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The Discipline Committee of the Association of Professional Engineers of Ontario

In the matter of a hearing under *the Professional Engineers Act*, R.S.O. 1990, Chapter P. 28

And in the matter of a complaint regarding the conduct of

Gordon F. Cowie, P.Eng.,

a member of the Association of Professional Engineers of Ontario

BETWEEN:

The Association of Professional Engineers of Ontario and

Gordon F. Cowie, P.Eng.

Decision and Reasons

A Panel of the Discipline Committee of the Association of Professional Engineers of Ontario (PEO) met in the offices of the association on Wednesday, October 31, 2001 and Thursday, November 1, 2001 to hear allegations of professional misconduct and incompetence against Gordon F. Cowie, P. Eng. (hereinafter referred to as "Cowie").

William Black (hereinafter referred to as "Black") of McCarthy Tétrault appeared as legal counsel for the association.

Cowie was not represented by legal counsel.

Nancy J. Spies (hereinafter referred to as "Spies") of Stockwood Spies appeared as independent legal counsel to the Panel of the Discipline Committee.

The hearing arose as a result of Cowie's involvement in a new resource recovery plant in a town in Ontario.

The allegations of professional misconduct and incompetence set out in Appendix "A" to the Notice of Hearing and filed as Exhibit 1 are as follows:

Appendix A

It is alleged that Cowie is guilty of professional misconduct and/or incompetence as defined in the *Professional Engineers Act* (the "Act"), the particulars of which are as follows:

1. Cowie was first licensed as a professional engineer in the Province of Ontario in July 1970.

2. As at the time of the events giving rise to this matter, Cowie was a retired member of PEO. Specifically, Cowie signed a Certificate of Retirement dated March 19, 1998, which stated "this is to certify that I am retired and it is not my intention to seek active employment for gain during the year." The PEO definition of a "retired member" is any member who has retired from all gainful employment and not just the practice of professional engineering. Cowie paid a reduced fee, thus confirming his retirement status.

3. Cowie was not a current holder of a Certificate of Authorization in 1998/1999 or from January to August 2000. In or about December 1992, Cowie had been the holder of a Certificate of Authorization, which had been allowed to lapse due to non-payment of fees at the end of 1993.

4. In the latter part of 1998, an engineering company (hereinafter referred to as the "prime consultant") was engaged to provide a new resource recovery plant (building) in a town in Ontario.

5. The prime consultant's architectural drawing DA-302, originally dated March 4, 1999, depicted the roof plan of the building and indicated a 10-tonne monorail beam to be located between grid lines B and C, from line 1 to line 3. The prime consultant's mechanical drawings DM-004, originally dated December 21, 1998, and DM-006A, originally dated April 7, 1999, depicted general arrangement sections through the building. The prime consultant's specifications, dated February 5, 1999 and sealed by a professional engineer (hereinafter referred to as "the engineer"), called for a steel building system.

6. In mid 1999, the prime consultant contracted with a design build contractor (hereinafter referred to as "the contractor") for the design, supply and erection of the building system, which included the 10-tonne monorail beam.

7. The contractor in turn contracted with a building systems supplier for the design, supply and erection of the building structure and the building systems supplier in turn contracted with a second building system supplier for the design and supply of the building structure.

8. The second building systems supplier's Drawings F2/L, E1 and E5, dated August 3, 1999, depicted the general structural layout of the building, including a cross-section of the monorail indicated as "supplied by others." To this end, the contractor engaged Cowie to provide the required engineering design services for the monorail beam. Cowie had previously worked with the contractor during the preceding six years.

9. As set out above, as at the time of his engagement by the contractor in 1999 and at all material times thereafter, Cowie was a retired member and was not the holder of a Certificate of Authorization.

10. By letter dated October 28, 1999, the contractor proposed to the prime consultant that the monorail beam be a S12 x 35 (S310 x 52). Cowie provided the size of the beam.

11. By letter dated October 28, 1999, the engineer advised the contractor that the monorail beam should be sized to suit the load and support spacing, as well as the deflection limitations recommended in the Canadian Institute of Steel Construction ("CISC") Handbook.

12. By letter dated December 16, 1999, shortly after erection of the building had commenced, the prime consultant provided the contractor with five site photographs that depicted the erected structure in the area where the monorail beam had been installed, together with instructions to modify the connections and support beam.

13. By further letter dated December 29, 1999, to the contractor, the prime consultant again expressed its concerns with the monorail beam connections and requested a stamped and signed drawing for the monorail beam connections.

14. By letter dated January 12, 2000, the prime consultant advised an employee of the contractor, that no response had been received to the prime consultant's letter of December 29, 1999, and requested that a drawing of the monorail beam support revisions be submitted, stamped by a professional engineer, before any changes were undertaken on site.

15. In an internal memo dated January 20, 2000, the prime consultant described as incomplete and deficient the monorail connection in place (as well as other concerns). The internal memo referred to a site meeting with the contractor and the second building systems supplier present, with a view to setting in motion a proper and professional solution of these problems.

16. By internal facsimile dated January 20, 2000, to the prime consultant's construction site, the prime consultant's project engineer advised the prime consultant's construction manager (hereinafter referred to as the "construction manager") that there was reason to believe the monorail beam may be under-designed and requested that the contractor provide design calculations and shop drawings of the monorail beam to show the support detail, all of which were to be stamped by a professional engineer.

17. By memorandum dated January 24, 2000, the construction manager advised the contractor that there was reason to believe the monorail beam under their scope of work may be under-designed and requested that the contractor provide design calculations and shop drawings of the monorail beam, including support/connection details, stamped by a professional engineer registered in the Province of Ontario.

18. By letter dated January 28, 2000, Cowie responded to the contractor regarding the prime consultant's memorandum of January 24, 2000. In his letter, Cowie suggested that the S12 x 35 monorail beam was sufficient to carry the load when it was loaded with 10 tonnes mid-way between the supports spaced at 16-foot centres. Cowie also advised in the letter that additional weld should be added at the cross-support beam and angle bracing should be provided at the cantilevered end of the monorail beam.

