



BOARD OF
**PROFESSIONAL
ENGINEERS**
OF QUEENSLAND



NEWSLETTER

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THIS ISSUE:

1. EXPRESSION OF INTEREST – BOARD PANEL OF INVESTIGATORS – GEOTECHNICAL ENGINEERING
2. MEET THE BOARD – PROFESSOR YINGHE HE, DEPUTY CHAIR
3. “CERTIFICATION” & “SIGNING OFF” – WHAT IT MEANS TO THE BOARD
4. CASE NOTE
5. CALLING OF THE ENGINEER – THE IRON RING
6. REGIONAL BOARD MEETING – GLADSTONE – 9TH OCTOBER 2014; RPEQ MEET & GREET
7. REGIONAL BOARD MEETING – TOOWOOMBA – 6TH NOVEMBER 2014; RPEQ MEET & GREET



EXPRESSIONS OF INTEREST FOR APPOINTMENT TO THE BOARD'S PANEL OF INVESTIGATORS – GEOTECHNICAL ENGINEERING

The Board is currently inviting expressions of interest from RPEQs registered in the Civil area of engineering with specific expertise and experience in geotechnical work for appointment to the Board's panel of investigators. The Board maintains a panel of investigators who assist the Board in investigating the conduct of RPEQs and suspected offences against the Professional Engineers Act. The Board has been receiving an increasing amount of complaints about geotechnical engineering work and therefore seeks to appoint another RPEQ (Civil) with geotechnical expertise and experience to its investigation panel. Please note that the Board is not seeking interest from

RPEQs registered in the Geotechnical (Mining) area, at this stage.

Interested RPEQs should forward their expression of interest attaching a copy of their curriculum vitae to the Board's Senior Legal Officer by email to david.brotchie@bpeq.qld.gov.au

Please ensure your CV includes detailed information about your experience and expertise in mechanical engineering and details of any investigative or expert witness work you have previously carried out.

MEET THE BOARD

PROFESSOR YINGHE HE

We continue our "Meet the Board" section by introducing the Deputy Chair of the Board, Professor Yinghe He (BEng (Extractive Metallurgy), MEng (Extractive Metallurgy), PhD (Chemical), FIChemE, FIEAust, RPEQ, CEng).



Professor He is the head of the School of Engineering and Physical Sciences, Faculty of Science and Engineering at James Cook University Townsville, and the University's Centre for Biodiscovery and Molecular Development of Therapeutics. He obtained his Bachelor and Master of Engineering degrees in Extractive Metallurgy from Central South University in China, and a PhD in Chemical Engineering from the University of Queensland in Australia. He subsequently worked at the University of Queensland and the University of Adelaide before joining James Cook University in 2004. He is a Fellow of the Institution of Chemical Engineers and Fellow of the Institution of Engineers Australia and a Chartered Engineer.

Professor He has keen interests in both fundamental and applied research. The scope of his research is broad and highly interdisciplinary. It ranges from investigation into multiphase processes to production of designer particles, nanostructured materials and biocompatible and biodegradable materials. It involves traditional disciplinary areas of chemical, food, mechanical and materials engineering and extractive metallurgy. The underpinning theme for the majority of his research, however, is concerned with particles, including their formation, processing and characterisation. These "particles" can be solid particles, liquid droplets or gas bubbles.

In addition to being the Deputy Chair of the Board, Professor He is the Board's academic representative.



“CERTIFICATION” AND “SIGNING OFF” – WHAT IT MEANS TO THE BOARD

The Board receives many enquires about whether the *Professional Engineers Act 2002 (Qld)* (“PE Act”) applies, and how it does so, to the action of “certification” or “signing off” on work. The Board considers that certification is not just a signature on a document. Although not provided for in the PE Act, the Board recognises that the concept of certification has developed as a way for organisations to be satisfied the PE Act has been complied with and work has been carried out to an appropriate standard. Certification can be an involved process that more often than not requires the registered professional engineer (“RPEQ”) to exercise his or her professional skill and judgment. The requirements of certification should be clear between the certifying RPEQ and the person to whom the certification will be given. In certain circumstances, certification can have disciplinary implications for an RPEQ. It is a serious commitment and one that should be approached with caution and care and carried out in a professional and competent way.

