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## Recent Ethics Exams since 2011

## Summary of Ethics questions since 2011.

Note that the last three complete exams are in the Most Recent Exams section.

Question and Answer	Frequency since 2011
<p>PEO has enforcement as one of its regulating functions. What does the term "enforcement" mean in this context?</p> <p>Enforcement refers to dealing with unlicensed people who infringe on the Act; i.e., restricting unlicensed people from practicing engineering or using engineering titles (see section 40 of the Act; this section lays out the "penalties" for contravening section 12, and therefore, expresses the power to enforce that section), while discipline refers dealing with licensed people who have contravened the Act acted, i.e., by practicing unscrupulously or negligently (see section 28 of the Act).</p>	1
<p>PEO recently removed one of the requirements needed to obtain a Professional Engineers licence. Which one was removed? (April 2011 question)</p> <p>PEO no longer requires applicants for a P.Eng. licence to be a Canadian citizen or permanent resident. (answer to April 2011 question)</p>	1
<p>Where a licence, certificate of authorization, temporary licence, provisional licence or limited licence is revoked or cancelled what should the holder do with the certificate and seal?</p> <p>Return them to PEO; as per section 36 of The Act.</p>	1
<p>In order to be designated as a "Consulting Engineer" one must meet a number of requirements. Briefly list three of them. In some questions, for the same number of total marks, this is also asked: What additional privileges or rights are granted by this designation?</p> <p>Section 56 of the Regulations explains that: 1. Council will designate as a "consulting engineer" every applicant for that designation who: a. is a member b. is and has been for <math>\geq 2</math> years independently practicing engineering in ON, c. Has <math>\geq 5</math> years satisfactory eng experience past the minimum requirements for membership, d. has passed the exams prescribed by the council or has been exempted from them 2. you can be exempted from the exams if the council believes you have appropriate qualifications. Note that the regulations go on to explain that "independently practicing engineering" means that you either have a C of A or are the named person on a C of A. Designation as a consulting engineer would allow you to use the title "consulting engineer" (pg 84), which carries with it prestige, and the ability to benefit from being part of a consulting engineers society. Most private practitioners prefer to use this title. Section 56 of the Regulations explains that one may be required to pass examinations to qualify.</p>	7
<p>Is there any difference between being a member of PEO and holding a licence to practice professional engineering in Ontario? Explain</p> <p>A member of PEO is a fully licensed engineer in Ontario (P.Eng, full licence holder), while temporary, provisional, and limited licensed engineers also "hold a license to practice professional engineering in Ontario," except those licences require supervision of a member and / or expire. If one is to provide services directly to the public or practice professional engineering as a business, one also needs a certificate of authorization.</p>	1
<p>TranTech, a manufacturing firm, has contracted to develop and produce a fully- automated mass-transportation system to serve residents of a large city. During the installation and testing phase, a major part of the control system did not appear to function satisfactorily. Kappa, P.Eng, one of TranTech's mechanical engineers is concerned that a failure could have catastrophic consequences for the residents of the city. Kappa reported the apparent</p>	

<p>malfunction to the project manager, who is also a P.Eng., and recommended that the firm engage a licensed software engineering practitioner to look into the problem. However, the project manager advised Kappa that there was no budget available and that it was important for TranTech to make delivery in order to meet its contractual commitments to the client. Kappa strenuously expressed his concerns to the project manager and learned subsequently that shipment to the client had already been made. (20) (a) Does Kappa have any obligation to take further actions under the circumstances? Discuss. (5) (b) Discuss the actions of the project manager. Make reference to the Code of Ethics and Code of Professional Misconduct in your answer.</p> <p>a) Under the Code of Ethics, R77(2)(i) requires an engineer to regard as paramount his duty to safeguard public welfare. Under the definition of Professional Misconduct, an engineer has a duty to safeguard health and property (R72(2)(b)), and correct or report something endangering the public (R72(2)(c)). These facts implore Kappa to take action to disclose the possible problems with the system to the officials of the city before it goes into action. Finally, although the project manager is P.Eng., if the manager is not acting in a technical management capacity then Kappa also has an obligation under R72(2)(f) to present clearly to his employer the expected consequences of not following his advice to ensure the proper working of the control system portion of the product. b) The project manager as a P.Eng., should know better than to jeopardize safety in order to meet a deadline. This practice is definitely not in the public's best interest and even more directly commits professional misconduct by R72.2.b &amp; R72.2.c than does Kappa.</p>	<p>2</p>
<p>Similar to a previous question with WorldEng. ChemEng, a large engineering firm, was hired to prepare the design for a chemical production plant for MajorCo. In addition to preparing the plant design, ChemEng's duties included providing inspections services during the construction stage of the project. The project was completed successfully You are a P.Eng. and have been employed on a full-time basis by ChemEng for several years. You work in the Process Division and are involved on several process design projects. You were an important member of the design team that prepared the design for MajorCo's plant. In addition to working for ChemEng, you supplement your income by occasionally undertaking work on weekends and during evenings for Englnc, another engineering company. A colleague of yours, who is a P.Eng. at Englnc, assigns you such work and assumes responsibility for it. A few years after the plant was completed, MajorCo decided to restructure its operations and sell the plant. BuyerCo has agreed to buy the pant, but before it does so, BuyerCo wants to satisfy itself (and its bank) that the plant was built to proper standards and is in good physical condition. BuyerCo hires Englnc to inspect the physical plant and to review relevant documents (including the original plans and specifications, "as-built" drawings, and operations and maintenance logs). Englnc is very busy on several projects and asks you to assist with the plant inspection and document review. (a) (10marks) Discuss the appropriateness of your employment arrangements. (b) (10 marks) Assuming that your employment arrangements have not changed since the plant was designed and constructed, discuss how you should respond to Englnc's request for assistance. ( c) (5 marks) Would you need a Certificate of Authorization to provide services to Englnc? Explain.</p> <p>Functionally - this question is identical to the WorldEng question used in previous years. Names were changed. You work for ChemEng (who designed &amp; inspected the construction of a chemical plant for MajorCo), but moonlight for Englnc (who has been hired by BuyerCo to inspect the plant and review relevant documents of it). a) The Code of Ethics specifies (in item 5) that when moonlighting, one must disclose the nature of one's employment to both one's main and part time bosses, and in fact, the definition of professional misconduct specifies in item (i) that failing to do so is an example of professional misconduct. As long as I disclose to both of my employers the existence and nature of the other, and the extra work does not sacrifice efficiency at either job, this employment arrangement is acceptable. b) In this situation, a company (BuyCo) has in essence contracted me (through Englnc) to inspect my own company's (ChemEng) work. This creates a clear conflict of interest, the failure of which to disclose is professional misconduct by item (i) of the Definition of Professional Misconduct: "[An example of professional misconduct is] failure to make prompt, voluntary and complete disclosure of an interest, direct or indirect, that might in any way be, or be construed as, prejudicial to the professional judgment of the practitioner in rendering service to the public..." To avoid this, I must disclose the nature of my employment and conflict of interest regarding the project to Englnc; specifically, that I was "an important member of the design team that prepared the design for MajorCo's plant." c) Yes - A P.Eng Licence is not by itself sufficient for me to provide services to Englnc. Occasional work for a second company is considered freelance enough to require a certificate of authorization for providing engineering services independently. From PEO's website "If you work for others, but offer professional engineering services directly to the public on a part-time, moonlighting, or volunteer basis, you must hold a</p>	<p>1</p>

