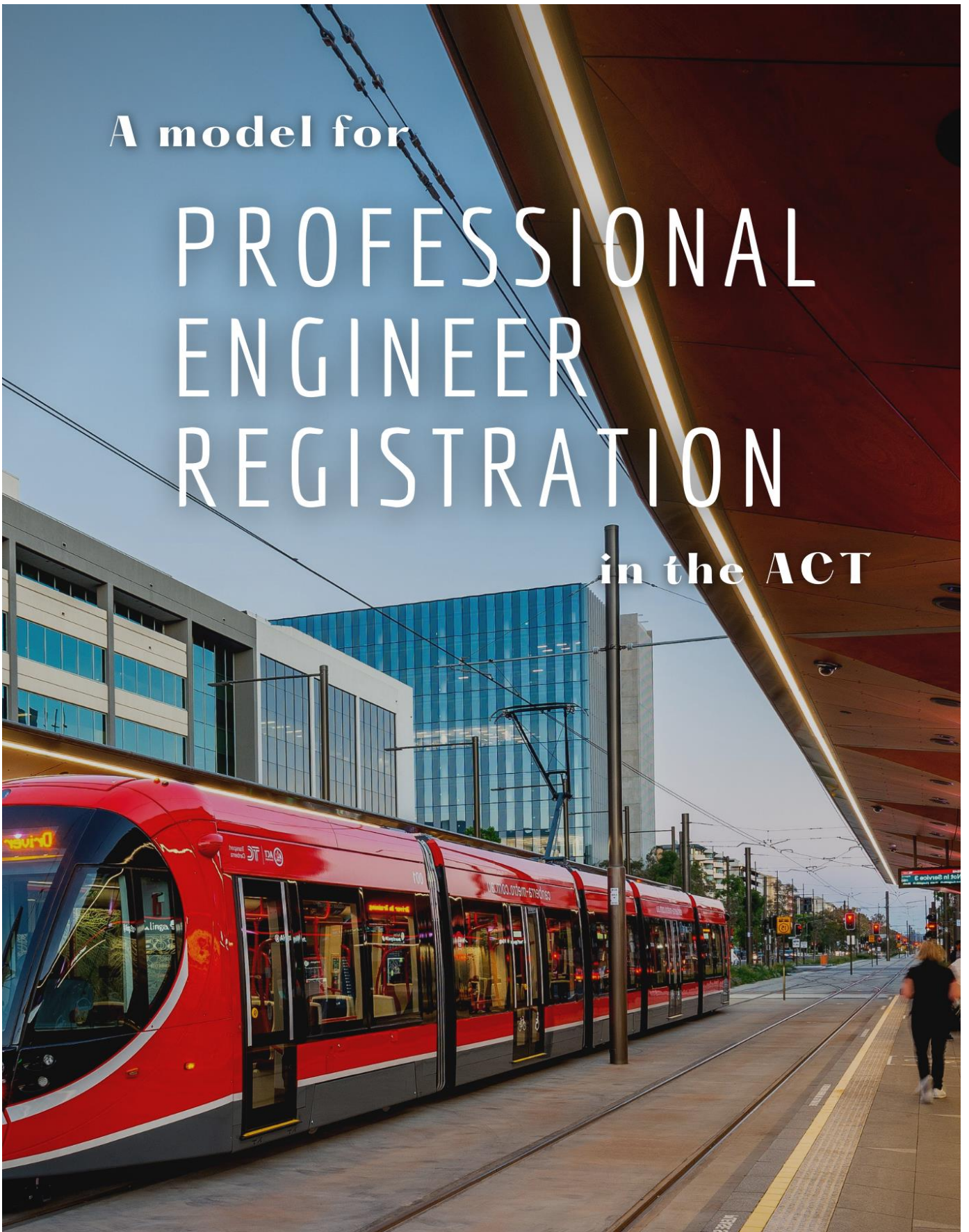


A model for

PROFESSIONAL ENGINEER REGISTRATION

in the ACT



**Professionals
Australia**

**Submission to the ACT Government's stakeholder
consultation, August 2020**

ACT Branch
Unit 4, 7 Napier Close
Deakin ACT 2600



**Professionals
Australia**

National Office
GPO Box 1272,
Melbourne, Victoria 3001
professionalsaustralia.org.au

A model for professional engineer registration

Submission to the ACT Government's stakeholder consultation

25 August 2020

Professionals Australia, specifically our division The Association of Professional Engineers Australia (APEA) is a registered organisation representing degree-qualified, professional engineers working in Australia.

