

Some common professional practice issues

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Standards and Regulations staff learn of many issues that create difficulties for engineers trying to live up to their professional obligations. Some issues are unique; others are repeated and tend to fit into general categories. Here are a few commonly reported issues and our responses.

Sealing the work of others

The *Professional Engineers Act* clearly states that engineering documents are to be sealed by the professional engineer responsible for preparing or checking (i.e. supervising the preparation of) the work. However, clients and other users of these documents have told PEO that in some engineering firms seals are regularly applied by company officials who had nothing to do with the work. In several recent cases, contractors and government officials have reported they called professional engineers whose seals were on drawings to clarify information, but were forwarded to other engineers in the firm who actually did the work. This is entirely inappropriate and unprofessional. Such behaviour devalues the seal, since when used in this way it is no longer associated with the person responsible for the work.

Some company officials mistakenly assume they are supposed to seal the documents because the engineering firm is legally liable for any problems arising from the work. This is a misunderstanding of the purpose of a professional engineer's seal. Sealing a document creates no legal liability. The seal identifies the engineer taking personal and professional responsibility for the content of the documents. That engineer is the individual who will be held accountable by PEO if a complaint is made. It is only appropriate that the professional engineer who is 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.

Among its other roles, PEO's Standards and Regulations department provides licence holders and the public with advice on questions regarding professional practice and ethics. This advice, based on interpretation of the *Professional Engineers Act* and guidance from the Professional Standards Committee, aims to assist in resolving problems occurring in specific, concrete situations.

This practice is also a *Code of Ethics* violation. Clause 77.7.v of Regulation 941 states a "practitioner shall give proper credit for engineering work." When company officials seal documents prepared by other professional engineers, they are effectively, and unethically, taking credit for work they did not perform.

Another common misconception 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 a C of A and a seal. The right and the obligation to use a seal are conferred by the P.Eng. licence.

Completeness of drawings

PEO has received many comments about the growing practice of professional engineers inappropriately using generic notes such as "By Contractor" or "By Manufacturer" or "As Required by Code" to fill in information gaps on drawings. In many cases, the design engineers are simply not providing enough information to completely prescribe the options available to people relying on the documents.

A drawing can be considered complete only if it provides enough information that a person using the drawing does not need to make any engineering decisions or judgments. When drawings or other design

documents are incomplete, engineers are effectively delegating their discretion and judgment, the very qualities that make them professionals, to people who will not be professionally accountable for those decisions. In other words, professional engineers submitting incomplete drawings usually require, and permit, unlicensed people to practise professional engineering. Consequently, a professional engineer should never issue a drawing that does not completely address all of the questions that can be asked by someone using it.

The only exception to this is the case where another engineer, specifically hired or employed by the contractor or manufacturer, will be taking responsibility for the design of part of the system. For instance, engineers designing the structural framework of steel buildings usually leave the detailing of connections to the steel fabricator. The fabricator, in turn, must employ a professional engineer to design these components. This other engineer will be responsible for preparing *sealed* shop drawings that complement the system drawings by providing all missing information.

However, it is still necessary in these cases that the drawings, or their accompanying documents prepared by the first engineer, provide all the information necessary for the other engineers to carry out

their work. In the case of structural steel connections, the framework designer must provide all forces at each connection so the connection designer is dealing only with the design of that particular element.

It is also necessary that the first engineer clearly identify the elements of the system that need to be designed by another professional engineer.

When the subject of incomplete drawings comes up at meetings and conferences, the usual responses from practitioners are either: fees are too low to allow engineers to prepare a thorough design, or time constraints prevent it. Both responses point to a tendency among engineers to allow the market, rather than the profession, to dictate the terms of professional service. Professional associations around the world have become concerned that such acquiescence to market pressures only contributes to the growing commodification and de-professionalization of all professions, including engineering, and to a reduction in professional standards. In the interests of professionalism, professional engineers must resist market pressures to take shortcuts that sacrifice professional standards just to satisfy client demands. After all, it is quite clear that professional engineers have two masters: the client and the public. According to the *Professional Engineers Act*, PEO acts as a surrogate for the public and therefore the standards set by the profession are just as important as a client's demands.

Good engineering practice

"Good engineering practice" is a phrase that is widely used in regulations and codes, yet has never been defined. Like professional engineering, which is also inadequately defined, good engineering practice is presumed to be something that "we know when we see it." Unfortunately, intuitive answers are not always acceptable ones. Some sort of consensually accepted formal specification is always needed to resolve disputes, and to provide guidance to professional engineers who need to interpret the requirements of a code or standard. The following is provided as a basic description of what should be understood by this phrase.

Good engineering practice comprises well-known, widely available and generally

acceptable technical behaviours proven by long-standing, constant and general use. Such technical behaviours include, but are not limited to:

- access to and understanding of all theoretical and practical knowledge that generally corresponds to the state of the art in the professional engineer's field at that particular time;
- expression of technical information through graphical representation and/or written documents in sufficient detail to make engineering decisions by others unnecessary;
- awareness and consideration of customary design solutions;
- unambiguous decisions based on application of analytical skills; and
- adherence to standards and codes published by recognized technical, professional and regulatory bodies.

This definition is probably neither complete nor general enough to cover all situations where the phrase is used. However, for the time being, it offers a reasonable sense of the type of standards that are associated with "good engineering practice." PEO staff and the Professional Standards Committee will continue to develop it. Input from practitioners and the public is always appreciated.

Use the guidelines

As the administrator of a self-regulating profession, PEO Council is responsible for maintaining the integrity of engineering. To ensure that this can be done, the *Professional Engineers Act* gives PEO authority to establish, develop, and maintain standards of knowledge and skill required for qualification, of professional ethics, and of competent practice.

It is universally recognized that standards of practice play an important part in shaping the role and the image of the profession. The professional's role can only become clear when members of a profession determine what distinguishes their activities from those of other occupational groups. Once those differences are clear, the profession can strengthen its position by emphasizing its members' expertise in those particular areas of knowledge and skill.

All professions believe that both the public and the profession benefit from widespread adherence by practitioners to quality standards of practice. These standards add value to the profession by establishing criteria for professional competence that enable the public to assess the benefits provided by restricting these tasks to the profession. By demonstrating that a particular task requires specialized knowledge, higher standards of care, and responsibility for life and property, the public perception of engineers as professionals is reinforced.

For this reason, it seems only appropriate to provide guidelines to assist members to know what is expected of them. A typical guideline defines the role of the engineer and explains the relationships that exist between the engineer and the other participants in the process. Where applicable, the guideline will also refer to specific regulatory, legal or ethical issues, such as use of the seal or conflict of interest, that might arise in the context of the practice.

The Professional Standards Committee has subcommittees developing guidelines for engineers providing *peer and technical reviews*, *demolition services for buildings*, *temporary works*, such as shoring and formworks, and *geotechnical engineering services*. Planning is underway for a revision of the *expert witness* guideline and a new guideline dealing with *proper use of computer programs when providing professional engineering services*. And, there is a long list of activities that still need guidelines.

Every professional engineer should be familiar with the information provided in the *Guideline for Professional Practice* and the *Guideline for Use of the Professional Engineer's Seal*. There are 30 other guidelines available on the PEO website (www.peo.on.ca) dealing with subjects ranging from contractual agreements to specific engineering activities. These guidelines have been prepared by experienced practitioners and provide information useful for both understanding and explaining to clients and employers the role and responsibilities of professional engineers. Take the time to read the ones that apply to your particular area of practice. ❖

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