<p>C of A."</p> <p>Honcho, a senior licensed professional engineer, established a small firm Newco Engineering, to provide professional engineering services to the public. The firm became busy very quickly and within a few months, hired A. Zeta, a bright, recent university graduate with an engineering degree, to assist with the work. Honcho strongly believed in mentoring and hoped that in several years, after obtaining the necessary experience requirements and becoming a P.Eng., Zeta would assume increasing managerial responsibility and possibly an ownership interest in the firm. About a year after Zeta joined the firm, Newco Engineering was asked by one of its clients to provide a formal report that included an engineering opinion. Zeta performed the work on that matter and prepared a draft of the report. Before having a chance to review Zeta's work, Honcho received an urgent request from another client that required Honcho to leave on a lengthy business trip. On the way out of the office, Honcho stopped at Zeta's desk and said, "Sorry, but I'll be out of the country and tied up completely for the next three weeks, so I won't be able to review that report. I know that it's due tomorrow, so go ahead and sign it under your own name and send it to the client so we meet the deadline." Honcho was confident that that would be all right, since Zeta had always produced outstanding work in the past. Zeta proceeded to complete the report, signed it "A. Zeta, Eng., Newco Engineering" and sent it to the client. (10) (a) Discuss the conduct of both Honcho and Zeta. What, if anything, should they be concerned about? (10) (b) Could Honcho and/or Zeta be subject to a disciplinary hearing by the Discipline Committee of the PEO? Discuss. (5) (c) Is there anything about Honcho's conduct relative to the Code of Ethics that is commendable? In your answer, please assume that A. Zeta's report would have no impact on public safety or welfare.</p> <p>a) Had Honcho signed the documents without checking them, then he would be guilty of professional misconduct by section 72.2.e of the Regulations. In order to provide professional engineering services in Ontario, a firm requires a certificate of authorization; the requirements for that certificate are outlined in section 48 of the Regulations. These requirements state that the application must name the people responsible for supervising the engineering services of the firm, who themselves must hold licenses or temporary licenses. Since Zeta does not hold a license or temporary license, he must be supervised by Honcho when providing engineering services to the public in the name of the firm. The public then has reason to believe that services provided by an engineering firm are at least supervised by licensed practitioners. In allowing Zeta to complete the work without supervision, Honcho is misleading the public, which is unethical, and professional misconduct under section 72.2.m of the Regulations: "permitting, counselling or assisting a person who is not a practitioner to engage in the practice of professional engineering except as provided for in the Act or the regulations". Zeta has committed two illegal and unethical actions: 1) in signing his name "A. Zeta., Eng., Newco Engineering", he is fraudulently misleading the public to believe he is an engineer, and 2) in providing the services and passing them on without supervisory checking, he is illegally doing the work of an engineer. Both are illegal under section 12 (1) of The Act, and so Zeta is liable to be fined \$25k for the first offense of working as an engineer and \$10k for the first offense of leading someone to believe he is an engineer, under section 40 of the Act. b) Zeta, not being a licensed engineer, cannot be guilty of professional misconduct, but as mentioned in part (a), could face quite large fines. Honcho could and would be disciplined by the Discipline Committee of PEO, for all of the professional misconduct reasons mentioned in part (a). c) Honcho's awarding Zeta this trust gives him a great opportunity for professional development and advancement, which is commendable under section 7.v of the Code of Ethics. This is commendable, but cannot make up for the danger of allowing non-licenced persons to practice as engineers without supervision.</p>	<p>1</p>
<p>(10) (a) PEO issues the following four licences: Professional Engineer, Temporary Licence, Limited Licence and Provisional Licence. Which licence holders can take independent responsibility for engineering work? What limitations are placed on any of the licences? (In your answer, DO NOT discuss the qualifications/requirements for obtaining this license.)</p> <p>Revised answer Dec 2011 Only holders of Professional Engineer Licences (full licences), Limited Licences, and some holders of Temporary Licences who are exempt from collaborating with a Member in accordance with R44(1) may take independent responsibility for engineering work. Limited Licence holders may only take independent responsibility for work that is within the scope of their particular limited licence. Provisional licence holders must always collaborate with a Member who is also (along with the provisional licence holder) required to sign and seal the engineering work (R44(2), R44.1(2)(2)). Limitations of licences: Temporary licence: 1-year duration, possible supervision required. Provisional licence: 1-year duration, supervision required. Limited licence: Limited to services specified in the licence.</p>	<p>1</p>
<p>Are there any restrictions on how professional engineering services may be advertised?</p>	

