

DECISION AND REASONS

In the matter of a hearing under the *Professional Engineers Act*, R.S.O. 1990, c. P.28; and in the matter of a complaint regarding the conduct of JOHN D. HUBBERT, P.ENG., a member of the Association of Professional Engineers of Ontario, and J.D. HUBBERT & ASSOCIATES LTD., a holder of a Certificate of Authorization.

This matter came on for hearing before a panel of the Discipline Committee on June 9, 2008, December 10 and 11, 2008, February 23 and 24, 2009, and April 20 and 21, 2009, at the offices of the Association of Professional Engineers of Ontario in Toronto.

THE ALLEGATIONS

The allegations of the Association of Professional Engineers of Ontario (association) against John D. Hubbert, P.Eng., and J.D. Hubbert & Associates Ltd. were that John D. Hubbert, P.Eng., is incompetent, and that John D. Hubbert, P.Eng., and J.D. Hubbert & Associates Ltd. (referred to jointly as Hubbert) are guilty of professional misconduct for the following reasons:

- a. John D. Hubbert, P.Eng., was negligent in that he sealed engineering investigation reports that failed to maintain the standards that a reasonable and prudent practitioner would maintain in the circumstances;
- b. Hubbert provided engineering investigation reports that did not provide prudent or reasonable engineering findings, conclusions and recommendations;
- c. Hubbert failed to make reasonable provision for the safeguarding of life, health or property of persons who may be affected by the work for which Hubbert was responsible;
- d. Hubbert failed to make responsible provision for compliance with applicable regulations, standards, codes and rules, including the

Ontario Building Code, in connection with the work undertaken by John D. Hubbert, P.Eng.;

- e. John D. Hubbert, P.Eng., failed to correct or report a situation that he knew, or ought to have known, may endanger the safety or welfare of the public;
- f. Hubbert provided engineering investigation reports (certification letters) stating that the heating and cooling systems were remediated and adequate to meet the requirements of the Ontario Building Code and other applicable codes in circumstances where the heating and cooling systems did not, in fact, comply;
- g. Hubbert provided a May 18, 2005 engineering report, that was used to modify the heating and cooling systems in the Woodfield residences without reference to their earlier engineering report dated April 15, 2005, thereby acting in a misleading or deceptive manner; and
- h. Hubbert acted in a disgraceful, dishonourable and unprofessional manner.

Counsel for the association advised the panel that the association would not present any evidence with respect to the allegations set out in subparagraph e. above.

PLEA OF THE MEMBER AND/OR HOLDER

John D. Hubbert, P.Eng., and J.D. Hubbert & Associates Ltd. denied the allegations set out in the Statement of Allegations.

DECISION

The panel found John D. Hubbert, P.Eng., and J.D. Hubbert & Associates Ltd. are not guilty of the allegations of incompetence and professional misconduct.

OVERVIEW

The panel heard allegations against Hubbert, which related to an investigation by Hubbert of the heating and cooling systems at several new homes on Woodfield Road in Oakville, Ontario. One of the owners, Christine

Ballard, described how her system did not heat or cool her home properly, and her efforts to resolve this problem with the builder, and later through the Tarion Corporation and the Town of Oakville. The town engaged J.D. Hubbert & Associates Ltd. to investigate and report on the heating systems.

The work products of this contract were:

1. A report dated April 15, 2005 (the April report);
2. A report dated May 18, 2005 (the May report); and
3. A letter of compliance for each of the residences investigated by Hubbert.

All of these documents were sealed by John D. Hubbert, P.Eng. The association alleged that:

1. The April report and the May report contained significant differences, including that they reached different conclusions;
2. The May report did not address the root cause of the heating problems in the homes;
3. The May report did not refer to the April report or explain the changes in the reports; and
4. The letters convey that the heating systems are compliant with the Ontario Building Code (OBC) when, in fact, they did not comply.

The panel found John D. Hubbert, P.Eng., and J.D. Hubbert & Associates Ltd. not guilty of the allegations of incompetence and professional misconduct for the following reasons:

1. Although the reports were different, the changes were made to reflect a common understanding between Hubbert and the client regarding the scope of Hubbert's mandate and to reflect additional information that John D. Hubbert, P.Eng., collected after he sealed the April report;
2. There was no requirement for Hubbert to refer to the April report in the May report; and
3. The letters state that the heating systems are capable of complying with the OBC, which

meets the standard of practice in such investigations, not that they are compliant with the OBC.

MOTION FOR DISCLOSURE

At the hearing on June 9, 2008, Harry Perlis, counsel for Hubbert at the time, requested:

1. An order compelling the association to produce its complete record of investigation with respect to its prosecution of Paul Siew Choon Lim, P.Eng., and P. Lim & Associates Limited (the Lim matter) and of Chung-Wai Chan, P.Eng., and M.V. Shore Associates (1993) Ltd.;
2. An order compelling the association to disclose whether there are other open or closed complaints or discipline matters in respect of the residents at 2286 Woodfield Road, 2346 Woodfield Road, 2348 Woodfield Road, 2349 Woodfield Road, 2350 Woodfield Road, 2351 Woodfield Road and 2355 Woodfield Road, Oakville, Ontario, and, if such investigations exist, to produce its complete record of investigation in such matters; and
3. An adjournment.

The grounds for the motion were:

1. That Rules 2.1 and 2.2 of the Rules of Procedure of the Discipline Committee of the Association of Professional Engineers of Ontario require the association to disclose all relevant information in a timely manner;
2. That another panel hearing the Lim matter involving the same properties as those in the allegations against Hubbert ordered the investigation record in this matter be provided to Paul Lim, P.Eng.; and
3. The Notice of Hearing did not state that the hearing would take more than one day and counsel for Hubbert had to appear in another case the next day.

Counsel for the association asked the panel to deny the request as the association provided full and complete disclosure of all relevant information in the association's possession already, that he understood that the hearing would take more than one day to complete, and that he was ready to present the association's case.

EVIDENCE ON THE MOTION FOR DISCLOSURE

Counsel for Hubbert submitted a motion record into evidence that contained a Notice of Motion and an affidavit sworn by Diane Mason. Both documents were dated June 6, 2008.