19. By undated facsimile received at the prime consultant's office on February 3, 2000, the contractor sent to the construction manager a copy of Cowie's letter of January 28, 2000.

20. By facsimile dated February 3, 2000, the construction manager forwarded a copy of the Cowie letter of January 28, 2000 to the prime consultant's project engineer for review and comments.

21. By facsimile dated February 8, 2000, the project engineer sent the construction manager, two pages of the prime consultant's calculations that indicated the 10-tonne monorail beam supplied by the contractor and designed by Cowie was inadequate, even without impact loads being applied.

22. By letter dated February 9, 2000, the construction manager advised the contractor that the 10-tonne monorail beam was not acceptable because the strength, deflection, and support conditions did not have the required capacity. In the letter, the construction manager again requested that complete design calculations, shop drawings and support connection details be provided for the monorail beam, stamped by a professional engineer registered in the Province of Ontario.

23. By letter dated February 23, 2000, the contractor sent the construction manager a sketch from a material handling equipment company that illustrated a 10-tonne trolley on the S12 x 35 monorail beam.

24. On February 26, 2000, the engineer met with the contractor and Cowie to express concerns about the design of the monorail beam. At the meeting, it was agreed that the contractor would take steps to rectify the situation to the satisfaction of the prime consultant.

25. Pursuant to this arrangement, the contractor sent to the engineer by facsimile dated May 17, 2000 an unnumbered sketch of the S12 x 35 monorail beam with two proposed reinforcing details, together with four pages of computer-generated design calculations dated May 1, 2000 that had been submitted to the contractor by a professional engineer other than Cowie.

26. By facsimile dated May 18, 2000, the engineer advised the contractor that the proposed reinforcing of the monorail beam was not acceptable, as the rated capacity of the hoist was 10 tonnes (22,000 pounds) and not 11,000 pounds as used in the computer-generated design calculations.

27. By facsimile dated May 18, 2000, the engineer advised the contractor that some reverse engineering appeared to have been done in the calculations submitted by the contractor, apparently in order to make the existing S12 x 35 monorail beam appear to be adequate.

28. By undated facsimile sent on May 18, 2000, the contractor sent the engineer information on the hoist that the contractor was proposing to supply.

29. By facsimile dated May 19, 2000, the construction manager sent the contractor a copy of the engineer's facsimile to the construction manager dated May 18, 2000.

30. By letter dated May 19, 2000, the contractor advised the construction manager of the design requirements the contractor had for the 10-tonne monorail beam.

31. By facsimile dated June 1, 2000, the project engineer for the prime consultant, advised the contractor that it was possible to make the S12 x 35 monorail beam "figure" for the 10-tonne load if the application points were sufficiently spread apart and the monorail beam was reinforced, but that this was not acceptable. He also advised that the S12 x 35 monorail beam could not be salvaged by any sort of reinforcement and that the only acceptable solution therefore was for the contractor to remove the S12 x 35 monorail beam and replace it with a W18 x 16 monorail beam.

32. By letter dated June 5, 2000, the contractor advised the project engineer that while specifications were not given to the contractor regarding headroom, the design size of the monorail beam was on the light side and requested that they be allowed to reinforce the S12 x 35 monorail beam now in place.

33. By facsimile dated August 2, 2000, the construction manager advised the contractor that the 10-tonne monorail beam as designed, supplied, and installed by the contractor, was not adequate. The construction manager also advised that the prime consultant would proceed to remove the S12 x 35 monorail beam and replace it with a new monorail beam.

34. By letter dated August 4, 2000, Cowie wrote directly to the construction manager. In the first paragraph of his letter, Cowie advised that he was in possession of the construction manager's facsimile to the contractor of August 3, 2000 (actually August 2, 2000), "where-in you disparage my selection of the steel section that has been placed at the top of the building for use as a crane rail over the conveyor. You and your minions claim that the beam that is there is inadequate yet no one has ever said where it is deficient. Numbers don't lie, your people are wrong!"

35. In the second paragraph of his letter of August 4, 2000, Cowie wrote: "I have been a member of APEO for more than 35 years, a lot of that time I was as a Structural Engineer. I am most chagrined that now some incompetent Asian engineer should come along and under the prime consultant's colours say that my design is wrong? I do not intend to let this guy, who obviously does not know what

he is talking about, by now applying his wrongheaded judgment, cost my client or yours a huge sum of money."

36. In the third paragraph of his August 4, 2000 letter, Cowie wrote that: "The beam that you people suggested should be there (460 x 90) instead of the S12 x 35 that we have placed there has more than four times (108 in.^{3}) vs. the section modulus of 26.74 in.^{3} that is necessary to do the job."

37. In the last paragraph of his August 4, 2000 letter, Cowie wrote: "My letter of 7th June, spelled all of this out but the prime consultant has chosen to ignore these statements. We do not consider your motives honourable in this case. Perhaps this is the kind of Engineering that has landed the prime consultant into Chapter 11? I have now to consider just how difficult it is to collect a judgment from a bankrupt situation."

38. By letter dated August 14, 2000, Cowie expressed his objection to the construction manager regarding the removal of the S12 x 35 beam. In the third paragraph of this letter, Cowie wrote: "We accept that the beam as presently configured is not adequate to all situations, but as you have been told repeatedly, if the contractor had his crew make the adjustments to stiffen the upper flange, that in such a configuration, this monorail would carry a great deal more than it will ever be required to."

39. An internal memorandum of August 14, 2000 from the prime consultant's contracts administrator, clarified to the prime consultant's project manager some of the information contained in the letter from Cowie dated August 14, 2000.

40. By letter dated August 18, 2000, the contractor advised the construction manager that it regretted Cowie's letter of August 4, 2000 to the construction manager and apologized to the engineer for any annoyance that the letter caused. The contractor also advised in the letter that it condemned such behaviour as unprofessional and inappropriate and was taking measures to ensure that such an incident did not happen again.

41. By letter dated August 21, 2000 to Cowie, the vice-president engineering at the prime consultant expressed his anger at the language and intent behind the letter of August 4, 2000 from Cowie. In his letter, the vice-president engineering demanded a complete written retraction of Cowie's letter and a complete unreserved apology directed to the engineer. Cowie did not and has not responded to the letter from the vice-president engineering.

