

# CHARTERED PROFESSIONAL ENGINEER REVIEW

## Submission to Engineering New Zealand

January 2020

SESOC are generally supportive of the consultation document and endorse the need for improvements to be made in the way in which CPEng is implemented and the outcomes it delivers. Going forward, SESOC would like to be actively involved in helping Engineering New Zealand (ENZ) formulating the detail around the proposals.

### Executive Summary

Our submission notes that:

- MBIE are also working on Occupational Regulation. We urge ENZ to work with MBIE and SESOC to ensure that any change is compatible and has shared goals to MBIE.
- SESOC considers changing CPEng is unlikely to mitigate all deficiencies and risks in the design and consenting system that has allowed substandard buildings to be consented and constructed.

#### What we like

- We support a review of CPEng aimed at raising minimum standards and ensuring consistency.
- The CPEng system must set clear expectations with the onus on the candidate to demonstrate competence rather than the current system. We see this as the paradigm shift that is needed.
- We strongly support an audit system and would like to also see a random component.
- SESOC supports the technical BOKS being used for setting the bar and have already developed one for Structural Engineering (as an entry level minimum expected technical competency standard for Structural Engineers to practice in the New Zealand context). SESOC believe that it is essential that ENZ develop a professional BOKS to allow assessment of professional competence and ethical behaviour (alongside technical aspects to be owned by the Technical Societies).

#### What we don't like

- Replacement of the reassessment requirement with auditing. Reassessment timeframe and documentation requirements can be reviewed, once the new system has been shown to be effective.
- We question ENZ on the inclusiveness objective. The primary focus of the CPEng process should be ensuring the CPEng Act requirements are met. Any inclusiveness must be through exceeding the requirements of discipline technical and professional BOKS.

- We have concern in relation to transitional arrangements and the potential for “grandparenting” of unsuitable candidates from the existing CPEng system to the new and improved CPEng system – particularly given the proposal to retain CPEng as a quality mark.

#### What we recommend

- SESOC believes that the RA must publicly publish an operating procedures manual on how CPEng is to be administered and competency assessed.
- It is essential that ENZ develop a professionalism BOKS.
- SESOC would like to see ENZ send out early advice on expectations to all engineers on how it will assess candidates for both initial and renewing competency.
- ENZ should lobby government to only allow people with CPEng or ENZ membership to practice engineering i.e. you must be bound by a Code of Ethics.
- We would like to see ENZ's vision for CPEng and how it fits into the membership pathway – noting that the current dual CPEng and CMEngNZ system is cumbersome and confusing .
- Development of requirements on who can be a practice area assessor, including ongoing training for those assessors to improve and ensure better assessment consistency.
- Development of mandatory requirements for CPD in conjunction with the technical societies.
- Development of clear guidance on the requirements for referees in conjunction with the technical societies.
- Development of a process for the RA to inform assessors of any candidate disciplinary/complaint history.

## Introduction

The New Zealand Structural Engineering Society (SESOC) is a collaborating technical society of Engineering New Zealand, with a membership of over 2700. The majority of our members will be directly affected by this proposed reform. We also work collaboratively with other disciplines in associated areas such as Geotechnical and Fire Engineering.

This submission has been prepared by members of the SESOC Management Committee. It is intended to reflect the views of the wider membership of SESOC and member feedback previously received in relation to SESOC's previous work on this topic. A list of our previous work can be found in Appendix B.

**This document is focused on the processes of assessing engineers to confirm their professional competency.**

## SESOC Submission

### Overview

SESOC strongly supports a review of CPEng with a view to raising the minimum standards and ensuring consistency of application.

The current processes for assessing the competency of structural engineers is not consistently meeting the stated objective of the CPEng Act. SESOC sees this largely as an issue with the application of the CPEng Act and Rules. SESOC supports changes to the CPEng process, including disciplinary, to ensure that CPEng Structural is a quality mark.

SESOC notes that the impetus for these changes includes Canterbury Earthquake Royal Commission of Enquiry recommendations and poor performance of some consented buildings. However, we caution that changing CPEng alone is unlikely to mitigate all the deficiencies and risks in the consenting system that has allowed substandard buildings to be consented and constructed.