	<p>Explain.</p> <p>Revised answer Dec 2011 Absolutely. From section 75 of Ontario Regulation 941, "A Member or holder of a temporary licence, a provisional licence, a limited licence or a certificate of authorization may advertise only, (a) in a professional and dignified manner; (b) in a factual manner without exaggeration; (c) in a manner that does not directly or indirectly criticize a Member or holder or an employer of a Member or holder; and (d) without reference to or use of the professional seal of the Member or holder or the seal of the Association."</p>	7	
	<p>PEO issues both a Certificate of Authorization and a P. Eng. Licence. Briefly explain the purpose of each.</p> <p>The purpose of a P.Eng. licence is to allow the holder to take responsibility for engineering work without additional engineering supervision, but is not sufficient to offer engineering services directly to the public - for that, one would also need a Certificate of Authorization. Offering engineering services to the public includes doing engineering work for other than one's full-time employer or offering custom-designed products on a per-client basis, but does not usually include doing engineering for one's full time employer (the employer itself may require a CofA if it offers engineering services to the public).</p>	1	
	<p>What is the "Discipline Committee"? Describe its function.</p> <p>When a complaint is filed about a P.Eng, first the complaint is evaluated (after the association staff gathers information) and then (if justified) a formal hearing is conducted, a judgment is rendered, and a penalty is laid out (if necessary). The discipline committee is the body which conducts the formal hearing, renders the judgment, and lays out the penalty (the complaints committee is the body which initially reviews the complaint before passing on to the discipline committee.)</p>	1	
	<p>Psi, P.Eng., was recently promoted to the position of Engineering and Facilities Manager at a pulp and paper company that is a wholly owned subsidiary of a large multi-national conglomerate. All the company's more than 2000 employees are residents of a nearby town. Recent news reports suggest that symptoms of a wave of illnesses among the town's people may be due to mercury contamination. Psi has become aware that the effluent from the plant contains a very high concentration of a mercury compound. To remedy the identified problem would require radical changes to the plant's processes that will cost at least \$15million dollars. Psi has knowledge that the plant is only marginally profitable and therefore would not be able to afford an expenditure of that magnitude. Psi is also concerned that the plant would face a closing down, causing massive unemployment that would result in workers losing their homes. Psi is therefore uncertain what to do in view of the possible consequences. With the Code of Ethics as your guide, what would you recommend that Psi do under these circumstances? Give reasons for your answer.</p> <p>Revised answer Dec 2011 This situation places Psi in an unfavourable position. On the one hand, Psi has an obligation to his company under the Code of Ethics section 1.i to "act at all times with fairness and loyalty" and under section 3 of the Code of Ethics Psi must regard the information about the pollutants as confidential. Reporting the pollutants to the relevant regulating body would have a very adverse affect on the company, contrary to these obligations. However, these obligations pale in comparison to Psi's obligations to the public in this matter. The definition of professional misconduct states as professional misconduct in items b through d: "(b) failure to make reasonable provision for the safeguarding of life, health or property of a person who may be affected by the work for which the practitioner is responsible, (c) failure to act to correct or report a situation that the practitioner believes may endanger the safety or the welfare of the public, (d) failure to make responsible provision for complying with applicable statutes, regulations, standards, codes, by-laws and rules in connection with work being undertaken by or under the responsibility of the practitioner," and so, while reporting the situation would economically damage the town and company, not reporting it would damage the environment of the town and perhaps the surrounding area, as well as the town and company's integrity should the environmental problems eventually be discovered externally. Failing to comply with the applicable statutes regulations in such a blatant manner is very unethical and not in the best interests of the town in this circumstances. People respect honesty; reporting a problem in the plant's operations and an intent to comply with the environmental statutes may incite government aid for doing so given the adverse impact on the town of shutting down the plant in response to this honesty.</p>	1	
	<p>Note: this question has been recently asked with these changes: Alpha = you 2011 = 2007 Government = municipality Beta = your former partner You are a professional engineer. At the beginning of 2007 you became employed by a municipality in Ontario as head of the municipality's procurement department. Your new responsibilities include participating in the</p>		

