ONTARIO SOCIETY OF PROFESSIONAL ENGINEERS

November 1, 2013

Stephen Bindman
Special Advisor to the Commissioner
Elliot Lake Commission of Inquiry
2380 St-Laurent Boulevard
Ottawa, ON K1G 6C4

Dear Mr. Bindman,

Please accept the accompanying documentation as the Ontario Society of Professional Engineers' (OSPE) submission to the Elliot Lake Policy Roundtable. OSPE looks forward to attending the roundtable discussion in Ottawa later this month.

If you require any further information or if you have any questions please contact us. We look forward to an engaging and productive discussion in Ottawa.

Yours truly,

Paul Acchione

Paul Acchione, P.Eng..
President and Chair

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ONTARIO SOCIETY OF PROFESSIONAL ENGINEERS

OSPE Input to ROUNDTABLE 3 –
ROLE OF PROFESSIONALS and OTHER BUILDING CONSULTANTS
Elliot Lake Hearings

Question	Answer
1) Should the term "prime consultant" be defined and the roles and responsibilities clearly enunciated?	PEO Guideline "Professional Engineers Providing Structural Engineering Services in Buildings" dated 1995 and revised 12/11/98 provides a definition of "Prime Consultant". The term "prime consultant" is only necessary when there is more than one firm involved in the work and therefore its definition should remain with the professional regulator.
2) Should Consultants, including engineers, architects and building inspection companies, be required to clarify the scope of their expertise to their clients and to clearly establish which elements of the building they are qualified to provide an opinion on and which elements of the building they will not be inspecting or addressing due to lack of sufficient expertise?	This is an issue related to the qualification of the consultant during the bidding process and is the responsibility of the client to ask for this. Ideally a consultant should identify what services and level of services will be provided. Those services can be provided by the consultant directly or experts that are called in to assist. Any specialized inspection requirements should be identified as part of the bidding process so the client is aware of any special access requirements needed to ensure an effective inspection.
3) Should the PEO, the OAA and the OACETT provide guidelines with clearer standards for the inspection of an existing building, including best practices?	Yes, detailed guidelines would be helpful. The more specific they are the better, especially items that impact public safety. However, no guideline will cover every situation so some professional judgment is also required. If the guidelines require extensive reporting that will drive up the cost of the report to clients. Consequently, situations that require more extensive reporting should be justified and the requirements should be clearly identified in the guideline. Analysis is usually not a part of the inspection. Hence it should not be in the guidelines. The inspection report should deal with the facts of the inspection and provide recommendations on further investigation or analysis, if required.

Question	Answer
	Special attention should be paid to guidance on issues that bridge more than one discipline or specialty. For example fire barriers typically involve more than one discipline or specialty and can be overlooked unless specifically required to be included in the inspection report. Also a work crew who observes conditions that may affect another discipline – eg: extensive rust on a structural component during installation of a fire barrier should identify the rust problem before they cover the problem.
4) Establish clear terminology to ensure that clients and regulators understand the scope of work, defining the scope of work expected in various types of inspections (for example, opening up concealed areas to examine connections or measuring corrosion) and ensuring that the engineer has sufficient resources, and a sufficient retainer, to be able to complete the required work:	Agreed.
a. Clarify which documents should be reviewed prior to the inspection;	Agreed. Better wording may be "clarify which documents are available for use including maintenance records and previous inspection reports."
b. Clarify which questions must be asked of the on-site owner representative, including a request for production of previous structural engineering reports;	What questions are asked are case specific so it may be impractical to define in a guideline. However, requiring the inspector to review maintenance practices and past problems with the building maintenance staff would be helpful.
c. Identify the critical areas and determining the appropriate number of samples on which to draw credible conclusions;	This will be case specific but the guidelines should require the inspector to identify to the client the inspection areas and samples needed to ensure an effective inspection.
d. Document the inspected areas, including photographs, measurements, samples and notes;	Agreed.
e. Clarify and define terms such as 'visual' inspection', 'condition	Creating an extensive list of special terminology for different groupings of a