The specific issues SESOC see with the current processes are;

- Inconsistent application of the current CPEng assessment process
- Unclear operational guidelines around how the CPEng process is administered
- Engineers working outside their competency
- The ability of engineers to self-define competency requirements by limiting practice area description
- Disciplinary measures do not appear to match the consequences of poor engineering

- There is no legislative requirement for an engineer to be CPEng, or to be held to a professional ethics or CPD commitment
- A lack of clear and consistent guidelines and criteria for the selection of practice area assessors nor ongoing training of those assessors
- Confusion with regard to the dual CPEng and CMEngNZ system

SESOC notes that MBIE are also working on Occupational Regulation and we urge ENZ to consult with MBIE (and SESOC) to ensure that the work of all parties in this space is compatible with shared goals.

## Engineering New Zealand Change Proposal

SESOC makes the following comments against each of the proposed changes outlined by ENZ. There are other aspects of the current CPEng process that SESOC feels needs to be addressed. We refer to our attached Appendix A, which outlines SESOC's preliminary overview on how we would conduct a competency assessment. This document is provided to facilitate discussion, and not intended as a complete list of SESOC recommendations.

### PROPOSAL 1

**Create and develop registration classes for CPEng, with discipline-specific assessments, based on set criteria, in consultation with technical groups and regulators.**

SESOC agrees with this, and notes that this requirement should be outlined as part of an operations manual for how CPEng assessment is conducted by the Registration Authority. Clear requirement for the set criteria and specific assessments are needed to provide consistency of expectations and assessment.

SESOC agrees with setting set criteria and assessments. To that end SESOC has already invested considerable efforts in producing the Structural Engineering technical Body of Knowledge and Skills (Structural BOKS). We note that the Structural BOKS outline an entry level minimum expected technical competency standard for Structural Engineers to practice in the New Zealand context. It does not encompass more advanced or complex Structural Engineering competencies.

It is SESOC's view that a structural engineer should demonstrate competence to the entire BOKS. Further work is necessary on how the BOKS is adopted as part of a robust assessment process.

## PROPOSAL 2

### **Use bodies of knowledge and skills to set robust and consistent minimum standards for CPEng registration in specific disciplines.**

SESOC agrees with and has already produced a technical and structural Body of Knowledge and Skills (Structural BOKS).

SESOC notes that whilst each technical society can produce their own technical BOKS, there is a need for a complementary BOKS covering topics such as professionalism, ethics, and good practice.

SESOC would like to see ENZ set some guidelines and encourage all disciplines to develop a BOKS, including the need to ensure a relatively consistent level or bar across the different technical areas.

## PROPOSAL 3

### **Set clearer processes and expectations around assessments to ensure a high standard of evidence, the right level of scrutiny of that evidence, and to reduce timeframes and clear confusion.**

SESOC agrees with this. The onus of proving competency rests with the engineer being assessed. Clear communication on expectations around a CPEng submission needs to be made to engineers. If these expectations are not met, the application should be rejected. We see this as the paradigm shift that is needed.

SESOC would like to see ENZ send out early advice on expectations to all engineers and publish its operation procedures guidelines on how it will assess candidates for both initial and renewing competency.

## PROPOSAL 4

### **Streamline the CPEng validation stage to avoid inefficiencies.**

See response to proposal 3 above. Candidates should be able to self-assess competency by referencing their portfolio against the BOKS and operating procedures manual.

## PROPOSAL 5

### **Reimburse practice area assessors (currently voluntary roles) to better reflect the importance of the practice area assessment, and create a strong wraparound support framework including clear service expectations, induction, QA processes and ongoing development within the assessor role.**

SESOC agrees with this proposal. The criteria for selection of practice area assessors also needs review and improvement. Reviewers should be technical experts, with a high level of competency. The selection process for practice area assessor should be developed with the technical societies and outlined in an operating procedures manual produced by the Registration Authority.

More comprehensive training and support for practice area assessors may also be necessary and ensure more consistent assessment outcomes.

SESOC believes that ENZ needs to lift the status of being an assessor to that of prestige. Much like only top legal professionals become judges, only top engineers should be allowed to be assessors.

## PROPOSAL 6

### **Introduce annual practising certificates and a flexible model of reassessment/review based on an audit approach. Require that only those with active practising certificates can be on the register.**

SESOC strongly supports an audit approach, where an engineers competence can be reviewed when prompted by concerns raised by other engineers, members of the public, or a disciplinary process. This auditing system should also include a random audit component. However, it is SESOC's view that there is still some requirement for every engineer to be reviewed within some time frame. This may be a more cursory review than is currently completed, however there needs to be some mechanism to confirm that an engineer is still practicing in the field and maintaining currency of technical knowledge.

SESOC does not believe that introducing an audit system and repealing the re-assessment system at the same time is acceptable. There are current CPEng members that should not be and we believe you are at least one renewal cycle away from identifying these members.