<p>bid selection and contract granting process for various municipal construction projects. Before joining the municipality, you were a partner at a very successful consulting engineering firm. At the end of 2006, you sold your interest in the partnership to your partner. Shortly after your appointment to your new position with the municipality, you learned that your former partner sold the consulting engineering firm to Corporation "X". Your partner is now an officer of the corporation. It is now the summer of 2007. In your new capacity, you have been presented with documents recommending the award of a major engineering contract to Corporation "X". You have been asked to approve the award. What are your obligations pursuant to the Professional Engineers Act and its regulations?</p> <p>Disclosing conflicts of interest is required by R72(2)(i), and R77(3 &amp; 4). My past business partnership with an officer of Corporation "X" clearly presents such a conflict of interest. Hence, I have an obligation pursuant to The Act and Regulations to disclose this conflict of interest before awarding the contract. It would also be good practice to ask my supervisor that a neutral party in my office make the decision instead, if possible.</p>	<p>2</p>
<p>You are a Consulting Engineer and are the sole owner of a civil engineering business. Your business employs no other professional engineers. Although your business keeps you quite busy, you find time to devote to several charitable organizations. One of these organizations is a national agency that provides services to physically impaired persons to help them find ways to lead more satisfying lives. You serve on the board of directors of the agency voluntarily and have done so for several years. You are not paid for serving on the board. The agency has recently leased a new building for its national headquarters. Before moving in the agency intends to make some improvements to the building. One of these improvements is the construction of a ramp to provide for wheelchair access. Except for the ramp, all of the other improvements are aesthetic in nature and do not require any engineering input. At a recent meeting of the board of directors, the board discusses hiring an engineer to design the ramp. During the meeting, one of the board members reminds everyone that you are an engineer and suggests that you should volunteer your design services. This would save the agency money that it could otherwise use to provide services to impaired persons. It is suggested that you shouldn't have any problem finding the time to donate because the ramp project would be small and would require merely a simple design. Under this gentle pressure, you agree to undertake the design for free. (a) (5 marks) Under the circumstances, is it appropriate for you to undertake the design? You discuss the ramp project with a recent civil engineering graduate you have hired. The graduate willingly agrees to participate in preparing the design. The graduate ends up doing most of the work. (b) (10 marks) Is it appropriate for you to engage the help of the graduate? After all of the improvements are made to the new headquarters, the agency hosts a fundraising dinner celebration and you are invited. During the dinner, a number of speeches and presentations are given. You are surprised when the agency presents you with a bottle of fine wine as a token of appreciation for the excellent design you prepared. You stand up to accept the award and say a few words of thanks. (C) (5 marks) Is it appropriate for you to accept the award? Is there anything else you should do when accepting the award? (d) (5 marks) For each of questions (a), (b) and (c) above, indicate what the consequences would be to you if you do not fulfill your duties.</p> <p>Revised answer in Dec 2011 a) it is a breach of the Code of Ethics section 7(v) to not insist on "adequate compensation for engineering work"; in agreeing to do the design, one has denied any monetary compensation, but in this case, it is arguable that the volunteer would have donated the fee for the work to the organization regardless. Nonetheless, it is inappropriate to not accept the monetary compensation to make explicit that all engineering work requires adequate compensation. b) This again breaches the same section of the Code of Ethics by not insisting on adequate compensation for engineering work, and also section 72.2e of the definition of professional misconduct if I do not check over the graduate's work before sealing it (note that sealing this work is required by section 53 of the regulations, and so not sealing it would be misconduct by item 72.2.g of the regulations). Part of the reason for 77.7.v is to safeguard the public: engineering, whether volunteered or not, has important impacts and must be completed responsibly, and professionally; i.e., in exchange for monetary compensation. Here, I must also be sure that the recent graduate is competent enough to perform the work, and that I actually do check and have control over the work when I seal it. c) Again, under section 7(v) of the Code of Ethics, an engineer must "give proper credit for engineering work"; as such, it is inappropriate to not give credit to the engineering student during the acceptance. d) If I do not fulfil my duties to insist on adequate compensation for the work in a), then I will likely face having to do work without monetary compensation in the future. If in b), I fail to pay the engineer, then I may be looked upon unfavourably by other members of my profession, for failing to act with fairness and loyalty to my subordinate, who probably has significant debts (condemned by section 1(i) of the Code of Ethics). If I seal the resulting designs without doing a detailed analysis or having active control over the design, I</p>	<p>2</p>