The Board has published a practice note about project certification titled “4.1 Project Certification.” It is available for download from the Board’s website at www.bpeq.qld.gov.au > Resources > Practice Notes. The Board encourages all RPEQs to download and read it.

Certification is not mentioned in the PE Act. The Act simply provides that one of its main objects is to protect the public by ensuring that professional engineering services are carried out by an RPEQ in a professional and competent way, and achieves this object by: (a) making it an offence for persons who are not RPEQs to carry out professional engineering services; (b) providing for assessment of the qualifications and fitness to practice of persons prior to registering them as RPEQs; and (c) providing for the investigation and disciplining of RPEQs if they have behaved in a way that constitutes unsatisfactory professional conduct. There is no mention in the PE Act of the concept of certification of documents or signing off on documents or projects.

The concept of certification has developed organically with reference to the requirements of the PE Act. Both around Queensland and outside it, organisations have noted the requirements of the PE Act and have realised that, as a best practice procedure, certification should in certain circumstances be carried out by an RPEQ. These organisations have realised that RPEQs are assessed by the Board and found qualified and fit to practice and that this gives increased certainty in the ability to provide certification and provides a measure of accountability to the Board for substandard certification through the Board’s disciplinary processes

if the certification involved the carrying out of a professional engineering service. RPEQs are understood, by virtue of their assessment and registration by the Board, to be established as competent to carry out work in their field in a professional and competent way. Even if the work does not involve the carrying out of a professional engineering service, many organisations have made it a requirement that RPEQs certify work the organisation considers to be of a sensitive and important nature, as a means of ensuring, to the best of the organisation’s ability, that the work has been carried out correctly.

Requirements for certification and sign-off have manifested in many ways. Many contracts prescribe specific services to be certified or signed off by RPEQs. The requirement for RPEQ certification and sign-off also appears in a large majority of local council planning schemes around Queensland, especially in relation to subdivisional, electrical, geotechnical, and structural work regarding both residential and commercial development to be submitted for development approval. Many government departments, such as the Department of Transport and Main Roads, also require RPEQ certification and sign-off be provided by contractors designing and constructing transport infrastructure.

The difficulty encountered with certification is usually a misunderstanding of what is required. It is important to establish what the person or organisation requesting the certification intends for the certification to mean. Normally, the only prescription for certification is that “Certification by an RPEQ is required.” Such a short statement is ambiguous. It does not clarify what is required to be certified and does not describe what the certification is to mean. It creates questions that should be clarified between the parties.

For example, is the whole project to be certified or only parts of it? The RPEQ giving the certification may only have been involved in a part of the project and may not be able to certify the whole project due to lack of knowledge of the other parts. If the certification is of an as-constructed product, is the certification to mean that the product has been constructed in accordance with design, or that design intent has been achieved? In many situations projects are not constructed strictly as designed and amendments to the design are made along the way. If one party considers that certification means “as designed” and the other considers it means “achieved design intent” then there may be problems between the parties regarding the certification at a later stage.



The Board's view about what certification means in a particular situation is guided by an examination of the situation itself. Therefore, no generic position on certification can be stated. However, there are some basic principles that, in the Board's view, will usually apply to certification provided by an RPEQ. Firstly, the Board considers that if certification has been required from an RPEQ, the person requiring it has the expectation that an RPEQ, and no one else, is the person who is qualified and competent to provide the certification. This implies that what is needed to properly provide the certification is a person with an RPEQ's professional skill and judgment.

Therefore, the Board expects that if an RPEQ gives a certification, he or she will be satisfied that the certified work has been carried out in a professional and competent way, to a standard that might reasonably be expected of an RPEQ by the public or his or her peers, and demonstrating adequate knowledge, skill, judgment, and care in the practice of engineering. If the certification involves consideration of a professional engineering service carried out in the course of the work, the Board expects that the certifying RPEQ should have checked to see the service was carried out in a professional and competent way or be able to identify the RPEQ who carried out or directly supervised the service.

Each certification will require different work to be carried out by the certifying RPEQ. What work is required needs to be determined by an examination of the particular situation, but guided by the principle that the RPEQ should be satisfied the work has been carried out in a professional and competent way, to a standard that might reasonably be expected of an RPEQ by the public or his or her peers, applying adequate knowledge, skill, judgment, and care in the practice of engineering.