42. In summary, it appears that Cowie:

a) made statements in his letter of August 4, 2000 to the construction manager regarding the engineer that were offensive, racist and totally unacceptable;

b) made statements in his letter of August 4, 2000 to the construction manager regarding the prime consultant that were unjustified and defamatory;

c) engaged in a course of vexatious comment and conduct that was known, or ought reasonably to have been known, to be objectionable and unwelcomed;

d) failed to apologize for his offensive remarks to the engineer when specifically invited to do so by the prime consultant;

e) acted in a manner that was reprehensible and not in accordance with the PEO guidelines on human rights and professional practice;

f) acted in a disgraceful, dishonourable and unprofessional manner;

g) designed a 10-tonne monorail beam which was over-stressed by 280% and the connections for which were overstressed by 75%;

h) provided design calculations for a 10-tonne monorail beam that were focused solely upon section modulus, which displayed a lack of knowledge regarding the need for lateral support in bending members;

i) provided design calculations for a 10-tonne monorail beam that indicated a failure to review the *Ontario Building Code* load requirements for crane beams;

j) made no provision for the following in his design calculation for the 10-tonne monorail beam:

- the weight of the equipment as specified by Section 4.1.10.5(2) of the *Ontario Building Code*,
- the impact loads specified by *Ontario Building Code* Table 4.1.10.5,
- the lateral forces specified by Section 4.1.10.5(3) of the *Ontario Building Code*,
- capacity reductions to account for the lack of lateral support specified by CAN/CSA-S 16.1-94, Section 13.6, and
- bolt sizes for the monorail beam support as required by CAN/CSA-S 16.1-94, Section 13.1;

k) provided engineering services to the public after he certified to PEO that he was retired and that it was not his intention to provide such services; and

l) provided engineering services to the public without being a current holder of a Certificate of Authorization.

43. An expert was engaged by PEO to review this matter.

44. Having reviewed the matter in detail, the expert reviewed the steps which ought to have been taken by the designer in designing the monorail beam. In reviewing Cowie's calculations, the expert noted that these cal-

culations considered only vertical loading due to the lifting capacity of the hoist and neglected:

a) the weight of the hoist required by *Ontario Building Code* Section 4.1.10.5.(2),

b) the impact factor required by *Ontario Building Code* Table 4.1.10.5, and

c) the lateral load required by *Ontario Building Code* Section 4.1.10.5.(3);

45. The expert noted that the biaxial bending equation for the beam size chosen by Cowie produced a value of 3.8 while the maximum permitted value is 1.0. Thus, the expert concluded that the beam designed by Cowie would have been over-stressed by 280%.

46. The expert noted that in Cowie's letter of August 4, 2000 Cowie appeared to have checked his bending calculations. The expert observed, however, that Cowie's calculations were focused solely upon section modulus and as such displayed a lack of knowledge about the need for lateral support in bending members. The expert concluded that Cowie's design check also showed that he failed to review the *Ontario Building Code* load requirements for crane beams.

47. The expert also noted that the connecting bolts designed by Cowie would have been over-stressed by 60% under tension alone and by approximately 75% for combined shear and tension and that Cowie's analysis appears to have neglected this issue.

48. The expert also evaluated the February 23, 2000 submission by the contractor in which the contractor proposed adding stiffening plates to the beam and spreading the load out by means of equalizer beams. The expert noted that the net effect of this proposal would be to lower the hoist by approximately two feet below its intended position. The expert noted that as of August 4, 2000 Cowie appeared to have been unaware of this proposal given that his letter of that date did not acknowledge any error in sizing of the S12 beam.

49. The expert noted that by the date of his August 14, 2000 letter Cowie admitted that the S12 x 35 beam was not structurally adequate and advocated a stiffened top flange as set out in the February 23, 2000 proposal. The expert noted that Cowie appeared not to have studied the documentation sufficiently to realize that the contract documents intended the hoist to be mounted directly on the beam while the February 23, 2000 proposal used equalizers. The expert opined that Cowie erred in not acknowledging or discussing this discrepancy with the prime consultant prior to issuing his report and that Cowie's August 14, 2000 letter also failed to note that the beam connections were undersized.

50. By way of summary and conclusions, the expert expressed the view that Cowie's work fell short of the standard expected by the profession relative to design and that Cowie failed to make reasonable provision for the safeguarding of people and property that could be affected by a failure.

51. The expert also noted that when Cowie's lack of care was uncovered he made no attempt to address or correct the errors but instead made a derogatory and racist attack on a fellow professional. The expert concluded by expressing the view that Cowie's actions are an embarrassment to the profession.

52. By reason of the facts set out above, it is alleged that Cowie is guilty of incompetence as defined in Section 28(3)(a) of the Act as follows:

"28(3)(a) The Discipline Committee may find a member of the Association or holder of a temporary licence or limited licence to be incompetent if in its opinion,

(a) The member or holder has displayed in his or her professional responsibilities a lack of knowledge, skill or judgment or disregard for the welfare of the public of a nature or to an extent that demonstrates the member or holder is unfit to carry out the responsibilities of a professional engineer."

53. In addition, it is alleged that Cowie is guilty of professional misconduct as defined in Section 28(2)(b) of the Act as follows:

"28(2)(b) A member of the Association or holder of a certificate of authorization, temporary licence or a limited licence may be found guilty of professional misconduct by the Committee if,

(b) The member or holder has been guilty in the opinion of the Discipline Committee of professional misconduct as defined in the regulations."

54. The Sections of Regulation 941 made under the Act relevant to the alleged professional misconduct are:

- **Section 72(2)(a): "negligence";**
- **Section 72(2)(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;**
- **Section 72(2)(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";**
- **Section 72(2)(g): "breach of the Act or Regulations, other than an action that is solely a breach of the Code of Ethics";**
- **Section 72(2)(j): "conduct or an act relevant to the practice of professional engineering that, having regard to all the circumstances,**

would reasonably be regarded by the engineering profession as disgraceful, dishonourable or unprofessional";

- **Section 72(2)(k): "failure by a practitioner to abide by the terms, conditions or limitations of the practitioner's licence, limited licence, temporary licence or Certificate."**

55. In addition, it is alleged that Cowie has breached provisions of the Code of Ethics of the Association contained in Section 77 of Regulation 941 made under the Act.