<p>will be guilty of professional misconduct through section 2(e) and liable for any discipline committee penalties that it entails. Similarly, if I permit him to do engineering work he is not competent to undertake, then I will also be guilty of professional misconduct under sections 2(b) and 2(d). If in c), I fail to give the engineer credit for the work during the speech, I will likely upset this engineer, and perhaps prompt charges of disgraceful conduct under R72(2)(j) for breaching R77(1)(i).</p>	
<p>PEO issues a Limited Licence. In addition to paying the necessary fee, briefly state three other requirements to obtain such a licence.</p> <p>From section 46 of the Regulations, the requirements for a limited licence are: a. Academic Requirements: one of: i. 3-year eng tech diploma or B.Tech degree, ii. 4-year honours science degree, or iii. Equivalent. b. 13 years engineering experience (including the post-secondary academic training) c. Completion of the PPE, fee payment, good character, etc.</p>	1
<p>PEO issues the following four licences: Professional Engineer, Temporary Licence, Limited Licence and Provisional Licence. Which of these licence holders can hold a Certificate of Authorization? Are there any limitations on the C of A?</p> <p>Only a full professional engineer or Temporary Licence holder may be the named person responsible for a CofA (See section 47 of the Regulations, R47). A CofA does have limitations: it requires insurance or exemption from it in accordance with R74.1, and it lasts one year, or until all licences of named persons on the application expire (R74.2).</p>	1
<p>What is the "Fees Mediation Committee"? Describe its function.</p> <p>Basically, the Fees Mediation Committee is a committee of Members which exists to mediate disputes relating to fees for professional engineering services. A32(2) explains: "Duties of Fees Mediation Committee (2) The Fees Mediation Committee, (a) shall, unless the Committee considers it inappropriate to do so, mediate any written complaint by a client of a member of the Association or of a holder of a certificate of authorization, a temporary licence, a provisional licence or a limited licence in respect of a fee charged for professional engineering services provided to the client; and (b) shall perform such other duties as are assigned to it by the Council. R.S.O. 1990, c. P.28, s. 32 (2); 2001, c. 9, Sched. B, s. 11 (48)."</p>	1
<p>One of PEO's functions is enforcement. Explain what enforcement is and how it differs from discipline. Name two specific activities that are subject to enforcement.</p> <p>Enforcement refers to dealing with unlicensed people who infringe on the Act; i.e., restricting unlicensed people from practicing engineering (see section 40 of The Act; this section lays out the "penalties" for contravening section 12, and therefore, expresses the power to enforce that section), while discipline refers dealing with licensed people who have contravened the Act acted, i.e., by practicing unscrupulously or negligently (see section 28 of The Act). Two specific activities that are subject to enforcement are practicing engineering without holding an appropriate license or certificate and leading someone to believe that you are a professional engineer when you are not. The enforcement actions of PEO in these cases consist of charging infringing people with fines of \$25,000 &amp; \$10,000 respectively for first offenses, and \$50,000 &amp; \$25,000 for subsequent offenses, as explained in section 40 of The Act</p>	1
<p>You are a licensed (mechanical) professional engineer charged with enhancing the efficiency of a liquid detergent production line for your employer a soap manufacturer. During your work you have access to confidential company information and observe that the company is adding very small quantities of a well-known carcinogen (i.e. a substance suspected of causing cancer) to the detergent but is not listing it as an ingredient. This confidential information is irrelevant to your work. However you are aware that the additive is a banned substance. You inform your supervisor, Passive P. Eng., of your concerns. Passive tells you that this issue is not your concern, has nothing to do with your work and that management knows what it is doing. He tells you to forget about what you have found and to just do your own job. (20) Discuss what action(s) you are obligated to take as a professional engineer. (5) Discuss the actions and obligations of Passive. Give reasons for your answer.</p> <p>By the definition of professional misconduct (section 72 of the Regulations), a professional engineer is bound by section 72.2.c to "act to correct or report a situation that the practitioner believes may endanger the safety or the welfare of the public", regardless of whether it is directly his/her work or not. Furthermore, section 77.2.i of the definition of professional misconduct states that my duty to the public welfare is paramount, and so I cannot allow my duty to be loyal to my company (77.1.i) to outweigh my duties to act with fidelity to public needs (77.1.ii) and devotion to honour and integrity (77.1.iii). As such, I am bound to fix the situation within the company and, failing that, to report it externally. To aid my case, I should ensure that I obtain adequate documentation of the fact that the company is using the carcinogen and</p>	1

<p>document my attempts to correct it.</p> <p>Zeta P. Eng., with a Certificate of Authorization (C of A), was hired by the owner to review construction of foundations for a new high-rise condominium building for compliance with the design. The design had been prepared by Alpha, a P. Eng. at Total Engineering Inc. who also holds a C of A. Zeta sent the city a signed certificate that the building foundation was built as designed. The certificate included design drawings with Zeta's seal and signature showing the original design performed by Alpha. The owner sent some pictures of the foundation to Alpha who noticed that an element of her design was missing. Alpha was concerned that the other elements might not have been constructed as designed and performed some testing. The results showed that the foundation was not constructed as designed and in the opinion of Alpha was unsafe. Alpha notified both the owner and the city. Faced with the conflicting opinion of two professional engineers the city requested that the owner obtain a second opinion from an expert P. Eng. who verified that the foundation was not built as designed by Alpha. Zeta, in response to the reports, submitted a revised design that he claimed was as effective as the original design. Zeta also submitted a letter to the owner and the city stating that the foundations would withstand any design loads. Alpha ordered additional testing and determined that the revised design suggested by Zeta had not been installed correctly and having concerns for the safety of the construction workers attempted to contact Zeta numerous times to discuss the situation. Zeta did not return her call. Alpha obtained a copy of the certificate signed by Zeta from the city and noted that the final certificate was signed two weeks before the foundation was completed. Alpha had been at the site when the final concrete was poured for the foundation. Using the Code of Ethics and Code of Professional Misconduct as your guide: (15) (a) Discuss the actions of Zeta, P. Eng. (10) (b) Discuss the actions of Alpha, P. Eng.</p> <p>a) Zeta's actions are quite ethically questionable. By section 72.2.a of the Regulations, it's professional misconduct to commit negligence, which by section 72.1 of the Regulations is "an act or an omission in the carrying out of the work of a practitioner that constitutes a failure to maintain the standards that a reasonable and prudent practitioner would maintain in the circumstances." Zeta commits negligence at three separate points here: first by certifying the design was constructed as specified by Alpha when in fact it wasn't. Second, by stating that the design was constructed as per Zeta's own modified design, when in fact it wasn't (as determined by Alpha). And finally by certifying the design was constructed to spec before the design was even completed. This last action is also professional misconduct by item 72.2.e, signing or sealing something not actually checked. These points would be enough, but because the as-constructed foundation impacted the safety of the construction workers, Zeta is also guilty of professional misconduct by item 72.2.b, by his failure to safeguard the health of persons affected by his work, and presumably item 72.2.d, failure to comply with statutes. One could also point out Zeta's unethical behaviour in not treating Alpha, another practitioner, with courtesy and good faith by returning her phone calls, breaching the Code of Ethics section 77.7.i. b) Alpha's actions are generally quite commendable here: Alpha has gone out of her way to ensure that her design was constructed to spec after having been sent the pictures by the owner, in line with fairness and loyalty to clients, upholding item 77.1.i of the Code of Ethics. Alpha's pressuring Zeta to ensure that the design was constructed to specification and notifying the owner and city that the design was not constructed to spec is in line with the requirements of section 72.2.c: it's professional misconduct to fail to correct or report a situation that could endanger the public. Alpha's actions aren't completely without fault, however. Alpha could have treated Zeta with more courtesy and good faith (item 77.7.i) by contacting Zeta as well as (or even before) the city as soon as Alpha noticed the design was not constructed as Zeta had certified. Further, by being present when the concrete was poured, Alpha probably should have noticed the error in the foundation right away and done something about it, again in line with 77.7.i, and item 77.1.v, acting with competence. Failing to do anything about the incorrectly laid foundation if Alpha noticed it would be a breach of 72.2.c on her part, regardless of the fact that it was actually Zeta's job to verify the foundation. Finally, in light of Zeta's committing professional misconduct as outlined in part a) above, Alpha has an obligation through item 77.8 of the Code of Ethics to report Zeta to PEO's complaints committee, and so not reporting Zeta would be ethically questionable on her part.</p>	<p>1</p>
<p>Omega, an experienced P. Eng., was recently hired by WestCoast Engineering to help build the WestCoast's business in Ontario. Omega had been in a non-engineering management position for the past 20 years and was happy to be back into a more hands-on engineering role. West Coast had the necessary Certificate of Authorization and insurance to work in Ontario. Omega didn't have much billable work to do and a client asked WestCoast to do a small project that was within Omega's capability and experience. Omega took on the project but before he had done much work project requirements changed and Omega was requested to conduct an in-depth engineering analysis of alternatives for a new plant. This analysis</p>	

