The Future of Engineers' Regulation in New Zealand

New Zealand Ministry of Business Innovation and Employment

Building System Legislative Reform Programme public consultation

Institution of Chemical Engineers in New Zealand's response to MBIE's proposed occupational regulation proposals to the Construction Industry Accord.

Background

Founded in 1922, the Institution of Chemical Engineers (IChemE) is a multi-national institution with offices in the UK, Australia, Malaysia and New Zealand. We exist to advance chemical engineering's contribution for the benefit of society.

IChemE members can be found in a wide range of industry sectors, and at different stages of their careers. They play a key role in the governance and day-to-day operations of our profession. IChemE is led by members, supports members and serves society.

Summary

- We support Engineering New Zealand's view that regulation of safety-critical work in New Zealand should be done through government licensing, but that this should be underpinned by strong self-regulation by the professional body, Engineering New Zealand or other comparable bodies such as the Engineering Council (UK), and not replace it.
- We do not support the introduction of a new voluntary statutory certification scheme to provide assurance of an engineer's professionalism and general competence which is intended to eventually replace the existing CPEng. We believe this would add additional complication and complexity to the international recognition of professional engineers and well-established international frameworks supporting their mobility.
- CEng and MIChemE would be accepted alongside Chartered Member of Engineering New Zealand (ENZ) as a prerequisite for, or to facilitate access to, such licence.
- In addition to building safety there are other areas of safety critical engineering work. For example, in chemical and process engineering there are "Process Safety" issues to be considered. This is a highly developed topic in chemical engineering and an area of expertise.

We have structured our feedback below in the format of MBIE's consultation document.

Part 3.2 Occupational regulation of Engineers

MBIE feedback on the three proposals:

1. Establish a new voluntary certification scheme that provides assurance of an engineer's professionalism and general competency and phase out Chartered Professional Engineer (CPEng).
2. Restrict who can carry out or supervise safety-critical structural, geotechnical and fire-safety engineering work within the building sector. This would cover all medium to high complexity work and be triggered by factors such as building size, use and location.

3. Establish a new licensing scheme to regulate who can carry out or supervise engineering work that has been restricted.

Proposal 1 - Establish a new voluntary certification scheme that provides assurance of an engineer's professionalism and general competence and phase out CPEng.

3.2.1 Do you agree that there is a need for a statutory mark for engineers of professionalism and general competence to solve complex engineering problems?

☐ Yes ☒ No

Please tell us why.

CPEng and international equivalents (such as CEng in the UK) are widely recognised and understood by the international community as a benchmark standard for professionalism and general competence in engineering.

IChemE supports the introduction of regulation of safety-critical work through government licensing, but we believe that this should be underpinned by the existing self-regulation by the professional body, Engineering New Zealand, or an internationally recognised equivalent such as the Engineering Council in relation to general engineering competence and professionalism.

3.2.2 How well do you think CPEng currently provides this assurance? What do you think needs to change?

Currently many engineers choose not to follow the CPEng path because it may not be needed for their work or they consider they don't need this qualification to demonstrate their competence and professionalism. CPEng is not necessarily the only way as chartered membership of IChemE (an equivalent level of competence and commitment) or another internationally recognised institution with at least equivalent competence and professional standards provides assurance.

CPEng does provide assurance of professionalism and competence. However, it does not specify an engineer's areas of competence in the way a licensing regime will need to.

3.2.3 Do you agree that a new title is needed for engineers that have been certified? If so, do you have a view on what that title should be?

☐ Certified engineer ☐ Chartered engineer ☒ Other (leave your suggestion below)

Please tell us what the title should be if you chose 'other'.

A "Chartered" engineering title is well-established and generally understood internationally. Any new certification which is additional to chartered status must be clearly distinguishable from existing titles that are used globally.

It would duplicate our Chartered Membership processes which assess general competence and professionalism and is internationally benchmarked.

It would be confusing to the public to have two schemes, assessing and recognising the same thing.