Black advised and Cowie agreed that the facts in paragraphs 1-40 were uncontested.

An agreed brief of documents was also filed at the commencement of the hearing. Cowie declined to have the Notice of Hearing read aloud.

The evidence

The Association of Professional Engineers of Ontario called four witnesses, the engineer, the prime consultant's project engineer and the vice-president of engineering and an expert engineer.

The engineer was called as the first witness on behalf of the association. The engineer was the lead structural design engineer who became involved in the project in late 1998. He identified the requirement for a 10-tonne monorail beam as shown on the prime consultant's drawing. He testified that he prepared the construction specification, which referenced the requirement of the subcontractor to provide shop drawings for the monorail.

On page 17 of this document it states that the building was to be erected in accordance with the requirements of CSA S16, CSA S136 and OSHA.

He further testified that on January 20, 2000, there was a concern that the 10-tonne monorail beam may be underdesigned. The contractor was requested to provide the design calculations and shop drawings of the monorail beam, including support/connection details.

On January 28, 2000, Cowie in a letter under Forbes Engineering and Management to the contractor reported that the S12 x 35 monorail beam was sufficient to carry the load when it was loaded with 10 tonnes mid-way between the supports spaced at 16-foot centres.

The engineer testified that he did his own calculations, which determined that the beam supplied by the contractor was inadequate even with no impact loads. He stated that according to his calculations, even without applying lateral and impact loads, the S12 x 35 beam was not adequate. He testified that Cowie only considered the vertical loading and failed to consider the impact and horizontal loads.

The engineer testified that the beam was grossly under sized and in his opinion it had to be removed and replaced. He further testified that on February 26, 2000 he met with Cowie and the contractor to express concerns about the design of the beam.

Cowie interjected and stated that he was not present at that meeting and his agreement with respect to paragraph 23 of the Appendix "A" to the Notice of Hearing was withdrawn.

The engineer stated that at the meeting Cowie was quite defensive about his design. The engineer subsequently submitted a report dated May 18, 2000 to the contractor and the prime consultant with respect to the proposed reinforcing to the 10-tonne monorail beam proposed by Cowie. In the engineer's letter to the contractor he stated that the proposed reinforcing was not acceptable as the rated capacity of the hoist was 10 metric tonnes (22,000 pounds) and not 11,000 pounds as used in Cowie's calculations and the calculations failed to qualify the existing support connections.

The engineer testified that the prime consultant felt that the beam could not be salvaged to the satisfaction of the client by way of any sort of reinforcement and the only acceptable solution was for the contractor to remove it and replace it with one capable of meeting the requirements.

The prime consultant calculated that a W18 x 60 beam was the appropriate section. The prime consultant requested the contractor to remove the beam and replace it with a beam capable of meeting the requirements.

The engineer identified a letter from the contractor to the prime consultant, dated June 5, 2000, which confirmed that the beam "was on the light side" but they were "taking responsibility for reinforcing the beam now in place."

The engineer testified that he prepared a design coordination report on July 10, 2000 which identified the problem being that the 10-tonne monorail beam as designed, supplied and installed by the contractor was not adequate and that the problem's solution was to remove the existing S12 x 35 monorail beam and replace it with new W460 x 89 beam. He confirmed that the design coordination report was submitted to the contractor on August 2, 2000.

The engineer identified the letter from Cowie to the construction manager, dated August 4, 2000, referred to in paragraphs 33, 34, 35 and 36 of Appendix "A" to the Notice of Hearing. With respect to Cowie's claim that no one had ever said where the beam was deficient, the engineer stated that he had provided his calculations and expressed his concerns to Cowie at the meeting on February 26, 2000. He stated that where Cowie submitted in the third paragraph of the letter that the beam was adequate, it only addressed the vertical load.

The engineer stated that he was deeply offended by the statement in the second paragraph of Cowie's letter wherein he states "I am most chagrined that now some incompetent Asian engineer should come along and under the prime consultant's colours say that my design is wrong."

The engineer stated that an apology was sought from Cowie but the only apology received by the prime consultant was from the contractor who condemned Cowie's conduct as unprofessional and inappropriate.

The engineer stated that an opportunity was given to Cowie on August 21, 2000 to retract his letter and provide a complete, unreserved apology to the engineer but Cowie never responded and had never extended an apology to him.

On cross-examination by Cowie, he stated that the proposed remedial modifications did not meet their requirements.

The engineer stated that while another consulting engineering company had provided a reinforcement design to the S12 hoist beam, this did not meet the requirements for functioning of the hoist system. The engineer further stated that

he did not disagree that the beam could not be reinforced to some extent but there were spatial (headroom) limitations and reinforcement was not the solution.

The prime consultant's project engineer was called as a witness on behalf of PEO. The project engineer was the senior mechanical engineer for the prime consultant and the project engineer for the plant. At a site visit, concerns about the 10-tonne beam were brought to his attention and without carrying out detailed calculations his reaction was that he would have expected to see a heavier beam. He testified that he was in attendance at the meeting in February 2000 and that Cowie was present.

He testified that they expressed concerns about the beam. He testified that the proposals provided by the contractor were unsatisfactory because reinforcement of the beam would have required an increase in the depth. The project engineer testified that the proposal to reinforce the beam was also not economically feasible and the prime consultant therefore continually took the position that the beam had to be replaced. He testified that to reinforce the installed beam by equalization would have increased the depth of it and that it was not economically feasible and was an unacceptable solution. He testified that in September/October 2000 the prime consultant replaced the beam.

The project engineer testified that reinforcement of the top flange would not have reduced headroom but it was not sufficient for its purpose, which was the support of a commercially available 10-tonne hoist. He testified that they did not want an elaborate system to distribute the load to remediate the error made by the overstressed design, and stated that their expectation was that they would receive a beam designed to carry a 10-tonne load. He further stated that when he got involved the beam was bolted in place.

