

**Submission
No 60**

PROFESSIONAL ENGINEERS REGISTRATION BILL 2019

Name: Professor Mark Hoffman

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Inquiry Engineers Registration Bill 2019



To Mr Alex Greenwich (Chair) and committee members,

I wish to make this submission in regards to the proposed Engineers Registration Bill.

Key points of the Submission

1. Registration of Professional Engineers in New South Wales by Parliamentary Act is urgently needed and the drafting of the Bill is prescient;
2. It should be clarified whether the Bill is *solely* for the building industry, which is not supported, or for professional engineers regardless of industry, which would be supported;
3. The Bill should preferably cover all branches / disciplines of professional engineering and not a subset;
4. The Bill should complement other Legislation providing a means of reference;
5. Any NSW legislation should ensure that a professional engineer's NSW registration is recognised in other states and vice versa;
6. Engineering technologists and technicians work under close supervision of professional engineers on critical projects and should be differentiated from professional engineers by this Act.

Personal Background

I am a professional engineer and, until recently, Dean of Engineering at the University of New South Wales, Australia's largest educator of professional engineers. I will take up the position of Deputy Vice Chancellor Academic at the University of Newcastle in March 2020, where I will oversee the University's education programs including registered professions such as health practitioners and teachers.

I also undertook an independent assessment for the NSW Government of the Opal Tower when cracking was observed causing the building to vacated, together with two colleagues. I am also currently undertaking a similar task on Mascot Towers.

These experiences have given me a close understanding of the issues which have precipitated the expediting of this Bill and of the broad engineering profession, especially regarding qualifications and skills, and the importance of formally recognising them.

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Need for Registration of Professional Engineers

Engineers have a significant impact on society. Their work creates considerable financial and social value, and is key to innovation and social and economic advancement.

The registration of professional engineers is urgently required in New South Wales. The general public understandably consider it unfathomable that *anyone* can claim to be an engineer and that those who use the title have a broad range of skills and capabilities, and are generally unaccountable for them. Hence, the Bill is prescient and I support its drafting and consideration by the NSW Parliament.

Recent issues within the NSW construction industry, of which engineers are a major part, are high profile. There is however an equivalent need to register professional engineers across many other innovative industries with high societal impact such as transport, telecommunications, biomedical and defence to name just a few. There is a critical need to define, assess and accredit the current skills of professional engineers in these fields so that the general public, investors and governments have confidence that their work is undertaken to an expected high standard. Currently, engineers are almost unique in contributing to critical industries but without a registered professional engineer designation.

Registration is needed furthermore not only for the (a) original design process, but also to define those professionals who should (b) independently check designs and (c) confirm that the construction process is following the design, as recommended in our Opal Tower report. This process of checking and revision by profession registered engineers is a key component of the design and construction process and needed to ensure that the quality and reliability sought by the public.

Breadth of Engineering

The Bill proposes registration for five categories of engineer: (a) structural, (b) civil, (c) mechanical, (d) electrical, (e) fire safety, and (f) another type of engineering prescribed by the regulations. The terms of reference (1&2) of this inquiry focus on the building industry, though Clause 4 indicates that the Bill applies to professional engineers working in all industries.

It would be desirable for the Bill to explicitly cover a broader scope of professional engineering. For example, even if one focusses solely on the building and construction industry, geotechnical and hydraulic engineers should be included. Geotechnical engineering issues were a major area of focus for Opal Tower (though later discounted) and likely a contributing factor for Mascot Tower. Geotechnical and hydraulic engineering issues were a dominant cause in the construction which precipitated the fatal Thredbo Landslide, where I served as an expert witness at the Coronial enquiry.

Furthermore, ongoing innovation requires the continuous integration of engineering disciplines into new fields. For example, new building energy management systems and home care technologies will require the growing presence of telecommunications engineers into the building industry, creating designs which are life critical for inhabitants. Similarly, the growing focus on constructing buildings over railway stations requires the work of transport engineers.

Limiting this Bill to a subset of engineering disciplines, based upon a current perception of a single industry is not ideal, and it would be preferable for the Bill to apply to all engineering disciplines.

National Recognition of Registration

Queensland has had professional engineers' registration legislation for many decades and Victoria has passed and is now implementing legislation. Engineers however practise nationally. Both the Opal and Mascot towers projects had engineering contributions from interstate. Currently, NSW-based engineers who wish to contribute to projects in QLD register themselves in that state.

It is therefore necessary for mutual recognition of professional registration across States and that the NSW legislation is sufficiently similar to achieve this.

Engineers are a part of the Project Team

Engineers work as a part of an ecosystem of other trades and professions. It is therefore important that this Bill complements other pertinent legislation. For example, New South Wales is also currently considering the *Design and Building Practitioners Bill 2019* (DBP Bill) which will cover those working, including other trades and professions who already have registration, in the construction industry, the *construction ecosystem*, addressing important processes within that industry. Such a Bill should define, for example, when sign-off by a registered professional engineer is required.

It is important that these two Bills (DBP and Engineers Registration) complement each other. It is not appropriate to define and legislate the registration of professional engineers in the DBP Bill. Similarly, the Engineers Registration Bill should be able to be referenced in Bills which cover specific industries.

Regarding the **Terms of Reference**:

1. *The most appropriate way to regulate professional engineers in the building and construction industry.*

An Act of Parliament is the best way to regulate engineers across all professions. It is not appropriate to register a profession only in a specific industry. An Act also provides the integrity and transparency sought by the public. The specific requirements of branches of engineering should be determined and assessed by professional groups who provide recommendations to a Government Authority.

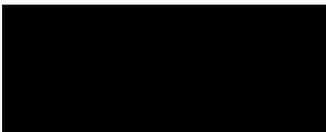
2. *How engineers and other building industry professions are regulated and monitored, and proposals for reform under the Bill and consideration of alternate proposals.*

Engineering technologists and technicians would generally work under the supervision of a registered professional engineer. Most other professions and trades already have a registration or licensing process.

It is evidently anomalous that those responsible for engineering design, which is at the apex of a project and defines safety and reliability of key structures, devices and components of modern society, do not have a legislated means of professional registration.

3. *Any other related matter.* Nil

I look forward to appearing before the committee to explain and elaborate on this submission.



Professor Mark Hoffman