Diane Mason was a solicitor in the firm representing Hubbert at the time. In her affidavit, she described efforts by Harry Perlis, the solicitor with carriage in the Hubbert matter, to reschedule a pre-hearing conference scheduled for April 23, 2008, and to request an adjournment of the

hearing. She also describes his discussions with Breedon, counsel for the defendants in a matter involving an engineer named Lim, and the understanding of both Perlis and Breedon that the information provided by the association in their respective matters was relevant to both matters. Diane Mason stated that John D. Hubbert, P.Eng., consented to an order that the association's record be made available in the Lim matter.

The affidavit included a copy of the order made by the Discipline Committee panel in the Lim matter that the association provide the investigation file in the Hubbert matter to the defendants in the Lim matter.

The affidavit included, as an attachment, an affidavit submitted to the panel in the Lim matter sworn by Kindra Lakusta, an employee in the firm representing the defendants in the Lim matter. The affidavit by Kindra Lakusta stated that she was aware that other engineers were referred to the Discipline Committee regarding the same properties and that Paul Lim, P.Eng., consented to the association providing Hubbert with a copy of the association's investigation file in the Lim matter.

In addition, the motion record included a copy of the notice sent to the parties that stated that the hearing would start on June 9, 2008. The notice does not contain an estimated length of time for the hearing.

DECISIONS ON THE MOTION FOR DISCLOSURE

The panel ordered:

1. The association to provide Hubbert with a copy of the association's record of its investigation with respect to its prosecution in the Lim matter and all other matters involving the residences at the addresses in the Hubbert matter;
2. The association to disclose whether there are other open or closed complaints or discipline matters in respect of the residents at 2286 Woodfield Road, 2346 Woodfield Road, 2348 Woodfield Road, 2349 Woodfield Road, 2350 Woodfield Road, 2351 Woodfield Road and 2355 Woodfield Road, Oakville, Ontario, and, if such investigations exist, to produce its complete record of investigation in such matters.

The panel adjourned the matter until December 10, 2008, and gave notice to the parties that the case was estimated to take two days to hear, but that the parties would be expected to be available to continue the hearing should it be necessary.

REASONS FOR THE DECISION ON THE MOTION FOR DISCLOSURE

The panel considered the simple fact that the matter related to the same residences, and much the same subject matter as in the Lim matter to be sufficient to determine that the information in the investigation file was, at the very least, arguably relevant information to order disclosed to Hubbert,

in addition to disclosure in respect of any other complaints regarding the same residences.

The panel considered the following reasons as sufficient to adjourn the hearing:

1. That the notice did not estimate the length of time to hear the matter;
2. That there was no pre-hearing conference to reach a common understanding; and
3. That Hubbert would require some time to review the material that the panel ordered the association to disclose to Hubbert.

MOTION TO EXCLUDE A WITNESS FROM TESTIFYING

At the hearing on December 10, 2008, Ryan Breedon, counsel for Hubbert, requested:

1. An order directing that the association may not call John Kokko, P.Eng. (Kokko), as a witness; or
2. In the alternative, an adjournment of the hearing.

The grounds for the motion were:

1. That Hubbert was not provided with two days' notice to permit preparation; and
2. That PEO did not provide Hubbert with Kokko's complete reports as required under Rule 2.1 of the Discipline Committee.

Counsel for the association objected to the request on the following grounds:

1. That Kokko may be called to provide his evidence on what he observed and measured, not as an expert witness;
2. That the association had made full disclosure in this matter six months previously, and that it continued to disclose relevant information;
3. That a request to exclude a witness was unusual and should be granted where there is no other remedy available to the panel;
4. That there would be no prejudice to the defence in calling Kokko as a fact witness; and
5. That there is no requirement for the association to provide a witness list, but that it had provided one previously as a courtesy to Hubbert.

EVIDENCE ON THE MOTION TO EXCLUDE A WITNESS

Counsel for Hubbert submitted a motion record that contained a notice of motion and an affidavit sworn by Shawn Richard. Both documents are dated December 9, 2008.

Shawn Richard was a student at law with the firm Lenczer Slight Royce Smith Griffin LLP, solicitors for Hubbert. He stated that the association provided disclosure to Hubbert regarding the Lim matter. Shawn Richard testified about the correspondence and discussions between counsel for the parties regarding the issue as to who the association planned to call as a witness and that, on December 8, 2008, counsel for the association advised counsel for Hubbert that the association planned to call Kokko as a witness.

Counsel for Hubbert entered into evidence:

1. A copy of a report by Kokko that did not contain certain appendices;
2. A letter that shows that Hubbert received the appendices the day before the hearing;
3. A letter from Daycore Engineering Inc., sealed by W.C.B. Day, P.Eng., disagreeing with conclusions of a report sealed by Greg Allen, P.Eng., in this matter; and
4. A request for the complete Statement of Work document.

Counsel for Hubbert pointed out that the first finding on page 2 of the report by Kokko is an opinion about whether the installed heating system complied with the requirements of Article 9.33.3.1(1) of the Ontario Building Code 1997 (OBC). Counsel submitted that this is a professional opinion, not a report of a lay person.

Counsel for Hubbert claimed that the disclosure of the appendices the previous day provided insufficient time to review this evidence.

APPLICABLE LAW

Counsel for Hubbert noted that there is no case law dealing with the quality of disclosure, but that the purpose of disclosure is to provide the defence with an opportunity to respond to evidence that may be presented.

Counsel for Hubbert cited *R v. D. (C.L.) [2006] ONCJ 122* in which the Ontario Court of Justice youth justice court decided that the defence did not have sufficient notice of a report by an expert witness and, thus, the opinion evidence of the expert was not allowed to be led at trial. Counsel for Hubbert equated the notice provisions of the Criminal Code in respect of expert evidence, cited in *R v. D. (C.L.)*, to Rule 2.1 of the Rules of Procedure of the Discipline Committee of the Association of Professional Engineers of Ontario and noted that the defence had made no accusation of misconduct on the part of counsel for the association, just that the remedy for untimely notice should be to exclude the opinion evidence.

Counsel for Hubbert cited *Robb Estate v. St. Joseph's Health Care Centre [1999] O.J. No. 864* in which the Ontario Court of Justice (general division) required the plaintiffs to provide the opposing parties with a list of witnesses that the plaintiffs anticipated calling, together with summaries of what they would say.

DECISION ON THE MOTION TO EXCLUDE A WITNESS

The panel reserved its decision on this matter until later in the day, by which time it became evident to the panel and the parties that the hearing would require additional hearing days, that the hearing would be adjourned before the association would call Kokko, and that any adjournment would provide sufficient time for the association to disclose the expert report by Kokko and for Hubbert to prepare a defence.