The project engineer stated that reinforcement would usually only occur as part of a capacity upgrade and was not appropriate for a new installation. He stated that it was not good practice and he would not consider it for a new installation.

The prime consultant's vice-president of engineering was called as a witness on behalf of PEO. He testified that his involvement with the project was secondary in nature. He was involved with staffing on projects and he had no day-to-day involvement with this project.

The letter from Cowie dated August 4, 2000, in which Cowie made derogatory comments regarding the engineer, was brought to his attention. When he saw the letter he agreed that it was not appropriate and he prepared a letter to Cowie, dated August 21, 2000, demanding a complete written retraction of his letter and a complete, unreserved apology directed to the engineer.

He testified that it was decided to give Cowie an opportunity to retract and apologize before submitting a complaint to PEO. No retraction, apology or response was obtained.

He further stated that this was the only instance in his career where he had been faced with this type of situation.

The expert engineer witness was called on behalf of PEO, and stated that he had reviewed the brief of documents and also attended at the plant in question to review the replacement beam. He prepared a report that was filed as Exhibit 9 in the proceedings.

The expert testified that the requirements for the monorail beam design were presented in the contract documents.

Based on the requirements, he testified that the designer should look to the *Ontario Building Code* 1997 for loading information and to the CISC *Handbook of Steel Construction for Design Aids* and CSA Standard CAN/CSA S16.1. The expert stated that the designer could use either the 6th edition (1995) or the 7th edition (1997) of the handbook, as both were based upon the 1994 standard.

He referred to the *Ontario Building Code* Section 4.1 that provides requirements for structural loads and procedures and allows a designer to use either working stress or limit states design procedures. He further stated that Cowie's letter of January 28, 2000 indicated that he opted for the working stress approach. The expert testified that the *Ontario Building Code* 4.1.10.5 provides requirements for such equipment as cranes. The expert testified that in addition to the lifting capacity the weight of the hoist has to be included and an impact of 10% and horizontal load of 20%.

His evidence was that Cowie's bending moment calculation considered only vertical loading due to the lifting capacity of the hoist and neglected the weight of the hoist required by OBC 4.1.10.5(2) impact factor required by OBC table 4.1.10.5 and lateral load required by OBC 4.1.10.5(3).

He also stated that the biaxial bending equation for the beam size chosen by Cowie produced a value of 3.8 while the maximum permitted value is 1.0. Thus the beam would have been overstressed by 280%.

With respect to Cowie's August 4, 2000 letter, the expert stated that Cowie appeared to have checked his bending calculations and argued that a beam having a section modulus of 26.74 inches cubed would have been adequate for this application. This represented 76.6% of the section modulus that Cowie required in his January 28, 2000 analysis.

In this letter, Cowie accused the prime consultant's engineers of being in error and being incompetent. The expert testified that Cowie's calculations were focused solely upon section modulus and as such he displayed a complete lack of knowledge about the need for lateral support in bending members.

With respect to Cowie's reinforcement proposal, the expert's evidence was that with respect to the February 23, 2000 submission by the contractor, the net effect would be to lower the hoist by approximately 2 feet below its intended position. He noted that as of August 4, 2000 Cowie appeared to have been unaware of this proposal and his letter of that date did not acknowledge any error in sizing of the S12 beam.

By letter of August 14, 2000, Cowie admitted that the S12 beam was not structurally adequate and advocated a stiffened top flange as shown by the material handling company's proposal. The expert noted that Cowie's August 14, 2000 letter also failed to note that the beam connections were undersized.

The expert's summary and conclusions as set out in his report were that "Cowie was engaged by the contractor to design a monorail beam to support a 10-tonne hoist on 16 foot spans. He selected a beam size and subsequently reviewed the beam and provided a letter with calculation results showing the beam to be structurally ade-

quate. The acts of designing, evaluating and reporting on the beam are concerned with the structural safety involving the safeguarding of life and property. Also these acts require the application of engineering principles. As such, Mr. Cowie's actions fall within the definition of the practice of professional engineering.

Cowie's work fell short of the standard expected by the profession in that he failed to take into consideration:

a) the weight of the equipment as specified by OBC 4.1.10.5(2);

b) the impact load specified by the OBC table 4.1.10.5;

c) lateral forces specified by OBC 4.1.10.5(3);

d) capacity reductions to account for the lack of lateral support as specified by CAN/CSA-S 16.1-94, Section 13.6; and

e) bolt sizes for the beam support as required by CAN/CSA S16.1-94, Section 13.1.

As such, Cowie failed to make reasonable provision for the safeguarding of personnel and property that could be affected by a failure. When his lack of care was discovered, he made no attempt to address or correct the errors but instead made a derogatory and racist attack on a fellow professional. His actions are an embarrassment to the profession."

The expert further testified that in Cowie's attempt to justify the beam he failed to take into account additional loads and that there were serious overstress errors in the connections that could have resulted in failure of the beam. In his opinion, the work undertaken by Cowie did not meet the standard of practice and Cowie is unfit to practise. He testified that the beam could have failed the first time it was loaded and could have caused serious injury.

On cross-examination, Cowie informed the expert that he did not have the drawings at the time of the design. The expert testified that he was not aware that Cowie did not have the drawings, but he added that he did not know how Cowie could have designed the beam without the drawings.

On questioning by the Committee, the expert stated that the beam would have failed if it had been loaded fully. He stated that the sequence of correspondence suggested that Cowie was not aware of the proposal for reinforcement at the beginning of August. The design and calculations prepared by Cowie suggested to him that Cowie did not know how to design the beam.

With respect to the other structural engineering report, the expert stated that this did not change his opinion. The report anticipated a spreading device that the design did not call for. He testified that the original beam was not acceptable even with a spreader and still needed considerable reinforcement.

Gordon Cowie testified on his own behalf. He stated that he understood the essence of why the hearing was taking place. He stated that he did not reply to the August 21, 2000 letter requesting a retraction because the vice-president of engineering for the prime consultant was asking him to refute his opinion that the stiffened beam would be suitable. Cowie agreed that he should have apologized for the personal attack. He submitted that he is not racist but was simply calling the engineer what he was (an "Asian").

