offence, and \$25,000 for any subsequent offence. In cases involving the illegal use of an engineering seal, police may also lay fraud or forgery charges. Typically, it is non-engineers, operating without the knowledge or consent of an engineer, who carry out these offences. This is why engineers should store their seals in a secure place.

PEO has prosecuted individuals who have used illegally obtained seals or forged replicas. There have also been cases where non-licensed individuals have obtained digital copies or sheets of photocopied transferable facsimiles of an engineer’s seal and used them fraudulently.

8.5 Ownership and Replacement of Seal

Every seal given to a licence holder remains the property of Professional Engineers Ontario. The engineer to whom it is issued has exclusive use of it for as long as he or she is a member in good standing of the association. The seal must be returned to PEO upon retiring or resigning as a member.

If your seal is lost or stolen, notify PEO immediately. Replacement seals can be obtained by contacting PEO’s Administrative Services Department. You will be asked to complete a form and return it with a cheque for the replacement fee. At the time of printing, this fee was \$15. If you are a member in good standing, you will receive a new seal in a few days.

9. 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: Is it necessary to seal a report/document that contains a summary (compendium) of management best practices along with specific construction and maintenance recommendations for a specific infrastructure facility?

A: Section 53 of Regulation 941 provides the statutory requirements for the use of the professional engineer's seal. This section lays out two conditions that, if met, require engineers to seal documents. The first condition is that the document must contain information conveying decisions, opinions, instructions, or other content, based on engineering judgments. The second condition is that the document is provided to the public (i.e. anyone not part of your employer's organization).

A summary prepared separately from the work that generated the original content would not be conveying engineering judgments if those judgments had been distributed in other documents. In this case, the summary would not need to be sealed. This would not be the case, however, if the summary were actually a collection of standard instructions, drawings, or other engineering content, assembled as direction for a specific project. In this case, there would be engineering judgment exercised in the evaluation and selection of the specific information, making the assembly therefore an act within the practice of professional engineering (assuming the content relied on the application of engineering principles). In this case, if the summary were provided to someone other than the engineer's employer, it would need to be sealed.

In particular, a collection of best practices prepared as construction and maintenance recommendations for a specific infrastructure facility would need to be sealed, if the recommendations involved engineering principles. The engineer

assembling the document should clearly identify his or her role as a person integrating standard documents.

Q: In the case of Engineering Firm A designing a project for Client A where Engineering Firm B undertakes contract administration of the work for Client A without Engineering Firm A's involvement, and there are field changes to the drawings authorized by Client A (a government body), is it necessary that Engineering Firm B notify Engineering Firm A of the change? Can Engineering Firm B undertake the field change and obtain as-built or record drawings from Contractor A and forward same to Client A without sealing the revised drawings (as-built or record)?

A: The situation where one engineering firm (Firm A) is responsible for design and a second engineering firm (Firm B) or other party is responsible for contract administration or review is quite common. PEO has a guideline covering the practice of general review of construction that specifically deals with a general review engineer as being separate from a design engineer. For all intents and purposes, once the first engineer has delivered the contractually obligated documents, the first engineer is terminated from the project. Therefore, it is not necessary for the second engineer to inform the first engineer of any changes. The changes, and any implications of those changes, become the responsibility of the second engineer.

PEO makes a distinction between as-built and record drawings. As-built drawings are those prepared by a third party, such as the contractor. An engineer should never seal as-built drawings. Record drawings are those prepared by either a third party or by the engineer, for which the engineer has verified in detail all the indicated changes or site-related information. These must be sealed by the engineer.

Q: In the case of Engineering Firm A designing a project for Client A (a government body), Client A under-

taking contract administration of the work and there being changes to the drawings, can Client A make the changes without involvement of Engineering Firm A? Can Client A (a government body) receive as-built or record drawings from Contractor A for their own records and not seal the as-built or record drawings, if there are changes to the work as designed by Engineering Firm A?

A: In situations where an engineering firm does not handle contract administration, the client can make changes to the project without notifying the design engineer. However, if the design changes involve the practice of professional engineering, the client must have a P.Eng. (either a separate engineering firm or an employee of the client) make the changes. This requirement may not be applicable in certain federal projects where provincial jurisdiction does not apply, since the regulation of professional engineering practice is a provincial matter. The client can receive unsealed as-built drawings from the contractor directly. There is no obligation on any party to ensure that sealed record drawings are prepared and provided to the client, unless this is specifically noted in the contract.