The panel decided that the report by Kokko is an expert report and that his anticipated evidence was in the nature of opinion evidence, which would require him to be qualified by the panel as an expert witness prior to testifying.

The panel, thus, denied the request to exclude the witness.

REASONS FOR THE DECISION ON THE MOTION TO EXCLUDE A WITNESS

The panel considered that an assessment of the heating system against the requirements of the OBC to be in the realm of engineering expertise, and that the opinion expressed in the report by Kokko was anticipated to be based upon specialized expertise, should the panel so qualify him.

EVIDENCE IN THE MATTER

Counsel for the association presented its case and entered into evidence the Statement of Allegations, signed by the chair of the Complaints Committee, Dr. Jane Phillips, P.Eng., dated January 10, 2008. The Statement of Allegations included that Hubbert was, at all material times, a member of the association and an employee of J.D. Hubbert & Associates Ltd., and that J.D. Hubbert & Associates Ltd. was, at all material times, a holder of a Certificate of Authorization from the association. This issue was not in dispute.

The panel heard testimony from the following witnesses:

1. Christine Ballard (Ballard);
2. Greg Allen, P.Eng. (Allen), as an expert witness;

3. John Kokko, P.Eng., as an expert witness;
4. Shelley Switzer, P.Eng. (Switzer);
5. John D. Hubbert, P.Eng.; and
6. Ed Poraz, P.Eng. (Poraz), as an expert witness.

Ballard testified that she lived at 2350 Woodfield Road and that the heating and cooling system had not heated or cooled her new home properly ever since her family moved in. She described her efforts, alone and in combination with other homeowners, to resolve this problem with the builder, and later through Tarion Corporation under the Ontario New Home Warranty Program. She testified that, as a result of these efforts, the builder increased the number of ducts from her furnace, creating what she described as a “spaghetti mess” of ducting.

She described her actions to get the Town of Oakville to resolve the problem, and her appeal to the Information and Privacy Commissioner of Ontario for a copy of the April report. Following the decision of the commissioner, the Town of Oakville provided Ballard and the other residents whose heating systems were investigated with copies of the April report.

Ballard said that she understood the scope of Hubbert’s mandate. She explained that the *Holmes on Homes* television show attended at the home and replaced the system in October 2007. Ballard’s testimony on these facts was not disputed.

Ballard testified that she complained to the association about Hubbert because the differences between the April and May reports made her feel that there was a conspiracy involving Hubbert, and because her heating and cooling system still did not properly heat and cool her home even after the modifications that Hubbert recommended were completed.

Switzer, the chief building official for the Town of Oakville, testified that the town engaged J.D. Hubbert & Associates Ltd. because the building permits for the residences were not yet closed and that, before this could be done, the town needed an independent assessment into the dispute about the heating systems. Switzer stated that the assessment was required to state whether the heating systems met the requirements of the OBC, as that is the limit of the town’s authority. Switzer described his various meetings and correspondence with John D. Hubbert, P.Eng., and the residents.

Switzer testified that he was not satisfied with the April report because it contained elements that were, in his opinion, not relevant to the issue of compliance with the OBC. He instructed John D. Hubbert, P.Eng., to remove or modify each item and advised him that the town would provide a copy of the revised report to the residents. Switzer testified that the town was satisfied with the May report and that he had copies sent to the residents (including Ballard).

Switzer testified that the town declined to provide a copy of the April report in response to a request by Ballard as it was, in his opinion, a draft

report that should and could be withheld under the Freedom of Information law as he understood it. He testified that, following the Privacy Commissioner of Ontario decision regarding a complaint about Switzer’s decision to withhold the report, he had copies of the April report sent to the residents.

Allen was qualified as an expert and provided expert testimony that the April report met the standard of practice of the profession. He noted that both the April report and the May report summarized the scope of the work in the contract with the town in the executive summary and the “purpose of the report” section.

Allen described the operation of the heating system whereby natural gas is used to produce hot water, which is delivered under pressure to the heating coil in the furnace. The furnace fan draws in cold return air from the home and outside and blows it over a heating coil into the ducts to send the heated air throughout the house. The unusual aspect of the system in question is that it is a high-velocity forced air system that uses smaller diameter ducts than normal and the heated air travels at relatively high speeds.

Allen provided expert testimony that the two applicable requirements of the OBC were that the system heat the residence to 22C with an outside temperature of -18C (Article 9.33.3.1(1) of the OBC 1997) and that all rooms had supply ducts. Allen testified that every room had at least one duct.

In Allen’s opinion, the May report did not meet the standard of professional practice because as it contained a caveat that the systems needed to be tested by a third party, it did not clearly identify the root cause of the inadequate heating in the homes, and because the May report did not refer to the significant changes from the April report.

Allen said that the adequacy of the May report hinged upon whether Hubbert’s recommendation to remediate the situation (installing a larger hot water tank) was correct. Allen stated that he saw nothing wrong with a trial and error approach of increasing the domestic

hot water temperature supply, then determining the amount of heat that each unit delivered, but that Hubbert should have tested the system afterwards instead of relying upon a third party to confirm that this would correct the situation. In other words, Allen's view was that Hubbert should have tested the solution and, if it did not succeed, then Hubbert should have tried something else.

Allen testified that heat loss calculations by different engineers could result in different results by up to 20 per cent due to the assumptions that went into their calculations.

Allen said that he issued two reports into this matter. His second report incorporated feedback from his client, the association, to include his opinion regarding the April report. Allen stated that did not refer to his first report in his second report.

Kokko was qualified as an expert and provided expert testimony regarding his investigation of the installed heating and cooling systems, and his heat loss calculations. Based upon his tests, Kokko concluded that the cause of the problem was insufficient airflow due to the size of the ducts used to transport the heated air throughout the house, and that the systems delivered between 21 and 28 per cent too little heat to the houses to meet the requirements of the OBC.

Kokko said that he issued two reports regarding his investigation. The second contained changes that incorporated some new information and it did not refer to the existence of his first report.

Poraz was qualified as an expert, and was presented by the defence. He provided expert testimony regarding the capacity of a heating system similar to the one that was installed in the Ballard residence, based upon his laboratory tests. He concluded that the heating system was capable of generating sufficient heat for Ballard's house to meet the requirements of the OBC.

He stated that, in his opinion, both the April report and the May report met the standard of practice of the profession, and that a 20 per cent variation in the heat loss calculations by differ-

ent engineers was reasonable due to the different assumptions that they could use.