On cross-examination by Black, Cowie stated that he was aware of PEO's Code of Ethics and he agreed that professional engineers should conduct themselves with honour and dignity and that he should have withdrawn the personal attack on the engineer. Cowie agreed that he selected a beam that was undersized. He stated that his involvement was after the beam had been installed.

In his application for membership as a retired professional engineer Cowie certified that it was not his intention to seek active employment for gain but in performing this service he did so. Cowie stated that he was only doing about one job a year and was semi retired. Cowie stated that he was trying to avoid the $500 fee and agreed that he misrepresented to the PEO what he was doing in order to avoid payment of the membership fee.

With respect to his involvement on the project, Cowie agreed that his letter to the contractor dated January 28, 2000 indicated that the beam was suitable for the purpose intended. He agreed that this continued to be his position in his letter to the prime contractor dated August 4, 2000. He agreed that he was trying to protect the use of the beam. In his August 14, 2000 letter to the prime consultant Cowie conceded that he acknowledged that the beam was inadequate for some purposes. Cowie conceded that the beam that he selected at first instance was inadequate for the job and he agreed that he failed to comply with the requirements of the *Ontario Building Code* and with the most basic engineering principles in the selection of the beam.

With respect to the inappropriate comments directed to the engineer, he acknowledged that section 77 of the Code of Ethics requires a professional engineer to act with courtesy and in good faith. He stated that by the time of his letter dated August 4, 2000, he was in a contest with the engineer and in the letter to the prime consultant he was trying to be as fearsome as possible.

On further cross-examination Cowie stated that he did not consider his comments to be a breach of human rights. He stated that the engineer is an Asian engineer who comes from a different culture and as a result the engineer would not engage in back and forth dialogue with him to attempt to resolve the issues.

Cowie stated that he was getting harassed by the engineer and that it might have been the case that the engineer was harassing him because he came from a different culture and that his culture may have caused him to look at the situation differently.

Cowie stated that while he thought his comments might be found offensive he did not consider them to be racist. Cowie acknowledged that he should have apologized in writing to the engineer but by that point in time he did not feel like having anything more to do with the situation and he stated that "he turned the whole thing off" because he is retired and he didn't care.

On questioning by the Panel, Cowie stated that he does not use his P.Eng. status anymore. Cowie stated that he had done structural design work for the last 20 years. When asked if he felt that he was competent as a structural designer he stated that he was a bit shaken by Black's cross-examination to answer in the affirmative.

Cowie stated that he had advised the contractor that a 12 x 35 beam would be

suitable and the contractor had found the beam and erected it.

He stated that he had no idea who decided to put two bolts in at the connections. He agreed that there should be four bolts and that his design never addressed this issue.

Cowie stated that he made a mistake and was unable to make any changes and he got frustrated.

Cowie agreed that he was defending the design of the beam to save the cost of replacement.

He stated that he determined that the engineer was Asian from his name and from meeting with him. Cowie stated that he called the engineer incompetent because he would not agree with what Cowie considered to be a practical solution of reinforcing the beam.

Cowie stated that if the engineer had been an engineer with a Canadian background he would not have been as dogmatic as he was and would have debated a solution with him. In summary, he stated that he selected the beam size and the contractor erected it and then he had to defend the beam. Cowie stated that he believed that the engineer was challenging the beam for the perverse pleasure of winning a contest. He stated that his position remained that the beam should not have been replaced and that it could have been reinforced. He stated that the proposal by the other consulting engineering company introducing a spreader was entirely reasonable.

No other witnesses were called on behalf of Cowie.

Submissions

Following Cowie's evidence, submissions were made by Black. Black advised that the first issue for the Panel to consider was the implication of Cowie practising engineering when he had represented to PEO that he was not. Black submitted that in providing engineering services while not a full member and holder of a Certificate of Authorization, Cowie was in contravention of section 12(2) of the *Professional Engineers Act* and consequently guilty of breaching section 72(2)(g) of Regulation 941. Black submitted that Cowie's misrepresentation to PEO went to a finding of unprofessional conduct under section 72(2)(j).

Black submitted that in this case Cowie was guilty of unprofessional, dishonourable and disgraceful conduct as a result of his misrepresentation to PEO and his disparaging and racist comments regarding the engineer.

With respect to section 72(2)(k) of Regulation 941, Black submitted that Cowie by failing to abide by the terms of membership afforded to a retired engineer was in breach of section 72(2)(k).

With respect to Cowie's professional duties, Black submitted that the task before the Panel was to evaluate his engineering conduct. Black stated that it was an agreed fact that the size of the monorail was Cowie's responsibility. Black submitted that Cowie got a telephone call and did a couple hours of work and came up with a determination that an S12 beam was appropriate. When a concern was raised by the prime consultant that it was insufficient, Cowie defended the design. Black submitted that the opinion of the expert was that the beam was woefully inadequate and would have failed the first time that a full load was applied. Black submitted that Cowie failed to take into account the applicable codes and references and had admitted that he failed to do so.

With respect to the August 4, 2000 letter to the prime consultant Black stated that the expert had testified that a double check showed a fundamental lack of knowledge and the expert confirmed that the measures to remediate proposed by Cowie were inappropriate.

Black submitted that Cowie's conduct had fallen below standard and his breaches were so fundamental that he was unfit to carry out the practice of professional engineering. Black submitted that Cowie's conduct constituted negligence, pursuant to Section 72(2)(a). With respect to Section 72(2)(b), Black submitted that the beam would have been unsafe. With respect to Section (72)(2)(d), Black stated that Cowie had failed to meet and follow standards. With respect to Section 28(3)(a) of the Act, Black stated that Cowie showed such a lack of knowledge that he was unfit to practise engineering. In response to questions by the Panel, Black submitted that this was Cowie's supposed area of expertise but he did not know about the standard references.

With respect to the August 4, 2000 letter, Black stated that the engineer took the position since February 2000 that the beam was inadequate. Black submitted that this position was entirely reasonable. Black stated that the engineer did a calculation and met with Cowie. Black stated that Cowie's August 4, 2000 letter to the prime consultant responded to the engineer's position that the beam was inadequate and that Cowie lashed out in the letter and his comments were entirely inappropriate and racist.