Question	Answer
assessment', 'detailed condition assessment', 'structural assessment report', 'structural elements' etc;	wide range of activities is not helpful. It is better to define what specific activities need to be performed in language that is in common usage.
f. Prohibit the use of statements in reports such as "All beams inspected had little loss of section and we would consider the members still structurally sound" where the location of those beams or structural elements on which that opinion was based has not been identified within the report;	Rather than excluding general statements it is better to require general statements to refer to a list or table of items that are covered by the general statement.
g. Establish a baseline of what is deemed to be an appropriate representative sample of the structural system and its components, including joints and connections, and structural steel to be inspected before the professional inspecting the building can confidently confirm that a building is 'structurally sound';	The scope of an inspection will depend to a large degree depend on the purpose of the inspection. That purpose should be clearly stated. For example an inspection to confirm that a structure should be demolished can be much simpler than an inspection to determine what needs to be repaired to extend the service life of a structure.
h. Set out the minimum standards for inspection by the professional inspecting the building to determine whether there has been 'section loss' of structural elements. In particular whether actual measurement is required where corrosion has been identified or that a 'visual assessment' of the degree of corrosion is sufficient?;	Agreed, but where available, reference industry norms or standards.
i. Define what the professional inspecting the building must include in their reports in relation to which elements of the building have and have not been inspected. Should the Guidelines require that a review of structural steel must include	What needs to be reported is a function of what problem is observed. For example leaks and their impact are different than mechanical impact damage or fire related heat damage. What was observed and where should be clearly identified for future reference for follow-up inspections.

Question	Answer
an inspection of and report on the condition of the connections, failing which the structural review is not complete?;	
j. Specify when the professional conducting the inspection should include a warning in their report to the client of the potential risks of failing to follow the recommendations in the report where significant or potentially unsafe deficiencies in the building have been identified and recommendations have been made for the repairs;	Agreed.
k. Set out when it is appropriate to make changes to a draft report based on client feedback;	Agreed. The changes should be evaluated on the basis of factual inspection evidence. Only changes supported by factual evidence should be permitted. Reports should not be delayed pending corrective repairs. Any subsequent repairs and inspections should be the subject of a new report not a revision of the original report to remove reference to the deficiency.
l. Set out when copies of the reports for the buildings which have been inspected in the past should be retained;	Agreed and the archive period should also be identified. To ensure easy retrieval of historical reports, irrespective of current owner or inspector, the office of the CBO may be the logical place to store them.
m. Establish an obligation to create and maintain a searchable database within their respective offices (locally and nationally) which would allow the professional conducting the inspection to search to see if their respective companies have inspected a particular building in the past (for any reason) and to review the previous files and reports prior to taking on a new retainer, or conducting a further inspection of the building; and,	This is an unnecessary burden on the inspection firm or consultant if the reports are already kept by the owner of the building and/or the CBO.
n. Clarify the procedure to be	Agreed, a standard covering supervision

Question	Answer
followed when signing a report prepared by a graduate professional in training, a C.E.T. or an unlicensed engineer.	and approval of the work would be helpful. PEO has been developing a supervision standard and expediting its release would be helpful. The standard should also cover approving work of licensed individuals who are working in unfamiliar areas for which they have inadequate knowledge or experience.
5) Should there be a requirement on engineers and architects to advise clients (past and present?) of the suspension or revocation of their license?	Yes practitioners should be required to advise current clients of current suspensions and revocations. Past incidents should be searchable by clients on-line at the regulator's web site.
6) Although architects and engineers currently have a duty to report a building which poses a threat to the safety and security of the public, should a guideline be issued by the PEO, OAA and/or the OACETT which provides:	Yes the CBO should be made aware of any building that has deficiencies that impact public safety if the owner or client is unable or unwilling to make the repairs immediately and without risk to the public. Reports should be submitted to the CBO with a prescribed form with a checklist of important building elements that are required to be inspected and dispositioned. Since many clients and CBO's do not have in-house structural design expertise, the reports should identify the nature of the deficiency, required remediation options and possible public safety impact in plain language that a non-expert can understand. Any remedial actions that are not immediately required should also be identified with an estimate of when follow-up inspections and/or remedial actions are required. This should also be reported to the CBO.
a. A standard of when the professional is to report the unsafe conditions (i.e. degree of risk);	Safety is not an absolute measure due to safety margins designed into structures. A calculated level of stress above code allowable levels may be a better way to establish reporting requirements.
b. That public safety should be the primary consideration;	Agreed.

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c. To whom the professional is to report the unsafe condition (i.e. professional organization, CBO of the municipality in which the unsafe building is located, owner, etc.); and	First reporting obligation is to the owner/client. If no corrective action is taken by the owner/client in a timely manner then the final reporting requirement is to the CBO. However, the CBO should not be expected to dig through the report to find the unsafe condition. It would be better if there is a standard provincial form that is used to report all unsafe conditions to CBO's so none are inadvertently overlooked.
d. Whether the professional (architect, engineer, C.E.T.) reporting the unsafe building should be afforded immunity from liability where the building has been reported in good faith.	Agreed provided the owner/client has been advised first and given the opportunity to correct the deficiency in a manner that does not expose the public to a safety risk.
7) Should the concept of a "provincial engineer" be adopted in Ontario?	The obvious question is what would the Provincial Engineer do that cannot be done by existing entities? The current *P. Eng. Act* does not hold the owner/client responsible under the Professional Engineers Act for not accepting the practitioner's advice. The owner is still exposed to civil and criminal liability but that typically surfaces after a failure. To prevent an owner/client from waiting to see if a real problem develops, you need a whistleblower and an entity that has knowledge and authority to fix the problem or close the facility. The latter entity can be the CBO, the Ministry(ies) responsible for various types of structures or a new Provincial Engineer's Office. If the function is centralized for the whole province there are practical barriers to efficient implementation. Apart from the physical size of the province there are also resource/workload issues and budget/funding issues.