Poraz testified that engineers have a duty to the public in addition to the duty to their client. He explained that it is an industry practice to determine that a heating system is capable of meeting the requirements of the OBC instead of determining whether it was actually meeting the requirements.

Poraz gave his opinion that Hubbert should have referred to his April report in his May report.

John D. Hubbert, P.Eng., testified that J.D. Hubbert & Associates Ltd. was retained by the Town of Oakville in February 2005 to investigate the causes of the heating and cooling complaints by the residents of the following new homes on Woodfield Road in Oakville, Ontario:

- a. 2286 Woodfield Road;
- b. 2346 Woodfield Road;
- c. 2348 Woodfield Road;
- d. 2349 Woodfield Road;
- e. 2350 Woodfield Road;
- f. 2351 Woodfield Road; and
- g. 2355 Woodfield Road.

He explained that the Statement of Work from the Town of Oakville required him to:

1. Review/confirm the heat loss calculations and duct layouts for all townhouse models. Confirm appropriate equipment selection;
2. Conduct site visits to each house that has registered heating, ventilation and cooling (HVAC) complaints. Confirm the duct layout and equipment selection match the reviewed drawings;
3. Identify any Ontario Building Code (OBC) infractions related to the HVAC systems and recommend repairs; and
4. Re-inspect repairs and provide final review letters confirming OBC compliance.

John D. Hubbert, P.Eng., said that he attended and investigated the heating and cooling systems at the following residences:

1. The Ballard residence at 2350 Woodfield Road;
2. The Kendall residence at 2318 Woodfield Road; and
3. The Morgan residence at 2286 Woodfield Road.

He testified that he reviewed the unit plans and re-calculated heat loss and heat gain at each of the three residences.

John D. Hubbert, P.Eng., testified that he sealed the first report under his engagement with the town regarding the heating and cooling systems in the townhouses on April 15, 2005 (the April report) and sent

it to the Town of Oakville. He confirmed that he met with Switzer and reviewed the April report, that Switzer requested changes to the report and that Switzer told him that his report would be provided to the residents in the townhouses.

John D. Hubbert, P.Eng., said that he revised his report, sealed it on May 18, 2005 (the May report) and sent it to the Town of Oakville.

He described the various repairs that were made to the heating and cooling systems in the residences between June and November 2005 in accordance with the recommendations contained in the May report, and that he sealed a series of letters certifying that he inspected the heating systems in each, and the systems had the capacity to heat the residences to 22C at an outside temperature of -18C as stipulated in the OBC. The letters were sealed and signed by John D. Hubbert, P.Eng., dated:

1. October 6, 2005 regarding 2303 Woodfield Road;
2. October 18, 2005 regarding 2331 Woodfield Road;
3. October 18, 2005 regarding 2306 Woodfield Road;
4. November 1, 2005 regarding 2344 Woodfield Road;
5. November 1, 2005 regarding 2350 Woodfield Road;
6. November 14, 2005 regarding 2302 Woodfield Road; and
7. December 1, 2005 regarding 2304 Woodfield Road.

FINDINGS OF FACT

The panel has jurisdiction in this matter as John D. Hubbert, P.Eng., was, and is, a member of the association, J.D. Hubbert & Associates Ltd. was, and is, a holder of a Certificate of Authorization from the association, and the reports involved the practice of professional engineering.

The balance of the panel's findings of facts is included in the section titled Reasons for Decision for each allegation.

APPLICABLE LAW

The applicable law in this matter is found in section 28 of the *Professional Engineers Act*, R.S.O. 1990, Ch. P.28 and section 72 of Regulation 941, R.R.O. 1990, as well as the OBC Article 9.33.3.1(1).

The association bore the onus of proving the allegations on a balance of probabilities.

REASONS FOR THE DECISION

Kokko's expert testimony on the testing of the heating systems was given little weight by the panel due to the fact that he did not test heating systems regularly, as evidenced by the fact that he did not own the necessary equipment, he did not know that he needed a licence before adjusting the hot water tank above the limiter setting, and he did not measure the temperature and flow of the hot water leaving the tank, which would have showed that these hot water tanks are outfitted with a second temperature limiter.

Allen's expert testimony on the standard of practice for heating systems and on the reporting on such systems was given some weight due to his years of practice in the field and his straightforward and clear testimony, which was offset by his relatively little experience with high-velocity heating systems such as the ones that were installed in the residences investigated by Hubbert.

Poraz's expert testimony on the laboratory analysis of a similar heating system was given considerable weight by the panel. Poraz testified in a clear, professional manner and the panel found his evidence persuasive, unshaken in cross-examination and to the point.

The panel's findings and reasons are organized according to the allegations below:

- a. **That John D. Hubbert, P.Eng., was negligent in that he sealed engineering investigation reports that failed to maintain the standards that a reasonable and prudent practitioner would maintain in the circumstances.**

It was clear that the April report and the May report are the "engineering investigation reports" referred to in this allegation. Since both Allen and Poraz testified that the April report met the standard for the profession and, on consideration, the panel accepts this evidence, the only report at issue is the May report.

The differences between the April report and the May report are as follows:

1. The "Executive Summary" in the April report identified that the airflow capacity of the heating system was insufficient for providing adequate heating, while the May report stated that the airflow was sufficient;
2. The "Equipment Section" of the April report stated that the airflow of the heating system was inadequate for heating, while this opinion was absent from the May report. In addition, the April report included a finding that the cooling capacity was inadequate due to airflow rates, while the May report stated that the cooling

would be acceptable with the installation of special low temperature coils;

3. The April report included a recommendation that the manufacturer provide certification of both the fan and coil performance by third-party testing, which was absent from the May report;
4. The May report included an observation that the north bedrooms were experiencing cold conditions during windy conditions, indicating air leakages may exceed design load assumptions. This observation was not included in the April report;
5. In the “Conclusions” section, the April report indicated that the water heating rate was 92,000 BTU/h, versus 100,000 BTU/h in the May report;
6. The April report concluded that a larger fan coil is advisable and that the installed system did not perform adequately for heating and cooling, while the May report did not include this conclusion and did recommend the installation of special cooling coil and controls to address the cooling capacity shortfall;
7. The April report included a finding that the flexible ducting and tape were not compliant with the OBC. This statement was absent from the May report; and
8. The April report included a recommendation that an accredited testing agency verify and certify conformance with the manufacturer’s performance claims, which recommendation was absent from the May report.