<p>needed to be completed in a very short time period to allow the client to submit a proposal to their regulatory body for approval within a regulated time period. Omega had not done this type of analysis for a long time. Not wanting to lose the project and feeling that he could do an acceptable job with some guidance from other experienced engineers in the firm Omega decided to take on the work. Unfortunately the other engineers could not give Omega the support he needed in the very short time available and he completed the analysis on his own under great time pressure. The final report was completed and submitted to the client under Omega's seal and signature. Omega and the client had testified at a hearing with the regulator that the work was accurate and complete. Shortly after the regulator gave approval to proceed with the plant, Omega found a significant error in his work. The error did not put the public safety at risk but did dramatically alter the financial feasibility of the project. Another decision might have been made with the new information. Omega decided not to inform the client of the error since he was trying to get more work from them. Using the Code of Ethics and Code of Professional Misconduct as your guide, (15) (a) Discuss Omega's behaviour. (10) (b) In addition what should Omega have done at the various stages of this project?</p>	
<p>a) Omega's behaviour amounts to Professional Misconduct. Although he may have been able to prepare the analysis with the aid of the other engineers, Omega's undertaking the work without ensuring they were available to help was professional misconduct by item 72.2.h: undertaking work you're not competent to perform. Omega then failed to maintain the standards of a reasonably prudent practitioner by preparing and submitting the report he wasn't qualified to prepare, negligence by 72.1, which is professional misconduct by 72.2.a. After Omega discovered the error, he had (and failed to fulfill) an ethical duty to report it to the client, that of fairness and loyalty to clients (77.1.i), and the requirement to act with honesty and integrity (77.1.iii). Further, since the error changed the financial feasibility of the project, simply by not reporting it to the client Omega is guilty of professional misconduct by item 72.2.b, for failure to make reasonable provision to safeguard the property of a person affected by his work. b) Omega should have notified his firm immediately when the work scope changed to one out of his competence to perform, as arguably even continuing work on the project at this stage without ensuring that the other engineers could give him the support he needed is an instance of undertaking work he was not competent to perform by virtue of his training and experience, professional misconduct by item 72.2.h of the Regulations. When the lack of support became apparent to Omega, rather than submit a report that he could not guarantee as accurate, Omega should have notified the client that unfortunately he would not be able to complete the task properly in the available time - this is much preferred to his negligent report preparation (72.2.a via 72.1). Rather than seal the report and testify that the report was accurate, omega should have acted with honesty and integrity (77.1.iii) and not confirmed something he was not qualified to confirm as accurate. Finally, on discovering the error, Omega should have informed the client rather than acted dishonestly, as not revealing it is unfair and disloyal to the client (breaching 77.1.i), and could fail to prevent them from doing a bad project, thereby failing to safeguard their property, which is professional misconduct by item 72.2.b.</p>	<p>1</p>
<p>Does merely being designated as a "Consulting Engineer" allow a professional engineer to offer professional engineering services to the public? Explain.</p> <p>Not necessarily; to provide P.Eng services to the public one requires a certificate of authorization. This is not a requirement for the designation; rather, one may be designated by merely being the engineering supervisor of a company which offers the services directly to the public. Further, the certificate of authorization could have expired since the issuing of the title.</p>	<p>3</p>
<p>There are three situations that would require the return of your seal and certificate. Please provide 2 of these three.</p> <p>The situations are: 1.If your license (of any kind) is suspended or revoked (R54), 2.If you resign from the association (or surrender your temporary licence, provisional licence, or limited licence; if you were not a "member") (R55), and 3.If your licence is a limited licence and you cease providing the services specified in the licence. (R45.2)</p>	<p>1</p>
<p>In accordance with the Ontario Professional Engineers Act and its supporting Regulation, Professional Engineers Ontario is authorized to discipline its licensees and holders of Certificate of Authorization. Give a brief outline of the association's complaints and discipline process. (sometimes - for 5 marks - only the disciplinary process)</p> <p>If anyone submits a complaint against a holder of some licence or certificate of authorization, the complaint is reviewed by the complaints committee and either passed on to the discipline committee or dismissed (citing appropriate reasons), informing both parties in either case (A24). Before making their decision, the complaints committee notifies the accused and gives them two weeks to submit explanations/representations (A24(1)(a)). If the complaints committee</p>	<p>2</p>