Black submitted that Cowie's conduct breached the Code of Ethics and was in breach of PEO's guidelines on human rights.

Black submitted that Cowie's conduct was a departure from human decency and civility and that it was disgraceful and abhorrent.

Black submitted that there was a failure on the part of Cowie to appreciate the consequences of the letter and notwithstanding the fact that the prime consultant was prepared to afford him the benefit that, "he was having a bad day," Cowie failed to retract his statement or offer an apology to the engineer.

Black submitted that Cowie's conduct reflected badly on the profession and that he was in breach of Section 72(2)(j).

Spies advised the Panel that the onus of proof is on the PEO to prove its case and that the evidence must be clear and convincing (refer to Bernstein case).

Panel's deliberations

The association bears the onus of proving the allegations in accordance with the standard of proof which the Panel is familiar with, set out in Re: Bernstein and College of Physicians and Surgeons of Ontario (1977) 15 O.R. (2d) 477. Having considered the evidence and the onus and standard of proof, the Panel finds Cowie guilty of incompetence as defined in 28(3)(a) of the Act and guilty of professional misconduct as defined in Section 28(2)(b) of the Act and Regulation 941, Sections 72(2) (a), (b), (d), (g), (j) and (k).

The Panel also finds that Cowie is guilty of contravening the Code of Ethics of the association contained in section

77 under Regulation 941 made under the Act based on Cowie's racist comments in his letter of August 4 and his testimony.

Reasons for decision

There is no question that the contractor was unable to determine whether the design was right or wrong and relied on others, in this case Cowie, a professional engineer. Cowie did not consider the dead load or the lateral and impact loads and was either unaware or ignored OBC requirements. Cowie was unaware of CSA S16 and failed to design the beam in accordance with basic fundamental design requirements. Cowie's design showed such a lack of knowledge in the fundamental design criteria that it established that he was incompetent to carry out the design.

The Panel accepted the opinion evidence of the expert that the design of the beam was woefully inadequate and that it would have failed the first time a full load was applied. With respect to the design, the Panel accepted the evidence of the expert and the admissions by Cowie that he failed to pay due regard to the requirements and *Ontario Building Code*, which applied to the design of the beam.

This evidence plus Cowie's poor technical judgment to ensure the safety and welfare of the public, demonstrate that Cowie is unfit to carry out the responsibilities of a professional engineer.

Cowie breached the Act and Regulation by admitting to carrying on an engineering business under the name of Forbes Engineering and Management without a Certificate of Authorization and failed to abide by the terms of his retired engineer's status.

With respect to the comments pertaining to the engineer in the August 4, 2000 letter from Cowie to the prime consultant, the Panel considered these comments to be disgraceful and dishonourable and a breach of the Code of Ethics of the association. Cowie's misrepresentations to PEO and the racist comments directed to the engineer in the opinion of the Panel constituted a breach of the Code of Ethics.

Consequently, the Panel found Cowie guilty of all sections of professional misconduct alleged and specifically Section 72(2)(a); Section 72(2)(b); Section 72(2)(d); Section 72 (2)(g); Section 72(2)(j) and Section 72(2)(k) of Regulation 941.

Penalty

Black made submissions with respect to penalty. He requested revocation and publication with reasons.

Black stated that for the public interest to be served, Cowie should be removed from the register and publication was required to send a message to the members that the conduct set out in the August 4, 2000 letter was not acceptable.

The Panel considered the issue of the appropriate penalty. The Panel considered that there should be zero tolerance for racist comments.

The Panel agreed with the submissions by Black that the evidence established that Cowie was not competent and that revocation of his licence was warranted. The Panel therefore ordered

- **the revocation of Gordon F. Cowie's licence, and**
- **the publication of the case, complete with reasons for the decision, identifying only Cowie's name and his company Forbes Engineering and Management Inc.**

Dated at Toronto this 6th day of February, 2002.

R. Anthony Warner, P.Eng. (Chair)

(For and on behalf of the Panel of the Discipline Committee)

Cam Mirza, P.Eng.
Nick Monsour, P.Eng.
Don Turner, P.Eng.
David Smith, P.Eng.

Enforcement Order

The Association of Professional Engineers of Ontario versus Dan Stolarchuk

An application was brought under Section 39 of the *Professional Engineers Act* in the Ontario Superior Court of Justice at 130 Queen Street West, Toronto, Ontario, on July 23, 2002 before the Honourable Mr. Justice Somers. The association obtained the following Order against Dan Stolarchuk of Toronto:

1. A DECLARATION that Dan Stolarchuk ("Stolarchuk") breached s. 12(1) of the Act in that, without a licence issued by PEO, he held himself out as engaging in the business of providing, to the Ontario public, services that are within the practice of professional engineering;

2. AN ORDER that Stolarchuk refrain from holding himself out as engaging in the business of providing, to the public in Ontario, services that are within the practice of professional engineering, unless and until he obtains a licence from PEO;

3. A DECLARATION that Stolarchuk breached s. 40(2)(a) of the Act in that, without a licence from PEO, he used the title "professional engineer" and the abbreviated title "P.Eng." as occupational or business designations;

4. AN ORDER that Stolarchuk refrain from using the title "professional engineer" or any abbreviations or variation thereof as an occupational or business designation in Ontario unless and until he obtains a licence from PEO;

5. A DECLARATION that Stolarchuk breached s. 40(2)(b) of the Act in that, without a licence from PEO, he used the titles "professional engineer" and "P.Eng.", terms which would lead to the belief that he could engage in the practice of professional engineering;

6. AN ORDER that Stolarchuk refrain from using, by any medium, the term "professional engineer" or any variation or abbreviation thereof that will lead to the belief that he provides, to the public in Ontario, services within the practice of professional engineering, unless and until he obtains a licence from PEO;

7. AN ORDER that Stolarchuk turn over to a representative of PEO all promotional materials, business cards, and any other business stationery or printed materials and signage using the title "professional engineer" and/or "P.Eng.", in combination with his name and/or any other term in violation of this Order, within 21 days of the date of this Order; and

8. AN ORDER that Stolarchuk pay to PEO its costs of this matter fixed at $6,750.

The association was represented by Dana M. Peebles of McCarthy Tétrault.