The panel noted that both the April and the May reports included the following summarization of the scope of work for the investigation:

1. From the executive summary: “J.D. Hubbert & Associates Ltd. was retained by the Town of Oakville to investigate the causes of the heating and cooling complaints from the residents of the Woodfield Road community.”
2. From the purpose of the study section: “J.D. Hubbert & Associates Ltd. was retained by the Town of Oakville to inves-

tigate the heating systems for the homes in this development. The reason for this investigation was the complaints by the home occupants and the various reports and opinions concerning the adequacy of the systems for the application.”

The panel is persuaded by Allen’s and Poraz’s testimony and, thus, finds that the industry practice is to certify that a heating system is capable of meeting the OBC requirements based upon a set of heat-loss calculations, instead of actually measuring the temperature inside under the conditions set out in the OBC.

The panel finds that the hot water tanks in the houses had two devices installed in each that limited the temperature of the water produced, and that a gas-fitter licence is required to adjust the temperature settings above the limiter devices.

The allegation is based upon the differences between the April report and the May report. The panel noted the differences, including that the reports reached different conclusions. The panel was, however, convinced by John D. Hubbert’s clear and detailed explanation of each difference to the effect that each change was reasonable, that the May report incorporated additional information that he collected after the April report, and that he followed the instructions he received from his client, the Town of Oakville.

The panel credited Switzer’s testimony that the May report was satisfactory, which is demonstrated by his provision of copies to the residents.

The panel took note that Poraz testified that both the May report and the April report met the standard of the profession.

The panel was not convinced by the testimony of Allen that the differences between the two reports caused the May report to fall below the standard of the profession. Allen provided useful testimony regarding many aspects of this matter, but Allen did not provide a convincing reason as to why, in his view, Hubbert could not provide another report that reflected a client’s feedback and included additional information that was collected after submitting the April report.

In addition, the panel was not convinced that Hubbert needed to refer to the April report in the May report due to the fact, among others, that two expert witnesses, Kokko and Allen, did the same thing in their reports. The panel noted that Poraz testified that the May report should have referred to the April report. Faced with conflicting expert opinions, the panel considered these opinions and applied its own judgment based upon years of practice in various engineering fields, and decided that it is acceptable engineering practice to not refer to earlier reports in subsequent reports when the subsequent reports incorporate the feedback from a client, which would re-open the document to allow an engineer to incorporate new information that is discovered or brought to the engineer’s attention after sealing the first report. Furthermore, it was reasonable to assume that the April report was in the nature of a draft for client review.

Based upon the consistent advice from the expert witnesses that the April report met the standard of the profession and the foregoing findings, the panel decided that these statements in the May report were reasonable and prudent.

For these reasons, the panel decided that John D. Hubbert, P.Eng., was not negligent as alleged.

b. That Hubbert provided engineering investigation reports that did not provide prudent or reasonable engineering findings, conclusions and recommendations.

The parties argued that the April report and the May report are the “engineering investigation reports” referred to in this allegation. Since no evidence was presented with regard to this allegation about the April report, other than Allen’s and Poraz’s statements that the April report met the standard of the profession, the only engineering investigation report at issue in this allegation is the May report.

This allegation is based, in part, upon the differences in the heat-loss calculations by Hubbert versus the calculations by other engineers. The panel noted a wide variability in the results and Allen’s testimony that there can be quite different results from engineers due to the differing assumptions that they make at the outset. The panel was convinced by John D. Hubbert, P.Eng., that the assumptions he made were reasonable, as were the assumptions made by the other engineers.

With respect to the issue of the adequacy of the fan coil, an issue that was raised by Allen, the panel believes that Allen misread the applicable portions of the May report as it does not state that the fan coil was unsuitable.

Having reviewed the reports and considered expert opinions, the panel found that both reports were prudent. The panel noted that two reports have important differences, but found the testimony of John D. Hubbert, P.Eng., convincing in that the findings were reasonable and prudent, that the conclusions flowed logically from the findings, and that the recommendations reasonably derive from the conclusions.

The panel noted that the May report does not treat the issue of air leakage in ducts in detail, but also noted that the report into this issue was produced after the May report so it could not have been included. Despite this, the May report’s conclusions included a finding that the amount of return air was deficient and needed to be increased.

For these reasons, the panel decided that Hubbert did provide reasonable engineering findings, conclusions and recommendations.

c. That Hubbert failed to make reasonable provision for the safeguarding of life, health or property of persons who may be affected by the work for which Hubbert was responsible.

As no evidence was provided regarding the safeguarding of life or health of the residents, the only aspect of this allegation at issue is the safeguarding of property.

As no evidence was provided regarding the safeguarding of property, other than for Ballard who testified that she wanted an explicit statement confirming that the system complies with the OBC, the only aspect of this allegation at issue is with respect to the safeguarding of Ballard’s property as stated in the certification letter for 2350 Woodfield Road.

The basis for this allegation was that the May report did not contribute to the protection of the properties. The panel was convinced by John D. Hubbert’s testimony that his report contained measures that improved the value of the homes and improved their heating systems to the point where these systems could meet the requirements of the OBC. The panel was not convinced that the report should have contained alternate recommendations that would have gone beyond this requirement.

Hubbert made reasonable provision for the safeguarding of the life, health and property of persons who may be affected by the work for which Hubbert was responsible.

d. That Hubbert failed to make responsible provision for compliance with applicable regulations, standards, codes and rules, including the Ontario Building Code, in connection with the work undertaken by Hubbert.

The applicable code provision in question for the panel to consider regarding this allegation is Article 9.33.3.1(1) of the Ontario Building Code 1997, and that the applicable guideline is issued by the Heating, Refrigeration and Air-Conditioning Institute (HRAI). The OBC requirement is summarized as requiring the heating system to maintain the house at 22C when the outside temperature is -18C. The panel accepted the advice of the expert witnesses that the standard of practice is to perform heat-loss calculations

to determine whether the heating systems are capable of meeting the OBC standard.

The basis for this allegation was whether the April report, the May report and the certification letters made responsible provision for compliance with the OBC, including whether the recommended modifications brought the systems up to code.