<p>passes the complaint on to the discipline committee, the discipline committee will then hear &amp; determine the allegation and if finding the party guilty of professional misconduct or incompetence will may lay out any of the penalties/disciplines outlined A28(4), such as licence/certificate revoking, fines up to \$5k, etc (A28).</p> <p>Epsilon, P. Eng., has been in the employ of Enterprise Engineering Inc. since his graduation from engineering school six (6) years ago. Since obtaining his P. Eng. licence, two (2) years ago, he has been discussing with his supervisor, Sigma, P. Eng. the possibility of being assigned more challenging projects. Sigma agreed to provide Epsilon with the challenge he is seeking. However the opportunity does not appear to be forthcoming and Epsilon has therefore become frustrated. Epsilon reviews and evaluates bids submitted to Enterprise by suppliers of services and products. Consequently, while Epsilon is still waiting to receive the promised challenging assignments at Enterprise Engineering Inc., he learns of an opportunity to do some engineering work in the evenings and on weekends for Supply Engineering Ltd., a regular supplier to Enterprise Engineering Inc. Epsilon agrees to work part-time for Supply Engineering. A few months after starting the part-time job, Epsilon is asked by his primary employer, Enterprise Engineering, to review a bid from Supply Engineering. He had helped prepare the bid for Supply Engineering. 10 (a) Discuss the appropriateness of Epsilon's employment arrangements. 5 (b) How should Epsilon respond to Enterprise's request to review the bid from Supply? Discuss. 5 (c) Would Epsilon need a Certificate of Authorization to provide services to Supply Engineering? Discuss. Use the Codes of Ethics and Professional Misconduct as your guide in answering each part of the above question.</p> <p>10 (a) Discuss the appropriateness of Epsilon's employment arrangements. Epsilon works full time for Enterprise Engineering, but has begun "moonlighting"; working at a part time job doing engineering work for Supply Engineering. Moonlighting presents a conflict of interest any time Epsilon's duty to one employer conflicts with his duty to the other. Disclosing conflicts of interest like this employment arrangement to employers is required by the Code of Ethics, item 77.3, disclosing it to clients (arguably including Epsilon's part time employer) is required by section 77.4, and disclosing moonlighting to both parties is required by section 77.5 of the code of ethics. Further, failing to disclose a conflict of interest that could be regarded as prejudicial to the engineer's judgement in rendering service to an employer or client is professional misconduct by item 72.2.i. Specifically, "contracting in the practitioner's own right to perform professional engineering services for other than the practitioner's employer" is professional misconduct by item 72.2.i example 4. Given all of this, Epsilon's employment arrangements are ethically questionable and professional misconduct UNLESS Epsilon informs both Enterprise Engineering and Supply Engineering about the nature of his employment with each. 5 (b) How should Epsilon respond to Enterprise's request to review the bid from Supply? Discuss. Epsilon should ensure that Enterprise is aware that Epsilon does part time engineering work for Supply, as discussed in part a). Further, "Participating in the supply of material ... to be used by the employer..." is another example of conflict of interest that needs to be disclosed by 72.2.i.3, and so this situation presents a conflict of interest beyond that of moonlighting itself. As such, in line with the requirements of 77.3 to "avoid or disclose a conflict of interest [to the practitioner's employer] that may influence the practitioner's actions or judgement", Epsilon should ask that a neutral party in the office evaluate this bid instead to avoid the conflict of interest of evaluating the bid from Supply. 5 (c) Would Epsilon need a Certificate of Authorization to provide services to Supply Engineering? Discuss. Yes. Having a full-time engineering job and also doing engineering work on a part time basis for a different party is an example of being deemed in "independent engineering practice", and so requires holding a C of A by section 12.2 of The Act.</p>	<p>1</p>
<p>Beta is a licensed professional engineer with over 15 years experience in the design of door latching systems for the aircraft industry. He was the senior designer of the door systems for the new line of executive jets his company had recently launched. After the plane went into production, Beta, using new software that simulated various failure modes, determined that the latching systems might fail under certain circumstances. Design modifications ere reviewed and determined to be very expensive. Beta's boss, Alpha, also a P. Eng., believed that the failure circumstances were incredibly remote and that the design met all the commonly used design and safety criteria. The design was similar to the one used on executive jets for many years without any problems. She was also concerned about the financial viability of the firm if the expensive design changes were made especially with a recall of the already delivered planes. In addition, all the regulators had reviewed the design and found no reason to question its safety. Consequently, she directed Beat to leave the design alone. She also decided that she would not authorized any further review of Beta's work to determine if there was a problem and did not inform senior management. Beta was very concerned that the design was inadequate and might fail. He had reviewed the results of the simulations many times before bringing the matter to Alpha's attention and believed that his analysis was</p>	

correct. Since no failures of the design had been reported at the time of the review, Beta accepted Alpha's decision and did not pursue the matter further. Six months after Beta had brought the potential problem to Alpha's attention, a door latch failed during a flight and the plane had to make an emergency landing. Fortunately no one was injured. Alpha directed Beta to be quiet about having raised some concerns about the design since it might have implications with the regulators. Using the Code of Ethics and Professional Misconduct as your guide: 10 (a) Discuss Beta's behaviour and actions before the door latch failed including any consequences he might face. 5 (b) Describe the actions Beta should now take. 5 (c) Discuss Alpha's behaviour and actions including any consequences she might face.