The investigation leading to the subsequent application began after PEO received information that Stolarchuk had misrepresented himself as a professional engineer to fellow employees at a Toronto company, as well as describing himself as a "Field Applications Engineer" and "R.D. Engineer" in a resume.

Affidavits in support of the association's application were filed with the court. Mr. Stolarchuk attended in person.

After reviewing the material and hearing brief submissions from Mr. Peebles and Mr. Stolarchuk, the Honourable Mr. Justice Somers handed down the order in favour of the association.

Council approves designation and redesignation of Consulting Engineers

At the 412th Meeting of Council held on November 14 and 15, 2002, the following members were designated or redesignated as Consulting Engineers pursuant to Ontario Regulation 941 of the *Professional Engineers Act*. Also listed are firms to which Council has granted permission to use the title "Consulting Engineers".

Designation as a Consulting Engineer is for a period of five years; at the end of that time, the member must be redesignated. Anyone wishing information on the Consulting Engineers Designation Program, may consult Angela Gallant, C of A Coordinator, Department of Professional Affairs, at (800) 339-3716 or (416) 224-1100, ext. 491; email: agallant@peo.on.ca.

Newly designated Consulting Engineers

Carlo DiRezze, P.Eng.
Ame-Tech Developments Limited
Richmond Hill, ON

Kevin Fleming, P.Eng.
Stantec Consulting Ltd.
Kitchener, ON

John Gorrie, P.Eng.
Stantec Consulting
International Ltd.
Kitchener, ON

Shawky Ibrahim, P.Eng.
Yolles Partnership Inc.
Toronto, ON

Larry Manley, P.Eng.
Simcoe Engineering Group Limited
Pickering, ON

R. David McClellan, P.Eng.
Aqua-Terre Solutions Inc.
Toronto, ON

Anthony Mulholland, P.Eng.
2005840 Ontario Inc.
(o/a) Rack Networks
Mississauga, ON

Joseph Puopolo, P.Eng.
Dillon Consulting Limited
Toronto, ON

Redesignated Consulting Engineers

Gaetano Baldesarra, P.Eng.
Ramesh Bhardwaja, P.Eng.
Richard Bruynson, P.Eng.
Gordon S. Campbell, P.Eng.
Pak Sum Chan, P.Eng.
Chris Doherty, P.Eng.
Karlis Jansons, P.Eng.
Roman Kerkusz, P.Eng.
Raul Knoll, P.Eng.
Gary Komar, P.Eng.
Richard Lay, P.Eng.
Derek Lee, P.Eng.
Brian S. Llewellyn, P.Eng.
Edward Major, P.Eng.
Warren Mak, P.Eng.
Tony Masongsong, P.Eng.
Michael Merleau, P.Eng.
Thomas H. Montgomery, P.Eng.
Vincent Rochon, P.Eng.
Eugene Shelestynsky, P.Eng.
Douglas R. Sims, P.Eng.
William Slater, P.Eng.
Louis Tilatti, P.Eng.
William R. Walker, P.Eng.
Simon Weisman, P.Eng.

Consultants granted permission to use the title "Consulting Engineers".

RWDI West Inc.
Guelph, ON

Science Applications International Corporation
(o/a) SAIC Canada
Ottawa, ON

Tak F. Wong, P.Eng. (o/a) TFW Consultants
Scarborough, ON

Professional Engineers
Ontario

Order form is online at www.peo.on.ca

Publications Order Form

	$	No.	Total
The Professional Engineers Act, R.S.O. 1990, Chapter P.28	N/C		
Ontario Regulation 941	N/C		
By-law No. 1	N/C		
Practice Guidelines			
Acting as Contract Employees (2001)	10.00		
Acting as Independent Contractors (2001)	10.00		
Acting Under the Drainage Act (1988)	10.00		
Acoustical Engineering Services in Land-Use Planning (1998)	10.00		
Building Projects Using Manufacturer-Designed Systems & Components (1999)	10.00		
Commissioning Work in Buildings (1992)	10.00		
Communications Services (1993)	10.00		
Engineering Services to Municipalities (1986)	10.00		
Environmental Site Assessment, Remediation & Management (1996)	10.00		
General Review of Construction as Required by Ontario Building Code (1996)	10.00		
Geotechnical Engineering Services (1993)	10.00		
Guideline to Professional Practice (1998)	10.00		
Human Rights in Professional Practice (2000)	10.00		
Land Development/Redevelopment Engineering Services (1994)	10.00		
Mechanical & Electrical Engineering Services in Buildings (1997)	10.00		
Professional Engineer as an Expert Witness (1997)	10.00		
Professional Engineer's Duty to Report	N/C		
Project Management Services (1991)	10.00		
Providing Reports on Mineral Properties (2002)	10.00		
Reports for Pre-Start Health and Safety Reviews (2001)	10.00		
Roads, Bridges & Associated Facilities (1995)	10.00		
Selection of Engineering Services (1998)	10.00		
Solid Waste Management (1993)	10.00		
Structural Engineering Services in Buildings (1995)	10.00		
Temporary Works (1993)	10.00		
Transportation & Traffic Engineering (1994)	10.00		
Use of Agreements Between Clients & Engineers (2000) (including sample agreement)	10.00		
Use of Computer Software Tools Affecting Public Safety & Welfare (1993)	10.00		
Business Publications			
Agreement Between Prime Consultant & Sub-Consultant (1993) per package of 10	10.00		
Licensing Guide & Application for Licence (2002)	N/C		
Required Experience for Licensing in Ontario (1995)	N/C		
Schedule of Fees for Engineering Services (2001)	10.00		

Fax to: 416-224-8168 or 1-800-268-0496
Phone: 416-224-1100 or 1-800-339-3716
Mail to: Professional Engineers Ontario
25 Sheppard Ave. W., Suite 1000
Toronto, ON M2N 6S9

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Membership #

03/01/02