The panel was persuaded by the testimony of John D. Hubbert, P.Eng., that he made responsible provisions for complying with the OBC in his reports and when making assumptions for his heat-loss calculations. The panel considered the heat-loss calculations provided by the expert witnesses and their advice that their results vary considerably based upon the assumptions inherent in the calculations. The panel was convinced that the lab testing of a similar mode provided results that are representative of the system that was installed in Ballard's home. The panel was not persuaded by the mere fact that the underlying assumptions were different or even that they were better was sufficient to determine that Hubbert's assumptions were unreasonable.

The panel noted that the certification letters state the heating systems are capable of meeting the requirements of the OBC. The panel was not convinced by the evidence of Ballard that the compliance letters needed to state that the systems met the requirements of the OBC. The panel does not find the conclusion of the certification letters, which is also the conclusion in the reports at issue, does not make reasonable provision for compliance with the OBC and HRAI. This allegation is dismissed.

- e. **That Hubbert failed to correct or report a situation that Hubbert knew, or ought to have known, may endanger the safety or welfare of the public.**

This allegation is based upon the premise that there was a possible danger to the safety or welfare of the residents, even after Hubbert's advice and inspection of the modifications to the heating systems. However, the association

did not present any evidence that the welfare or safety of the residents was, or could have been, in possible danger or that Hubbert knew, or ought to have known, of any danger. The evidence did not disclose that Hubbert failed to correct or report a situation that Hubbert knew, or ought to have known, may endanger the safety or welfare of the public.

Since the burden of proof is on the association to prove this allegation, the panel decided that Hubbert did not fail to correct or report a situation that Hubbert knew, or ought to have known, may endanger the safety or welfare of the public.

- f. **That John D. Hubbert, P.Eng., provided engineering investigation reports (certification letters) stating that the heating and cooling systems were remediated and adequate to meet the requirements of the Ontario Building Code and other applicable codes in circumstances where the heating and cooling systems did not, in fact, comply.**

This allegation alleges breach of sections 72(2)(a) and (j) of Regulation 941. Making a false statement falls outside of an acceptable standard of the profession.

The "engineering investigation reports" referred to in this allegation are the certification letters sent to the owners of the residences at:

1. 2286 Woodfield Road,
2. 2346 Woodfield Road,
3. 2348 Woodfield Road,
4. 2349 Woodfield Road,
5. 2350 Woodfield Road,
6. 2351 Woodfield Road, and
7. 2355 Woodfield Road.

The "applicable code" referred to in the allegation is the OBC Article 9.33.3.1(1).

The expert witnesses testified that it is normal for engineers to assess whether a heating system is capable of meeting the requirements of the OBC based upon a calculation of the heat-loss in a residence, and that the calculations are based upon a number of assumptions that greatly influence the calculations.

The basis for this allegation was whether the certification letters should have stated that systems meet the requirements of the OBC, or that the systems are capable of meeting the requirements of the OBC.

As stated by John D. Hubbert, P.Eng., in his testimony, the letters were carefully crafted, and have to be read carefully. The letters state that the systems in the residences concerned "were capable" of meeting the OBC requirements, which is based upon his calculations of the heat-loss in each home. Without actually operating the heating system at the required outside temperature, the wording of the letters could not state definitively that

the systems met the requirements. Conversely, John D. Hubbert, P.Eng., knew that the homeowners would receive the letters so they should have been clearer about this point to a lay reader, although this does not amount to negligence or misconduct in the panel's view.

John D. Hubbert, P.Eng., testified that both he and Ballard knew, before he sent her letter, that the hot water tank in her home was not set correctly to deliver water at the necessary temperature, and that a qualified person was needed to do so. This should have been included in each letter. However, the panel felt the letters were acceptable and that these shortcomings in the wording of the letters were insufficient to constitute professional misconduct.

For these reasons, the panel decided that Hubbert provided engineering certification letters that met the requirements of the Ontario Building Code and other applicable codes.

- g. **That Hubbert provided a May 18, 2005 engineering report that was used to modify the heating and cooling systems in the Woodfield residences without reference to his prior signed and sealed engineering report dated April 15, 2005, thereby acting in a misleading or deceptive manner.**

The panel noted that all of the witnesses agreed that the May report did not refer to the April report.

While the statement in the May report regarding his mandate should have been explained since John D. Hubbert, P.Eng., knew that the May report would be sent to the homeowners, the absence of this clarification was not essential and the failure to so clarify does not rise to the level of making out the allegation that he was acting in a misleading or deceptive manner.

Switzer testified that he was not satisfied with the April report because it included elements beyond the issue of compliance with the OBC. The panel decided that it was reasonable for Switzer and John D. Hubbert, P.Eng., to meet to discuss how to modify the April report to fulfill the town's requirements, and for Hubbert to issue a modified report that incorporated the town's feedback. Despite Ballard's view that Hubbert's May report was misleading, the panel found John D. Hubbert's and Switzer's testimony convincing and cogent, and finds that they had no intention to mislead or deceive anyone, merely to make changes in line with the mandate and subsequent information.

In summary, and as set out in respect of the differences between the two reports earlier, the panel decided that Hubbert did not act in a misleading or deceptive manner.

- h. **That Hubbert acted in a disgraceful, dishonourable and unprofessional manner.**

The panel finds that the association presented no evidence that Hubbert acted in a disgraceful or dishonourable manner. The only aspect of this allegation at issue is whether Hubbert acted in an unprofessional manner.

The association argued that Hubbert was acting in an unprofessional manner by signing a certification letter to Ballard that was unclear. Based upon her letter, Ballard expected her system to adequately heat her home during the next winter, which it did not. The association argued that the other homeowners would reasonably be expected to make the same interpretation of their letters. We have, in effect, decided this issue earlier.

John D. Hubbert, P.Eng., impressed the panel with his clear statements about accepting responsibility for the letters and the reason for the wording that he chose. He explained that he could not state that the systems complied with the requirements of the OBC as he only had information that provided evidence that the systems could comply with these requirements. The association did not provide evidence or argue that Hubbert had evidence that the systems were in compliance with the requirements of the OBC.

The panel considered these conflicting requirements and decided that the wording regarding the compliance of the heating system may appear unclear if it was not closely read, but that the wording was clear to someone who read it carefully as they would then recognize that the wording is constructed to be quite precise. The question is whether someone would read the words closely. The panel was convinced by Ballard's close attention to detail that she exhibited during her testimony that she would have re-read the wording in the letter, but whether she did or not is not determinative. The panel does not view such lack of clarity as misconduct or negligence. The members of the panel all reviewed the letters carefully and decided that the letters were understandable.