The engineering profession should be self-regulating in terms of competence and professionalism with the 'chartered' title restricted to its current widely understood usage and government regulation should be restricted to licensing in areas of public safety.

3.2.4 For engineering work on buildings that does not require specialised skills, do you think certification would provide sufficient assurance of general competence and reduce the risks of substandard work?

☐ Yes ☒ No

Please tell us why.

For unrestricted engineering work on buildings and for chemical engineering, IChemE believes that CPEng and equivalent professional registration such as Engineering Council Chartered Engineer status should be sufficient to provide assurance of general competence and professionalism in engineering work.

Creating a new certification is likely to duplicate/confuse the market, particularly internationally. The public and international community may be better served by addressing any perceived shortfalls in the existing CPEng qualification rather than creating a new system.

Proposal 2 - Restrict who can carry out or supervise safety-critical structural, geotechnical and fire safety engineering work within the building sector. This would cover all medium-to-high complexity work and be triggered by factors such as building size, use and location.

3.2.5 Do you agree that life safety should be the priority focus determining what engineering work is restricted?

☒ Yes ☐ No

Please tell us why.

The determination of what engineering work is restricted should be based upon risk and society's risk tolerance. On this basis, life safety should be the priority focus.

We note that there are many areas of safety critical engineering work outside of the building sector. For example, in chemical and process engineering there are "Process Safety" issues to be considered. This is a highly developed topic in chemical engineering and an area of expertise.

3.2.6 What combination of the following factors should be used to determine what engineering work is restricted: building size, building use, ground conditions, other?

☐ Building size ☐ Building use ☐ Ground conditions ☒ Other (please specify below)

Please specify what might be included and why.

The scope of the proposed licensing scheme requires clarification. The proposal is that licensing should apply initially only to the building sector. How is this sector to be defined? Will a building have the same meaning as set out in the Building Act 2004? Or will the definition be narrower?

Licensing should extend beyond building and construction into other safety critical engineering activities. The identification of engineering works that are to be restricted should be based on an informed risk-based analysis.

Proposal 3 - Establish a new licensing scheme to regulate who can carry out or supervise engineering work that has been restricted.

3.2.7 In your opinion, does geotechnical, structural and fire safety engineering work pose the greatest life safety risk in the building sector?

	Yes	No
Geotechnical work	☒	☐
Structural work	☒	☐
Fire safety engineering work	☒	☐

3.2.7 Do you think there are any other engineering specialities that pose greater life-safety risks in the building sector that are not included here?

☒ Yes ☐ No

Please tell us more.

As noted above, there needs to be clarity about the definition of 'the building sector'.

We note that life-safety risks associated with engineering activities extend beyond what might be commonly regarded as the building sector.

There is "Process Safety" which is of particular relevance to chemical engineers and there are other engineering disciplines that undertake safety-critical engineering activities.

3.2.8 Do you agree that engineers should satisfy the requirements for certification before they could be assessed for licensing?

☐ Yes ☒ No

Please tell us why.

IChemE does not support certification. However, we do support setting an appropriate minimum standard to be achieved prior to assessment for licensing. We believe that CPEng, 'chartered" status such as Chartered Member of Engineering NZ or CEng (UK), or other internationally benchmarked regimes of equivalent or higher standards would be an appropriate prerequisite for licensing. Before applying for a licence, engineers should have demonstrated their competence and professionalism in the area(s) of restricted work for which they seek to be licensed at an advanced level over a period of time.

Should certification be adopted, we consider that a wider and appropriate equivalence to certification as a prerequisite to licensing rather than being exclusive to engineers already certified or to chartered members of Engineering NZ will achieve a higher uptake of licensing (and acceptance by practitioners).

IChemE believes it would not be in the interest of international professional mobility to restrict access to a licence only to those registered or certified with one specific professional body. This is of particular relevance in our area of the world with engineer mobility and registration of engineers in Queensland (RPEQ) and Victoria in Australia. This consideration is important for the export of New Zealand's engineering services.