Q: *Our organization retains outside consultants to undertake design work on our behalf. The drawings are signed and sealed by the consultant. What are the implications for our organization's director of engineering if the director signs the drawings? The signing is not for the purpose of approving the design, but merely to acknowledge acceptance of the tender package.*

A: As far as the *Professional Engineers Act* is concerned, the only person responsible for the documents is the engineer who affixed a seal to the drawings. All other signatures are simply matters of internal administrative control. Many organizations apply a series of signatures to all drawings, including signatures by non-engineer managers. Such signatures are required for numerous reasons, such as sign-off for budgeting purposes. These authorization signatures do not indicate any minimization or delegation of professional responsibility for the professional engineer who sealed the drawings. They also do not imply that a non-licensed person signing the drawing has illegally practised professional engineering.

Appendix 1. Definitions

Approving/supervising engineer is the professional engineer taking overall responsibility for a large or multidisciplinary project. This engineer can authenticate an engineering document that is the result of the expertise of several engineers working in the same team on a shared project, where it may be considered impractical to apply the seals and signatures of all engineers. Since this engineer is taking responsibility for the work of the team members, this engineer must be competent in all engineering disciplines represented by the document.

As-built drawing is documentation created by or based solely on information provided by a third party that reflects the installed, constructed, or commissioned conditions of a device, machine, equipment, apparatus, structure, system, or other outcome of an engineering project. Since the engineer has not verified that the information is complete or accurate, as-built drawings must not be sealed (see *Record drawing*).

Content is the information within a document, regardless of form or media.

Coordinating (or Integrating) engineer is the professional engineer responsible for integrating the expertise and output of a large and/or multidisciplinary team of engineers. This engineer takes responsibility for ensuring that all work relevant to the project has been completed and has been prepared by professional engineers, but does not take responsibility for the work of the team members.

Direct supervision means the professional engineer was the decision-making authority for the preparation of the engineering documents, that all those who assisted in preparing the documents reported directly to and received directions only from the engineer, that the engineer had authority to assign tasks to those assisting on the basis of his or her assessment of their capabilities, that the engineer could compel them to act in accordance with his or her decisions, that the engineer regularly reviewed the work done by others,

and that the engineer was available to provide guidance to those preparing the documents at all times between commencement and completion of the project.

Document refers to a single coherent body of information recorded in the form of words, symbols, sounds, or images on any medium.

Document integrity means that information in a document has not been altered and has been maintained in its entirety. To maintain integrity, the medium used must be stable throughout the entire period of required information longevity. The integrity of a document must be maintained through all stages of its life cycle, including authentication, consultation, examination, verification, fragmentation, reproduction, transfer, transmission, storage, archiving, destruction, recovery, reconstitution, or manipulation of any kind.

Engineering document is a document of any kind in any medium that expresses engineering work carried out by a professional engineer. In general, they are any outputs of an engineering design or analysis process, such as design requirements, engineering drawings, specifications, reports, or instructions. The following are examples of engineering documents:

- any drawing prepared as a graphical instruction based on engineering decisions, such as process flow diagrams, structural framing plans, electrical power distribution diagrams;
- design notes, including calculations;
- pre-start health and safety reports;
- reports based on engineering judgments, documenting recommendations, opinions, evaluations, certifications, condition assessments, analysis, verification;
- technical standards and specifications;
- technical procedures;
- technical guidelines providing descriptions of prescriptive methodologies; and

- forms for submission to regulatory authorities, such as a Commitment to Provide General Review of Construction, or applications for Ministry of Environment Certificates of Authorization.

Handwritten signature is a name or personal mark, in handwritten form, that a person affixes to a document and routinely uses to express consent or acknowledge responsibility with respect to the document, or to authenticate it.

Impression is a facsimile (of a seal, signature, etc.) on a document, regardless of the medium used.

Original is a document that emanates directly from the author and is the only authentic source for copies or reproductions. In the case of technology-based documents, the integrity of the original must be ensured and the original must be capable of being linked to a person, whether or not the document is released.