Based upon these reasons, the panel decided that some apparent or surface lack of clarity in the

certification letters was not sufficient to be an act of unprofessionalism since the letters were correct and did not mislead the reader.

The association argued that the recommended modifications did not resolve the homeowners' complaint that their heating systems did not adequately heat their homes and were, therefore, unprofessional.

John D. Hubbert, P.Eng., testified that the hot water tanks simply needed to be set to a higher temperature to adequately heat the houses.

The panel decided that Hubbert could have provided this instruction to the residents, but this was outside the mandate for the work and, therefore, did not constitute an act of unprofessionalism.

The panel preferred John D. Hubbert's testimony regarding his calculations of the capacity of the home since none of the expert witnesses provided testimony that John D. Hubbert's assumptions were incorrect. In other words, the calculations by the expert witnesses and John D. Hubbert, P.Eng., were all reasonable based upon the assumptions that they made.

The association argued that John D. Hubbert's email to Ballard commenting on her housekeeping was unprofessional. Hubbert did not address this issue.

The panel decided that the email was Hubbert's attempt at humour with someone with whom he had a good relationship at the time. Based upon Ballard's reaction, John D. Hubbert, P.Eng., never repeated this approach with Ballard and acted in a respectful manner in his dealings with her.

The panel decided that a single incident of attempted humour, even if it is not well received, does not constitute an act of professional misconduct.

For the foregoing reasons, the panel finds the member and Certificate of Authorization holder are not guilty of the allegations against them.

SUBMISSIONS AS TO COSTS AND PUBLICATION

Any submission to the panel regarding costs or publication in this matter under sections 28(6) and 28(7) of the *Professional Engineers Act* is to be made by Hubbert in writing within 20 calendar days of the date of this decision and addressed to the panel of the Discipline Committee, c/o Mr. Glenn Richardson, P.Eng., panel chair, at the Association of Professional Engineers of Ontario, 40 Sheppard Avenue West, Suite 101, Toronto, Ontario M2N 6K9, and with a copy provided to the association. The response of the association, if any, is to be made within 20 days after receipt of such submissions and Hubbert's reply, if any, within 10 days of receipt of the association's response. Unless a party objects, the panel will consider the submissions in a written hearing in accordance with Rule 7 of the Rules of Procedure of the Discipline Committee of the Association of Professional Engineers of Ontario.

Glenn Richardson, P.Eng., signed this Decision and Reasons for the decision as chair of the discipline panel and on behalf of the members of the discipline panel: Colin Cantlie, P.Eng., Santosh Gupta, P.Eng., Nick Monsour, P.Eng., and Richard Weldon, P.Eng.

DECISION AND REASONS

In the matter of a hearing under the *Professional Engineers Act*, R.S.O. 1990, c. P.28; and in the matter of a complaint regarding the conduct of JOHN D. HUBBERT, P.ENG., a member of the Association of Professional Engineers of Ontario, and J.D. HUBBERT & ASSOCIATES LTD., a holder of a Certificate of Authorization.

This matter came on for hearing before a panel of the Discipline Committee on June 9, 2008; December 10 and 11, 2008; February 23 and 24, 2009; and April 20 and 21, 2009, at the offices of the Association of Professional Engineers of Ontario in Toronto.

On June 30, 2010, the panel of the Discipline Committee released its Decision and Reasons in this matter and provided a framework for the parties to make submissions as to publication and costs. The panel received the following:

- a. A submission on behalf of John D. Hubbert, P.Eng., and J.D. Hubbert & Associates Ltd. (referred to collectively as Hubbert) dated July 29, 2010;
- b. A submission by the Association of Professional Engineers of Ontario (the association) dated August 13, 2010; and
- c. A reply submission on behalf of Hubbert dated August 23, 2010.

SUBMISSION REGARDING PUBLICATION

Counsel for Hubbert requested that the Decision and Reasons be published in the official publication of the association. The association made no submission in respect of this request.

On reviewing the submissions and the provisions of section 28(6) of the *Professional Engineers Act*, the panel orders that both the Decision and Reasons as to the merits, and this Decision and Reasons as to costs and publication in this matter be published in the official publication of the association and that the association may reformat and make minor edits to the decisions to comply with the normal publishing practices and standards for the official publication.

SUBMISSIONS REGARDING COSTS

Counsel for Hubbert requested that the association pay the actual costs of Hubbert's defence. He summarized his grounds as follows:

"...[that] by the start of the actual hearing on February 23, 2010, [the association] knew or ought to have known that the allegations against Hubbert could not have succeeded. [The association's] obligation, to both the Discipline Committee and to its members, was to withdraw the allegations. Instead, it proceeded with the prosecution quite unnecessarily, forcing Hubbert to incur significant expense in defending himself."

Hubbert submitted as follows:

- a. A panel of the Discipline Committee had previously rejected the opinion of the association's expert witness, Greg Allen, P.Eng.,

in respect of the same HVAC system at issue in this case;

- b. The association was aware that its own experts had prepared and sealed multiple reports, with the result that neither expert tendered by the association could opine that sealing of multiple reports constituted professional misconduct;
- c. Hubbert served the association with the expert report of Gordon Maretzki, P.Eng., which demonstrated that Hubbert’s report of May 18, 2005 was correct and, therefore, could not constitute professional misconduct; and
- d. Prior to the commencement of the hearing, the association received the opinion of Hubbert’s client that Hubbert provided “competent, informed and professional advices and opinions throughout the course of his contract with the town,” but nevertheless proceeded with prosecution.

In addition, Hubbert submitted that the quantum of costs should be based upon the model used in civil cases, noting that there is no obligation in civil cases to establish that the losing party should not have proceeded with an action and that, if the panel is convinced that the proceedings were unwarranted, the indemnification should be greater than partial indemnification. Hubbert requested full indemnification in the amount of \$110,012.63.

The association’s response was that costs should not be awarded because the proceeding commenced when the Complaints Committee referred the matter to the Discipline Committee and that such referral was not unwarranted and that, in the alternative, the costs should not include the cost of motions.

In reply, Hubbert argued that the proceedings commenced with the hearing, not with the referral from the Complaints Committee, and that the Discipline Committee should be able to use the costs sanction to police the exercise of the association’s prosecutorial discretion and thereby prevent abuse. He also argued that it is appropriate for a panel to consider information that becomes available after the commencement of proceedings where the panel is of the view that such information should have been obtained by the association through a proper investigation.