Further to the above comments SESOC have concern in relation to transitional arrangements and the potential for "grandparenting" of unsuitable candidates from the existing CPEng system to the new and improved CPEng system – particularly given the proposal to retain CPEng as a quality mark. We believe further work is needed to understand how such transitional arrangements might be managed and to ensure this risk is mitigated.

**PROPOSAL 7**

**Instead of automatic reassessment every six years (or less), reassessments are triggered by an RA audit, or information received from third parties (for example; Building Consent Authorities). Set clearer requirements around reassessments to reduce timeframes and clear confusion.**

See response to Proposal 6. SESOC does not support changing of the automatic reassessment until any new system has demonstrated the improvements required. Then we believe that a relaxation of timeframe could be considered. Having the Registration Authority publish an operating procedures manual will set clear expectations.

**PROPOSAL 8**

**Introduce powers for the RA to manage risk with appropriate safeguards, including powers to receive and share serious risk information with other agencies, and to suspend or impose conditions on an engineer pending the outcome of an investigation or reassessment.**

SESOC supports this concept in principal. Further information is needed on the decision making around this proposal, for example what are the conditions for suspending an engineer pending a process. We also want to see how the Registration Authority will ensure natural justice as this could be seen as a presumption of guilt approach.

**PROPOSAL 9**

**Provide clear and appropriate pathways for managing complaints that require a professional accountability response as opposed to those that require a resolution response. This means giving the RA, rather than the complainant, control over how complaints are resolved.**

SESOC agrees with this in principal.

**PROPOSAL 10**

**Give the RA power to make decisions on complaints at the right level proportional to the nature of the concerns raised, including taking no further action on a complaint if it is not resolved by early resolution, and powers for an investigating committee to make low-level findings and recommendations, leaving disciplinary committees free to consider serious misconduct cases.**

SESOC agrees with this in principal.

**PROPOSAL 11**

**Reimburse members of investigating committees and disciplinary committees (currently voluntary roles) to reflect the importance of the complaints and disciplinary process, and to ensure we can continue to attract the right calibre of decision makers.**

SESOC agrees with this proposal. The importance of the process should be reflected in the proficiency of those taking part.

**PROPOSAL 12**

**Introduce more stringent disciplinary penalties that are in step with other professional regulatory schemes and that act as a sufficient deterrent.**

SESOC agrees with this in principal.

**PROPOSAL 13**

**Require every disciplinary committee and appeal panel to have at least one lawyer as a member.**

SESOC agrees with this in principal. We would expect this to be an ENZ staff member in the first instance for the majority of the cases.

**PROPOSAL 14**

**Appeals of RA decisions should proceed directly to the District Court, instead of to CPEC.**

This item is related to management of administering the CPEng Act. While SESOC tends to agree with this proposal, it is more within the remit of the Registration Authority.

This could be seen as overly litigious. We question if this is necessary if Proposal 15 is implemented.

**PROPOSAL 15**

**Limit the right of appeal to final decisions by the RA.**

See Proposal 14 response.

This feels more proportional than Proposal 14.

**PROPOSAL 16**

**Introduce appeal fees (refundable if an appeal is successful) to cover some of the expense incurred through the appeals process.**

See Proposal 14 response.

SESOC agree in principal but would not want fees being a barrier to the right of appeal.

## PROPOSAL 17

### **Make CPEng sufficiently inclusive so that professional engineers from all disciplines can aspire to this quality mark.**

SESOC believes the primary focus should be to ensure that the requirements of the CPEng Act are met. This means the process must be focused on ensuring that an engineer assessed through the CPEng process is competent to practice in their field. It is SESOC's view that CPEng should not be focused on inclusivity to the detriment of this objective.

Further this proposal should be linked to Proposal 2. Any inclusiveness must only be through exceeding the requirements of technical and professional BOKS.

## PROPOSAL 18

### **Include membership to Engineering New Zealand with annual CPEng registration (with opt-out processes for those who wish to retain CPEng but not Engineering New Zealand membership).**

SESOC believes that both technical and professional competency is required and consider that practicing structural engineers should belong to both a technical and professional body to ensure they are exposed to the latest changes. More importantly, we would like to see ENZ lobby government such that to practice engineering you must either hold CPEng or ENZ membership i.e. you are bound by a Code of Ethics.

### **Other Considerations**

SESOC believes that before Engineering New Zealand makes changes to the CPEng system it should consider the following issues. We are unsure of how much influence these issues have had on the proposed changes.