Question	Answer
	It is likely easier to implement such as structural engineering oversight function locally within the CBO office in each municipality. That office would have to have the budget, roles, responsibilities and authority to access the required specialized engineering expertise and order repairs or the shutdown of an unsafe facility without recourse to court proceedings in the case of imminent danger to the public.
8) In the past, engineers had specialties that were identified on their seals. Should the PEO, in the case of structural engineering at least, revert to that approach, including specific training and mandatory continuing professional education components for engineers practicing and holding themselves out to the public as "structural engineers"?	In the past specialties were identified by practitioners and this resulted in an excessive number of specialties so individuals could differentiate themselves from their colleagues. If the specialization is created by PEO based on a true public safety need, then it would likely be effective. Any unique authority would need to be specified. However, the introduction of specialists should not preclude non-specialist practitioners from performing work they are capable of doing.
9) Should Professional Engineers Ontario adopt a system of mandatory continuing education similar to other professions in the province and like other professional engineering licensing bodies in several other provinces?	A mandatory continuing professional development (CPD) program needs to address the real knowledge and skills that relate directly to the work and public safety. Many CPD programs are too broad and unfocused and are viewed as ineffective and costly by practitioners. OSPE has reviewed engineering CPD programs in Canada and has made a proposal for a mandatory CPD program to PEO for their consideration. The recommended OSPE CPD program is based on the Alberta's APEGA CPD program with a number of adjustments to make the program more effective at meeting individual practitioner's needs. The CPD program also included a sampling and reporting process based on the one used by New Brunswick's APEGNB that would focus on higher risk

Question	Answer
	work in order to reduce the administrative burden on practitioners and the regulator (PEO). PEO council has recently referred the OSPE CPD proposal to PEO's Professional Standards Committee for review. Some additional changes may be necessary to better focus the program on the individuals and work that have the greatest public safety impact. For larger firms, CPD programs that are embedded into an Engineering Quality Assurance (EQA) program appear to produce the best public safety results. EQA programs attempt to reduce the probability that the public is negatively affected by even an honest mistake by the best practitioner.
10) Should PEO adopt guidelines for structural engineering practice and independent documented structural engineering review similar to those now published by APEGBC and which resulted from the inquiry into the Station Square collapse in Burnaby, B.C. in 1988?	More detailed guidelines in Ontario would be helpful. The current 1995 PEO guidelines could be improved to incorporate the lessons learned from various structural collapses including in other jurisdictions.
11) What is the general state of knowledge in the engineering profession of corrosion, and particularly what conditions affect the rate of corrosion of structural steel and what is the impact of corrosion on the anticipated life of a building's structural integrity? Is there continuing education in this area and, if not, should there be?	Most engineers get a basic introduction into corrosion and can deal with routine corrosion issues in their area of practice. For example structural engineers can be trained to deal effectively with rust of structural components from water or saltwater leakage as part of their practical experience training/mentoring and periodic continuing professional development as new information and standards are developed. Complex chemical corrosion issues should be resolved by corrosion experts.
12) Considering the information you have gleaned from the proceedings of the	Based on actual experience, there is not a major safety issue with the provision of

Question	Answer
Elliot Lake Commission of Inquiry, can you provide your top five recommendations as to what should be done to ensure that a similar tragedy does not occur again in Ontario or Canada? If possible, identify the sort of buildings or occupancies which should be the highest priority?	structural engineering services in Ontario. However, the hearings clearly demonstrated that one or more individuals or firms can miss unsafe conditions that can lead to a fatality. Consequently if we want to further reduce the likelihood of a similar failure in the future we should: a) Require effective continuing professional development and effective supervision of individuals involved in the work. This will help to ensure competency and ethical behaviour of the individuals doing and approving the work; b) Develop guidelines and standards to better inform and guide practitioners on best practices; c) Incorporate a quality assurance process for safety critical work to provide a reasonable level of assurance that an honest mistake on safety critical work by even the best professional does not slip through and negatively impact public safety; d) Include a duty for practitioners to report unsafe conditions initially to the owner/client and then to the CBO if the client does not correct the deficiency in a timely manner; and, e) Provide immunity to whistleblowers from liability for good faith reporting. The highest priority buildings are those that have the greatest potential for harm to public safety. This would include buildings that are designed to support large occupancies and that have design features that make them susceptible to deterioration over time due to exposure to weather or other agents that can cause reduction in structural strength.