EVIDENCE SUBMITTED ON THE MOTION FOR COSTS

Counsel for Hubbert provided:

- a. A breakdown of the direct costs incurred by the defence in this matter;
- b. An excerpt from the transcript of the cross-examination of Ed Poraz, P.Eng., by the association in this matter; and
- c. Legal authorities.

The association provided:

- a. Two excerpts from the transcript: one in which the panel provided its oral decision in the matter of the *Association v. Paul Siew Choon Lim, P.Eng., and P. Lim & Associates Limited*; and the other in which Allen was qualified as an expert at the commencement of his testimony; and
- b. Legal authorities.

DECISION ON THE MOTION

The panel declines to award costs against the association for the reasons set out below.

REASONS FOR THE DECISION

Section 28(7) of the *Professional Engineers Act* provides the panel with the following power:

28(7) Where the Discipline Committee is of the opinion that the commencement of the proceedings was unwarranted, the committee may order that the association reimburse the member of the association or the holder of the Certificate of Authorization, temporary licence, provisional licence or limited licence for the person’s costs or such portion thereof as the Discipline Committee fixes.

The panel noted that up to three steps were required to decide upon this motion:

- a. Determining when the proceedings were commenced;
- b. Determining whether the commencement was unwarranted; and
- c. If unwarranted, determining the quantum of costs to award.

COMMENCEMENT OF PROCEEDINGS

The panel noted that the Rules of Procedure of the Discipline Committee define the term “proceeding” as follows:

“Proceeding” means a motion, hearing and/or application under Rule 9 that is before a discipline panel.

The panel decided that this definition does not apply to the use of the term “proceeding” in the *Professional Engineers Act*, since a rule cannot limit the application of a term in an act. However, the panel used the definition to provide some context for its deliberations.

The panel noted that the *Statutory Powers Procedure Act* (SPPA) uses the term proceeding 145 times and defines it as follows:

“proceeding” means a proceeding to which this act applies; (“instance”)

The SPPA further defines a hearing as “a hearing in any proceeding,” indicating that proceedings encompass hearings, but are not limited to hearings.

The panel decided that these definitions are governing. The following sections of the SPPA are also instructive (underlining added for emphasis):

Record of proceeding

20. A tribunal shall compile a record of any proceeding in which a hearing has been held which shall include,
- any application, complaint, reference or other document, if any, by which the proceeding was commenced;
 - the notice of any hearing;
 - any interlocutory orders made by the tribunal;
 - all documentary evidence filed with the tribunal, subject to any limitation expressly imposed by any other act on the extent to or the purposes for which any such documents may be used in evidence in any proceeding;
 - the transcript, if any, of the oral evidence given at the hearing; and
 - the decision of the tribunal and the reasons therefor, where reasons have been given.

Decision not to process commencement of proceeding

- 4.5(1) Subject to subsection (3), upon receiving documents relating to the commencement

of a proceeding, a tribunal or its administrative staff may decide not to process the documents relating to the commencement of the proceeding if,

- the documents are incomplete;
- the documents are received after the time required for commencing the proceeding has elapsed;
- the fee required for commencing the proceeding is not paid; or
- there is some other technical defect in the commencement of the proceeding.

Dismissal of proceeding without hearing

- 4.6(1) Subject to subsections (5) and (6), a tribunal may dismiss a proceeding without a hearing if,
- the proceeding is frivolous, vexatious or is commenced in bad faith;
 - the proceeding relates to matters that are outside the jurisdiction of the tribunal; or
 - some aspect of the statutory requirements for bringing the proceeding has not been met.

The panel interpreted these sections of the SPPA to mean that a proceeding includes steps that occur before a hearing is started and after a matter is referred. The panel is of the view that proceedings are commenced on the referral of a matter to the Discipline Committee.

UNWARRANTED

The panel requested and received advice from its independent legal counsel on the meaning of the term “unwarranted” in section 28(7) of the *Professional Engineers Act* (underlining added for emphasis in the section repeated here for convenience):

- (7) Where the Discipline Committee is of the opinion that the commencement of the proceedings was unwarranted, the committee may order that the association reimburse the member of the association or the holder of the Certificate of Authorization, temporary licence, provisional licence or limited licence for the person’s costs or such portion thereof as the Discipline Committee fixes.

REASONS

The panel found that the commencement of the proceedings was not unwarranted as the member and holder did not establish on a balance of probabilities that the decision to refer the matter by the Complaints Committee was “without reasonable justification, patently unreasonable, malicious, taken in bad faith, or for a collateral purpose” as set out in *Re Anthony Michael Speciale*, a decision of the Discipline Committee, Law Society of Upper Canada, February 25, 1994.

The panel found that nothing in the request by the member and holder demonstrated that any of the association’s actions were “patently unreasonable, malicious, taken in bad faith, or for a collateral purpose.” The only issue remaining for the panel was whether the commencement was “without reasonable justification.”

In the absence of any information to the contrary, the panel found that, if any one element of the allegations was not responded to and would have been sufficient for the panel to find the member and holder guilty, the referral could not be unwarranted.

The association’s evidence included an expert report by Greg Allen, P.Eng., in respect of the same HVAC system at issue. The panel reviewed this report and found that it contained sufficient evidence that, had it not been refuted, would have been sufficient to reach a finding of guilt in this matter. The panel noted that this matter was referred in 2008 and that the decision by another panel in the Lim matter that was referred to in the request was issued in 2010. Therefore, the Complaints Committee would not have any reason to believe that the evidence by Allen would not be accepted by the panel and, in any event, the Complaints Committee would not have had the benefit of cross-examination of Allen, so the fact that the evidence was undermined at the hearing is not a basis, in these circumstances, to find that reliance on such report was without reasonable justification at the time of referral.

Similarly, all of the other grounds that form the basis of the request refer to things that occurred after the commencement and, therefore, for all of the reasons set out above, the panel finds that the commencement of the proceedings was not unwarranted.

Given the finding of the panel that the commencement of proceedings was not unwarranted, and its decision not to award costs to the member and holder, it is unnecessary to consider the question of quantum.

The panel, thus, declines to award costs in this matter.

Glenn Richardson, P.Eng., signed the Decision and Reasons for the decision as chair of the discipline panel and on behalf of the members of the discipline panel: Colin Cantlie, P.Eng., Santosh Gupta, P.Eng., Nick Monsour, P.Eng., and Richard Weldon, P.Eng.