SESOC believes that these issues must be addressed as part of ENZ's 'credibility' pillar.

#### **What is the pre-eminent quality mark?**

Where does ENZ see CPEng fitting into their system and membership class? Is CPEng the aspirational qualification or is it a fellow/distinguished fellow? We believe that this will influence the thinking of how you might change the system. We are unsure about the clarity of how this will fit into your membership pathway.

Once this is clarified there needs to be work on clarification in the public's eye. The word chartered, its meaning and status is very confusing particularly given the current dual CPEng and CMEngNZ systems.

### **What about disciplines other than Structures, Fire & Geotechnical?**

Are these the only disciplines that are currently practicing 'below the bar' or are these the only known disciplines practicing 'below the bar'? Given that the CPEng competency system/framework is discipline agnostic it may be prudent to consider that other disciplines also have quality issues?

#### **Restrictions on who can carry out work**

Whilst not within ENZ control, the fact of the matter is that it is possible to carry out professional engineering in NZ without being an ENZ member or CPEng meaning that you are not subject to any Ethical Code. Should ENZ not be advocating restrictions on the right to practice engineering only for those engaged within the system?

### **Conclusion**

SESOC generally endorse and support the purpose of the consultation document, and in principle agree with most of the proposals. We are pleased to provide this submission to ENZ and would be happy to provide further information if required.

In the meantime please feel free to contact the following people in relation to this submission:

#### **Hamish McKenzie**

SESOC President

E: hamish.mckenzie@holmesconsulting.co.nz

M: +64 272 515 695

#### **Michelle Grant**

SESOC Vice President

E: michelleg@lgeconsulting.co.nz

M: +64 275 555 643

#### **Larry Bellamy**

SESOC Working Group Lead

E: larry.bellamy@canterbury.ac.nz

M: +64 211 102 019

#### **Paul Campbell**

Former SESOC President

E: Paul.Campbell@wsp.com

M: +64 272 212 990

## Appendix A: CPEng - A Mark of Quality

The following steps and processes SESOC believes are necessary to provide an assessment of an engineer's competence to practice structural engineering.

### Pre CPEng Career Development

Within the current legislative framework there is no mandatory requirement for an engineer to be CPEng. This means that a person can provide professional engineering advice while not being held to the Code of Ethics or maintaining professional currency. SESOC realises that there is limited mechanism for change to this issue without legislative change. SESOC would support an initial level of registration that is a mandatory requirement for emerging engineers. This would ensure that all structural engineers are engaged with their professional bodies at an early stage of their career and are bound to a minimum level of professional standards and ethical conduct.

### CPEng Assessments - Process Description

A process requires documentation of the objectives of the process, how the objectives will be met, and how the process will be reviewed. At present there is confusion on how CPEng is being administered, what the decision making criteria are for each stage of the process, and even information on pass rates.

A clear outline of the process and how it is administered is needed for transparency and accountability.

#### SESOC PROPOSAL S1

ENZ, on behalf of the Registration Authority, to develop an operations procedure manual on how CPEng is managed, initial vetting, processing, and liaising with technical societies.

### Practice Area Assessors

There needs to be a clear criterion for selection of practice area assessors. Assessors should be technical experts, with a high level of competency. The selection process for practice area assessor should be developed with the technical societies and outlined in an operations procedures manual produced by the Registration Authority. In some cases, SESOC believes that two practice area assessors should be assigned to an assessment. Considering the importance of this role, and the required calibre of candidates, Practice Area Assessors should be reimbursed and provided with appropriate training and support to ensure consistency of assessment outcomes.

SESOC would consider a measure of success, is that this is seen as a prestigious role within the industry.

SESOC notes that this appears to be partly addressed with ENZ Proposal 5.

#### ENZ PROPOSAL 5

Reimburse practice area assessors (currently voluntary roles) to better reflect the importance of the practice area assessment, and create a strong wrap-around support framework including clear service expectations, induction, QA processes and ongoing development within the assessor role.

#### SESOC PROPOSAL S2

Develop requirements on who can be a practice area assessor.

### Assessment – Pre-vetting

With an assessment of competence, the onus is on the candidate to prove they are competent. In collaboration with technical societies, the expectations around assessment should be clearly outlined. Each submitted assessment should be subjected to some level of initial review to confirm whether the expectations appear to be addressed in the submission.

SESOC notes that this appears to be addressed with ENZ Proposal 3.

#### ENZ PROPOSAL 3

Set clearer processes and expectations around assessments to ensure a high standard of evidence, the right level of scrutiny of that evidence, and to reduce timeframes and clear confusion.