Record drawing is a document created to accurately reflect as-constructed, as-built, or as-fabricated conditions and that has been sealed by a professional engineer after verifying that the document is accurate. They are usually retained to meet business or regulatory requirements.

Sealed means a document is signed, dated and bears an impression of the professional engineer's stamp. The seal implies that the professional engineer attests to the completeness and accuracy of the document.

Shop or factory drawings are documents comprising detailed representations of a device, machine, equipment, apparatus, structure, or other result of manufacture created for the purpose of installation, assembly, fabrication, construction or manufacturing, or to illustrate the use of routine or specific methods.

The following are terms often used to refer to various stages in typical corporate or organizational document management schemes. As generally used, they are often vague and ambiguous about the role of a professional engineer.

- *Drawn by* identifies the person(s) who generates the drawing.

- *Written by* identifies the person(s) who creates the document.

- *Checked by* means a person has examined the document to determine whether the content is complete, correctly formatted, consistent with corporate standards, and accurately reflects information supplied by the designer. It does not include an examination of whether the engineering principles in developing the document are correctly applied. Documents do not need to be checked by a professional engineer.

- *Prepared* means the engineering document was created by, and the supporting work (such as analysis, calculation, evaluation, testing, etc.) was done by, a licensed professional engineer or person(s) working under the direct personal supervision of a professional engineer. An engineering document is prepared by a professional engineer, even if it is drawn by, or written by, others.

- *Verified* means an engineering document has been examined for correctness against design requirements by a professional engineer or a person working under the direct personal supervision of a professional engineer.

- *Approved* means a professional engineer responsible for preparing the engineering document, or for integrating documents prepared by other professional engineers, is satisfied that the content of the document or documents meets professional standards and, in recognition of the approval, signs and seals the document. Approval means taking professional design responsibility for the engineering document. Approval in this context refers to a personal decision by the engineer in relation to his or her own work and must be distinguished from approval as used in relation to regulatory purposes, such as the building permit process. Approval of one's design must be distinguished from, and must not be confused with, approval used in the context of an Authority performing its regulatory mandate to determine whether a submitted design meets requirements of an act or regulation. Examples of this include government approvals under the *Building Code Act* or the *Environmental Pro-*

tection Act. When a professional engineer is charged with carrying out an approval under these or any other act or regulation, the professional engineer is actually exercising a delegated authority on behalf of that authority. An engineer, or anyone else, providing regulatory approval of a document does not take responsibility for the content of the document, and consequently cannot make modifications to the design or report. Any non-compliant issues noted during the regulatory approval process must be reported to the approving engineer (i.e. the engineer who affixed a seal to the document). The approving engineer will determine whether to incorporate these changes into the document or deal with non-compliant issues in other ways. The regulatory authority, however, still retains the right to refuse approval.

- **Authorized** refers to a non-engineering (generally a corporate administration) decision, indicating that a final engineering document or package of engineering documents has been accepted for their intended use. This may involve a release for pro-

duction or construction, a commitment of funds, or a decision to issue to a client. This action refers to a management assurance procedure, not professional accountability.

- **Accepted by** means a sealed engineering document or package of engineering documents has been examined by a person, other than the professional engineer(s) who sealed the documents, to determine whether the document(s) is(are) suitable for the intended use. This person, generally the employer, client, or agent of the client/employer, does not need to be a professional engineer, since the acceptance is generally a release to proceed with non-engineering activities, such as purchasing, tendering, allocation of funds, and other administrative tasks.
- **Reviewed by** means examination of a document (generally shop drawings) prepared by a third party, to determine whether its content generally conforms to the design intent expressed by the drawings, specifications or other documents prepared by the designer.