IChemE considers that it is imperative that the assessment regime for licensed engineers is robust and follows international best practice. Assessors must have the knowledge, expertise and experience in the relevant engineering activity to be able to assess engineers for a licence. In process engineering, this may well require using engineers from outside of New Zealand as assessors.

3.2.9 What impact do you think the restrictions and licensing would have on the number of engineers who can carry out or supervise engineering work on buildings that require technical competence in a specialised field?

Strong negative impact	Negative impact	No impact	Positive impact	Strong positive impact
☐	☐	☐	☐	☐

Please tell us what the impact might be.

To ensure the widest availability of engineers with the required competence IChemE recommends that access to a licence is not limited to registration with only one professional body. An overly restricted approach could result in a lack of availability which may lead to unintended consequences, for example, a higher engineering cost or delays in projects due to a shortage of licenced engineers.

3.2.9a Do you feel that there are enough engineers with the necessary technical competence to meet any new demand?

☐ Yes ☐ No

Please tell us why.

At this point there is insufficient detail on how the system will work to make an informed response to this question.

IChemE expects that there will be a transition period.

3.2.10 3.2.10 What impact do you think the restrictions and licensing would have on the cost of engaging an engineer?

Strong negative impact	Negative impact	No impact	Positive impact	Strong positive impact
☐	☒	☐	☐	☐

Please tell us what the impact might be.

We anticipate that there will be an increased cost associated with engaging a licenced engineer. There will be an increased burden on engineers that are licensed and so they will charge more in recognition of this higher qualification. For example, specialised medical practitioners charge more than a GP and this fee differential is accepted by the public.

3.2.11 How effective do you think the proposed restrictions and licensing would be in reducing the risks to public safety from substandard engineering work?

Not effective		Somewhat effective		Very effective
☐	☐	☐	☐	☐

Please tell us why.

The effectiveness of the system will depend on what activities are covered, how restricted works are specified and how the system is introduced. It will also depend upon the requirements set for engineers to attain and retain a licence and the manner in which engineers are held accountable for their work. The system will also require ongoing review and audit.

3.2.12 If you engage a licensed engineer, would you feel confident that the engineer has the necessary technical competence to do the work?

☒ Yes ☐ No

Please tell us why.

Presumably yes if the level of technical competence and professionalism required to obtain, maintain and audit the licence is set at an appropriate level and is transparent. The system needs to allow for innovation and allow engineers to keep up to date with the latest developments for example through continuous professional development. The system needs to have flexibility to move over time as engineering knowledge grows and to support development of engineers.

3.2.13 Do you agree with the proposed grounds for discipline of licensed and certified engineers?

☐ Yes ☐ No

Please tell us why.

The grounds for discipline appear appropriate.

The disciplinary and complaints system needs to hold engineers to account, should be far reaching, robust and have realistic penalties that are proportionate.

3.2.14 Is there anything else that you think should be grounds for discipline? Are there any proposed grounds for discipline that you think should be modified or removed?

'Breaching the standards of professional conduct' needs definition in Regulations or Rules similar to the Code of Ethical Conduct set out in the Chartered Professional Engineers of New Zealand Rules (No.2) 2002 Part 3.

It will take time to establish a new regime and transition to it.

3.2.15 **What things should we consider when we develop transitional arrangements? What supports would you need to help you during this transition?**

It is important that the details of the licensing system are well developed before it is introduced. There will be a loss of confidence both from the engineering profession and the public if it is launched prematurely before all the key aspects and details are adequately specified.

The timeframe needs to be realistic without being overly protracted.

3.2.16 **(For engineers who currently do not have CPEng or higher)** Would you be likely to apply for a licence (fire safety, geotechnical, structural)?

☒ Yes ☐ No

Please tell us why.

Engineers with the necessary competence will apply for a licence if there is a statutory requirement to do so.

Final thoughts

3.2.17 If you have any other comments on the proposals for engineers, please tell us.

How does this get rolled out to other areas of safety critical engineering?

How do you provide an on-going review of safety critical activities as this needs to be current?