For example, to certify a simple design the RPEQ may only need to carry out a review of the documents with reference to established engineering principles and applicable Australian Standards to determine whether the design has been prepared appropriately and is suitable to be certified. However, to certify major as-constructed commercial works, the RPEQ may need to have been involved in the design phase and also regularly in the construction phase through inspections, review of reports and discussion with contractors about how the construction has been carried out.

If, for example, an RPEQ is asked to certify an as-constructed structure where the RPEQ has not been able to inspect the foundations or obtain information to establish that they were constructed appropriately, the RPEQ may not be able to give that certification because he or she cannot verify the proper construction of the foundation. Therefore, the requirement for certification or sign-off should be identified as early in the project as possible and the RPEQ who will be responsible for the

sign-off should immediately turn his or her mind to what inspections, documents, and information he or she needs to obtain during the course of the design or construction of a project that will enable proper certification to be given.

Certification can have disciplinary implications. If the certification involved the carrying out of a professional engineering service, the Board can investigate a complaint about the conduct of the certifying RPEQ or conduct an investigation of its own volition. If the Board considers the certification did involve the provision of a professional engineering service it will look to ensure that no aspect of the RPEQ's conduct in giving the certification constitutes unsatisfactory professional conduct — that the RPEQ's actions in giving the certification were carried out to a standard that might reasonably be expected of the RPEQ by the public or his or her peers, in a professional and competent way, demonstrating adequate knowledge, skill, judgment, and care in the practice of engineering. If any aspect of a professional engineering service carried out in certification falls below that standard the Board may decide to discipline the RPEQ.

All RPEQs should remember that certification is not just a signature on the document, and it should not be approached as such. It can be a complex process involving the exercise of professional judgment and can have disciplinary consequences. To avoid misunderstanding and possible Board investigation, certification requirements should be clarified at the outset so all parties understand the requirements. Approached with caution and care and in a professional and competent way, certification will work in tandem with and facilitate the PE Act's main object to protect the Queensland public.

Given that questions about certification are regularly received by the Board, it seeks your feedback as to whether a more detailed practice direction would be of assistance to RPEQs and other interested parties. Please forward your suggestions to the Registrar, Clare Murray, at clare.murray@bpeq.qld.gov.au.



CASE NOTE

BOARD OF PROFESSIONAL ENGINEERS V COLEFAX [2007] CCT ED003-06

COLEFAX—DISCIPLINARY—UNSATISFACTORY PROFESSIONAL CONDUCT—CIVIL AND STRUCTURAL ENGINEERING—DESIGN OF STRUCTURAL ASPECT OF A SWIMMING POOL—WHERE FORM 16 ISSUED IN CIRCUMSTANCES WHERE THE AS—CONSTRUCTED POOL DID NOT COMPLY WITH THE DESIGN DOCUMENTATION — REPRIMAND AND PENALTY

This was a disciplinary proceeding brought by the Board of Professional Engineers of Queensland (“**Board**”) against Mr Robert Colefax, a registered professional engineer (“**RPEQ**”), **registration number 00993**, in the Queensland Civil and Administrative Tribunal (“**Tribunal**”), to establish the disciplinary ground of unsatisfactory professional conduct.

The disciplinary charge against Mr Colefax was that, in designing and certifying a swimming pool, he behaved in a way that constitutes unsatisfactory professional conduct. In 2000, Mr Colefax was engaged to complete the structural design of a swimming pool to be built adjacent to a home on steeply sloping land. After the pool was completed cracks appeared and the pool began to leak. After construction of the swimming pool Mr Colefax signed and issued a Form 16 Inspection Certificate (“**Form 16**”) in circumstances where the building work had not been constructed in accordance with his design. Mr Colefax was unaware of this when he signed the Form 16 because he had not sought, and had not obtained, any evidence or confirmation as to the degree of compaction achieved. Mr Colefax signed

the certification without having satisfied himself that the requisite degree of pad compaction had been achieved in circumstances whereby that degree of compaction was crucial to the integrity of the design. It was accepted by Mr Colefax that his conduct fell below the standard which might reasonably be expected of an RPEQ by the public or his professional peers.

The Tribunal found that his certification in those circumstances was a serious departure from the standard reasonably expected of a RPEQ. The Tribunal found that the intent and purpose of the certification was to assure the reader that the works had been constructed in accordance with the structural design but that Mr Colefax’s certification would give the reader a false impression that he or she could rely upon the certification to ensure the integrity of the design. In coming to its decision the Tribunal took into consideration the fact that Mr Colefax had accepted the inappropriateness of his conduct. The Tribunal ordered that Mr Colefax be reprimanded and imposed a penalty in the sum of \$1,500.