Appendix 2. Extracts From Regulation 941, *Professional Engineers Act*

52. (1) Every Member shall have a seal of a design approved by the Council, the impression of which shall include,
- (a) the surname and initials or given names of the Member;
 - (b) the words “licensed Professional Engineer” and “Ontario”; and
 - (c) the licence number. R.R.O. 1990, Reg. 941, s. 52(1); O.Reg. 13/03, s. 15(1).
- (1.1) If a Member’s seal was issued before the day subsections 11(1) to (65) of Schedule B to the Government Efficiency Act, 2001 come into force, clause 1(c) does not apply. O.Reg. 12/03, s. 15(2).
- (2) Where a Member’s seal was issued prior to the 1st day of September, 1984, the word “Registered” may appear in place of the word “Licensed” on the seal. R.R.O. 1990, Reg. 941, S. 52(2).
- (3) Every holder of a temporary licence shall have a seal of a design approved by the Council, the impression of which shall include,
- (a) the surname and initials of the holder of the temporary licence;
 - (b) the words “Temporary Licensee” and “Association of Professional Engineers of Ontario”;
 - (c) the temporary licence number;

- (d) the date of expiry; and
 - (e) a statement of the limitations on the temporary licence that may affect the public. R.R.O. 1990, Reg. 941, s. 52(3).
- (3.1) Every holder of a provisional licence shall have a seal of a design approved by the Council, the impression of which shall include,
- (a) the surname and initials of the holder of the provisional licence;
 - (b) the words “Provisional Licensee” and “Association of Professional Engineers of Ontario”;
 - (c) the provisional licence number;
 - (d) the date of expiry; and
 - (e) a statement that the holder is entitled to practise professional engineering only under the supervision of a professional engineer, and shall not issue a final drawing, specification, plan, report or other document unless the supervising professional engineer also signs and dates it and affixes his or her seal to it. O.Reg. 13/03, s. 15(2).
- (4) Every holder of a limited licence shall have a seal of a design approved by the Council, the impression of which shall include,
- (a) the surname and initials of the holder of the limited licence;
 - (b) the words “Limited Licensee” and “Association of Professional Engineers of Ontario”;
 - (c) the limited licence number;
 - (d) a statement that the licence is limited to the services within the practice of professional engineering mentioned in the limited licence;
 - (e) REVOKED: O.Reg. 13/03, s. 15(3).
 - (f) a statement of the limitations on the limited licence that may affect the public. R.R.O. 1990, Reg. 941, s. 52(4); O.Reg. 13/03, s. 15(3).
53. Every holder of a licence, temporary licence, provisional licence or limited licence who provides to the public a service that is within the practice of professional engineering shall sign, date and affix the holder’s seal to every final drawing, specification, plan, report or other document prepared or checked by the holder as part of the service before it is issued. R.R.O. 1990, Reg. 941, s. 53; O.Reg. 13/03, s. 16.
54. Every person whose licence, temporary licence, provisional licence, limited licence or certificate of authorization is suspended or revoked and every partnership whose certificate of authorization is suspended or revoked shall forthwith deliver it to the Registrar together with the person’s or partnership’s related seal and the certificate, if any, designating the person as a specialist or a consulting engineer. R.R.O. 1990, Reg. 941, s. 54; O.Reg. 13/03, s. 17.
55. Every person who resigns from the Association and every person or partnership who surrenders a temporary licence, provisional licence, limited licence or certificate of authorization shall forthwith deliver to the Registrar the person’s or partnership’s licence, temporary licence, provisional licence, limited licence or certificate of authorization together with the related seal and the certificate, if any, designating the person as a specialist or a consulting engineer. R.R.O. 1990, Reg. 941, s. 55; O.Reg. 13/03, s. 18.

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: Bernard Ennis, P.Eng., Manager, Practice and Standards

FAX: (416) 224-8168 or (800) 268-0496

EMAIL: bennis@peo.on.ca

Appendix 4. PEO Professional Practice Guidelines

1. Acting as Contract Employees (2001)
2. Acting as Independent Contractors (2001)
3. Acting Under the Drainage Act (1988)
4. Acoustical Engineering Services in Land-Use Planning (1998)
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 (2000)
14. Land Development/Redevelopment Engineering Services (1994)
15. Mechanical and Electrical Engineering Services in Buildings (1997)
16. Professional Engineer as an Expert Witness (1997)
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. Roads, Bridges and Associated Facilities (1995)
22. Selection of Engineering Services (1998)
23. Solid Waste Management (1993)
24. Structural Engineering Services in Buildings (1995)
25. Temporary Works (1993)
26. Transportation and Traffic Engineering (1994)
27. Use of Agreements between Client and Engineer for Professional Engineering Services (including sample agreement) (2000)
28. Use of Computer Software Tools Affecting Public Safety or Welfare (1993)
29. Use of the Professional Engineer's Seal (2008)



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