10 (a) Discuss Beta's behaviour and actions before the door latch failed including any consequences he might face. Since Beta "was very concerned that the design was inadequate and might fail", Beta has a duty to public welfare to take every action to correct the designs, and Beta must regard his duty to public welfare as paramount by section 77.2 of the Regulations. A faulty door latch on an airplane is a situation endangering the safety of the public, and so Beta must correct or report this by section 77.2.c. Beta must not accept Alpha's dismissal of the issue and must push the matter further and correct the design so that it makes reasonable provision to safeguard the health of persons affected by the design (72.2.b) and makes reasonable provision to comply with the safety regulations (72.2.d). For committing professional misconduct in these regards by not correcting the design he knew was faulty, Beta may face any of the professional misconduct engineering penalties such as fines and loss of license, and also face potentially enormous lawsuits by the airlines or passengers if an accident were to occur. 5 (b) Describe the actions Beta should now take. Since airplanes are still using the faulty latches, Beta still has an obligation to not obfuscate the investigation by keeping his prior concerns secret and take all of the actions discussed in part a). This includes informing the regulators about the potential problem in the design. Alpha's request for Beta to not let the regulators know is contrary to public welfare and so Beta must do the right thing and inform the regulators about the faulty design to make sure that no further, potentially much worse disaster occurs. In line with Beta's duty to treat his employer with fairness and loyalty (77.1.i), Beta should attempt, with more conviction, to go through Alpha for the reporting to the airlines, because the company's image would be more salvaged than by Beta independently whistle blowing. Reporting the situation, especially Beta's failure to do more when he had reason to believe it might be a problem in the future is potentially difficult to do, but required by his "devotion to high ideals of personal honour and professional integrity" (77.1.iii). Further, since this failure of the door latches proves that Beta's concerns were not as remote as he may have thought, there is now more reason than ever to do something about it lest he commit professional misconduct by item 72.2.a (negligence), b, c, and d (as discussed in part a). 5 (c) Discuss Alpha's behaviour and actions including any consequences she might face. Alpha's behaviour is very ethically questionable. By initially dismissing Beta's concerns about the latches, Alpha is attempting to choose the company's profits over public welfare, which is contrary to section 77.2.i. Alpha is also committing professional misconduct by item 72.2.b (failing to make reasonable provision to safeguard life etc.), and 72.2.d (failing to make reasonable provision for complying with regulations etc.), and once the failure occurs and Alpha must surely believe that the situation endangers the public, also 72.2.c (failure to correct or report a situation that the practitioner believes may endanger the safety of the public). Alpha's ordering Beta to keep quiet is not at all acting with fairness to their clients (breaking 77.1.i) or devotion to personal honour and professional integrity (breaking 77.1.iii). Alpha may face all of same potential consequences as Beta: professional misconduct penalties and being successfully sued for damages suffered by the airline or its passengers.

Delta, P. Eng. (an independent practitioner with a Certificate of Authorization) was engaged by Eng Inc. (an engineering firm with a Certificate of Authorization) to perform a conceptual design and prepare drawings for a fully-automated high-temperature and low-pressure reactor system in accordance with the existing safety regulations. Upon completion of the work, Delta affixed his seal with his signature and the date on the original drawings and turned the original drawings over to Omnicron P Eng. the project manager of Eng. Inc. Delta was later retained to inspect the newly installed reactor facility. He found that many crucial aspects of his design had been ignored. Using the Codes of Ethics and Professional Misconduct as your guide: 10 (a) Discuss the situation, including Delta's actions and professional responsibility. 15 (b) What steps should Delta now take?

10 (a) Discuss the situation, including Delta's actions and professional responsibility. Inspecting one's own design is a potential conflict of interest, and Delta has a responsibility to be sure to disclose this on any report he makes approving a reactor he himself designed, lest it be misconduct by section 72.2.i. Here, the reactor has not been constructed to specifications, many "crucial" aspects of the design having been ignored. Delta has professional responsibilities to act as a diligent safety inspector and evaluate the design as-is, to see if the

<p>constructed design is up to code, despite it not being the specific one that he designed. Delta's evaluation of the new design and explaining what is wrong with it, if anything, is in line with his acting with fairness and loyalty to his client Eng Inc. (77.1.i). If Delta does find that the new design is contrary to public safety or welfare, he must take steps necessary to not approve the design and ensure that it does not go into operation until the situation is remedied, lest it be professional misconduct by item 72.2.a (negligence), b (failing to safeguard health etc. of persons affected by his work), c (failing to correct/report a situation endangering the public), and d (failing to comply with reactor regulations). 15 (b) What steps should Delta now take? If the compromised design impacts the safety or welfare of the public, then Delta must act to correct or report the situation (lest it be professional misconduct by item 72.2.c), and must not let his positive bias towards his own design or Eng Inc. allow him to negligently approve the design (lest it be professional misconduct by item 72.2.a). Fairness and loyalty to clients (77.1.i) argues that Delta should determine and explain to Eng Inc exactly what's wrong with the new design, and not simply dismiss it for not being the way he designed it. These diligent actions are in line with Delta's duty to the public welfare as paramount (72.2.i), making reasonable provision to comply with reactor safety regulations (72.2.d), safeguard the life, health, and property of persons affected by his work (72.2.b).</p>	1



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