## Continuing Professional Development

The field of structural engineering is constantly evolving. New information and methodology are being developed, from assessment processes to Standards being updated.

The relevant technical societies are hosting seminars and webinars on an ongoing basis to disseminate this information. In SESOC's view, there are minimum requirements for continuing professional development which must be met. For example, an engineer who practices in seismic assessment and strengthening should have completed a course on SLaMA.

An engineer should have ongoing active membership within the technical societies in their field and attended relevant training courses.

The engineer should demonstrate their commitment to continuing education.

### SESOC PROPOSAL S3

Develop mandatory requirements for CPD and professional involvement with industry groups in conjunction with the technical societies. This could include requirements such as mandatory attendance at a relevant technical conference within a time period, or mandatory attendance at industry nominated requisite training courses.

## Referees

Seeking confirmation of competence from peers is a recognized marker. However, there needs to be requirements on who can provide a reference.

A candidate should seek a solid reputable referee from a variety of sources. For example, one referee should be someone who has done a peer review from outside your organisation. Comments should be sought from BCAs. Care must be taken to ensure that the referee is independent.

### SESOC PROPOSAL S4

Develop clear guidance on the requirements for referees in conjunction with the technical societies. Develop options for sourcing references/comments from BCAs.

## Technical Competency

Clear expectations are needed on the level of technical competency and how this needs to be demonstrated.

Comments are that the assessment should as a minimum;

- Confirm that the provided work samples clearly demonstrate competence to the BOKS.
- Works samples will require detailed design features reports that list the design philosophy.
- Calculations should be cross referenced with explanations as to what they are for and where information can be found, i.e. they should not be sheets of printed spreadsheets. These need to be supported with drawings.
- If the examples do not meet these criteria the application should be rejected.

A candidate should complete a self-assessment against the BOKS prior to submission.

SESOC notes that this appears to be addressed with ENZ Proposal 1, & 2.

### PROPOSAL 1

Create and develop registration classes for CPEng, with discipline-specific assessments, based on set criteria, in consultation with technical groups and regulators.

### PROPOSAL 2

Use bodies of knowledge and skills to set robust and consistent minimum standards for CPEng registration in specific disciplines.

## Professionalism

A technical BOKS does not provide the full criteria for a competent engineer to be assessed against. A BOKS addressing professionalism, ethics and similar matters is needed. An engineer would need to demonstrate competency to this BOKS.

SESOC believes the annual pledge is a good first step and consider a compulsory course on ethics/professionalism should be considered as a prerequisite for all first time assessment candidates.

#### **SESOC PROPOSAL S5**

ENZ to develop a professionalism BOKS covering topics such as professionalism, ethics, and good practice. This document should be complementary to the technical BOKs for each technical society.

### **Check in with Registration Authority**

Part of the process should be reviewing complaints/disciplinary process against an engineer. Practice area assessors should be informed if an engineer they are assessing has been subjected to disciplinary processes.

#### **SESOC PROPOSAL S6**

Develop process for RA to inform assessing engineers of any disciplinary processes involving the engineer being assessed.

### **SESOC's Previous Work on Quality & Professional Regulation**

Below is the vast body of knowledge SESOC has invested in quality and professional regulation. In preparing this submission the SESOC Working Group has drawn heavily on work previously undertaken by SESOC in relation to occupational regulation, higher qualifications and improved practice. SESOC has been a proactive contributor to these topics over a number of years and believe much of that previous insight and documentation is of significance to this current proposal. In particular, we reference the following work previously undertaken by SESOC;

- SESOC Higher Qualification and Improved Practice (HQ&IP) discussion paper and report – September 2013.
- SESOC Membership Consultation on HQ&IP (late 2013) and summary feedback paper – January 2014.
- SESOC Presidents Roadshow – mid 2014
- SESOC submission to MBIE on the proposal to change the occupational regulation of engineers in New Zealand – October 2014.
- SESOC submission to MBIE on Standards New Zealand dated February 2017.
- SESOC collaboration with Engineering New Zealand in relation to a Technical Auditing proposal 2015-2017.
- SESOC letter to Standards NZ dated June 2018.
- SESOC development of the Structural Engineering body of knowledge and skills (SE BOKS, v1 2018) and ongoing work with Engineering New Zealand to look to implement these into the CPEng assessment process.
- SESOC submission to MBIE on the proposed Building System Legislative Reform (including Occupational Regulation of Engineers) – dated 14th June 2019.