THE CALLING OF AN ENGINEER – THE IRON RING

The Iron Ring is a ring worn by many Canadian-trained engineers as a symbol and reminder of the obligations and ethics associated with the profession of engineering. The ring is presented to engineering graduates in a ceremony known as The Ritual of the Calling of an Engineer.

The idea of a ceremony for the Obligation of Canadian Engineers dates back to 1922, when seven past-presidents of the Engineering Institute of Canada attended a meeting in Montreal with other engineers. Rudyard Kipling responded to a call from the seven engineers with The Ritual of the Calling of an Engineer, to be administered by the Corporation of the Seven Wardens Inc. It was instituted with the simple end of directing newly qualified Canadian engineers toward a consciousness of their profession and its social significance, and indicating to more experienced engineers their responsibilities in welcoming and supporting the newer engineers

when they are ready to enter the profession. Made either of wrought iron or stainless steel, the Iron Ring is small and understated and is designed to be worn on the little finger of the engineer’s working hand. There, the facets engraved on the ring drag along surfaces on which the engineer draws or writes, and is thereby a constant reminder of the obligation taken on by an engineer to act with the highest professionalism and humility of their profession. It also reflects the moral, ethical, and professional commitment that is required to be an engineer.

Although not a ceremony conducted in Australia, RPEQs should also seek to act with the same level of professionalism and commitment to the profession. For more information on this interesting custom, please see www.ironring.ca.



CENTRAL QUEENSLAND MEET AND GREET WITH THE BOARD AND REGISTRAR – 9 OCTOBER 2014 IN GLADSTONE

The Board's annual regional Board meeting will be held in Gladstone on 9 October 2014, and the Board would like to invite RPEQs based in Gladstone and surrounding areas of Central Queensland to meet and mingle with members of the Board and Registrar over canapés and drinks. RPEQs who "fly-in-fly-out" to Gladstone for work but live elsewhere are also more than welcome to attend (you may not receive an individual invitation if your residential address is not in or around Gladstone). The details of the event are:

Date: Thursday, 9 October 2014
Time: 5:30 pm to 7:30 pm
Venue: The MacArthur Room - The Grand Hotel
79 Goondoon Street, Gladstone, Queensland

The Board looks forward to meeting as many Central Queensland RPEQs as possible. Please RSVP to the Board's Communications Officer, Steve Gailer, by email to steve.gailer@bpeq.qld.gov.au by no later than 3rd of October 2014.

DARLING DOWNS MEET AND GREET WITH THE BOARD AND REGISTRAR – 6 NOVEMBER 2014 IN TOOWOOMBA

In early November 2014, the G20 Summit descends on Brisbane. To avoid the Board's November meeting clashing with the G20 arrangements, the Board has decided to move the meeting to Toowoomba on 7 November 2014. The Board would like to take the opportunity to invite RPEQs based in Toowoomba and the Darling Downs to meet and mingle with members of the Board and Registrar over canapés and drinks. RPEQs who "fly-in-fly-out" to the Darling Downs for work but live elsewhere are also more than welcome to attend (you may not receive an individual invitation if your residential address is not in or around Toowoomba or the surrounding region).

The details of the event are:

Date: Thursday, 6 November 2014
Time: 5:30 pm to 7:30 pm
Venue: The Empire Church Theatre
56 Neil Street, Toowoomba, Queensland

The Board looks forward to meeting as many Darling Downs & Toowoomba RPEQs as possible. Please RSVP to the Board's Communications Officer, Steve Gailer, by email to steve.gailer@bpeq.qld.gov.au by no later than 25th of October 2014.



T 07 3198 0000 E admin@bpeq.qld.gov.au
Level 15, 53 Albert Street Brisbane 4000
Po Box 15213 CITY EAST QLD 4002

This Newsletter is provided for general information only. It is not legal advice and should not be taken or relied upon as such. If you have any questions or concerns about your compliance with the Professional Engineers Act 2002 (Qld) or your general legal obligations as an engineer, you should obtain appropriate legal advice. The Board accepts no legal responsibility or liability for any loss you may suffer as a result of reliance upon the information contained in this newsletter.