Our members perform design, scoping and project management roles across essential industries and services including mining, construction, road, rail, water, gas, power, defence, aviation and ICT.

We provide a scheme for the assessment of professional engineers and are approved to undertake assessments of professional competency for the Board of Professional Engineers of Queensland (BPEQ).

Professionals Australia members include professional engineers, scientists, managers, pharmacists, architects, contractors, consultants and more. They are employed in all levels of government and are spread across the private sector.

We provide support and advocacy on behalf of our members so that they can focus on providing our community with safe and reliable infrastructure and with vital goods and services.

This purpose has driven us to make this submission, as better regulation of the engineering profession means better community outcomes, better use of rates and taxes and better recognition of the important role our members play in Australian society.

We would like to thank the ACT government for the opportunity to make a submission to the stakeholder consultation on the design of the ACT registration scheme.

Dale Beasley

Director
ACT Branch
Association of Professional Engineers Australia
Professionals Australia

Matthew Silletto

President
ACT Professional Engineers Sub-Branch
Association of Professional Engineers Australia
Professionals Australia

Introduction

Engineers play a vital role in Australian society and are drivers of our economic prosperity. They design, build and maintain infrastructure routinely used by the community – roads, railways, ports, water, electricity and gas, and perform key roles in feasibility scoping, structural design, damage control and maintenance – monitoring and addressing safety and quality throughout project delivery systems.

Engineers work to ensure that manufacturing, mining and agriculture is globally competitive through creatively designed and efficiently produced goods, systems and processes. They are at the forefront of innovative design and technological advancement like driverless cars, Artificial Intelligence and the wider effects of Industry 4.0. As such, engineers drive innovation and national wealth creation.

By driving innovation through bringing reality to scientific advances, engineers are drivers of productivity and prosperity. It is hard to think of any significant driver of economic growth or productivity – be it the combustion engine, the production line, electricity transmission, our road and rail network, clean energy, biomedical advances – without engineers having been at the forefront of delivery.

In the ACT anyone can call themselves an engineer and this has wide-reaching consequences. In the current context neither the engineering profession nor the community are protected from unprofessional conduct. There is no scheme or system in place to ensure competence and enhance the integrity of the engineering profession. Practicing architects, electricians, plumbers, builders and many other trades and professions must be registered. The irony is that we licence skilled trades, but do not require registration for the engineers who supervise them and who design key elements of, and oversee the execution of, the projects they are working on.

We look to engineers to provide the highest standards of quality and, above all, safety in the built environment. This is possible only in a society that has access to the services of engineering professionals in a diversity of disciplines who operate at the highest levels of competence and integrity.

To ensure that unqualified and incompetent engineers are removed from the system, and that engineering students and graduates develop their skills in a well-managed working environment, the ACT government has determined to implement engineer registration to underpin safe and professional work.

Engineer registration will achieve the following benefits:

- Reduced risk to public safety, health and welfare;
- Reduced risk to Government reputation;
- Legislative efficiency and cutting red tape;
- Recognition of the profession and ensuring a high level of engineering services;
- Industry and consumer information; and
- Enhanced international mobility and trade in engineering services.

Professionals Australia commend the ACT government on developing a system to regulate and register engineers, and we welcome the opportunity to be involved in the design.

It was following the Gungahlin Drive extension bridge collapse in 2010 that the ACT government committed to introducing engineer registration, a key recommendation of the Getting Home Safely report, which found that:

“Around the world, engineering failures have been responsible for a number of catastrophic building and structural failures, both during and following construction and contributing to injuries and fatalities. Many of these failures were due to inadequate design or to inadequate oversight or verification of elements of construction.

Similar problems have been experienced in the ACT, often with catastrophic consequences for human lives and with significant financial impact on the community. A number of the ACT’s most significant construction accidents have had an engineering aspect to them, if not an engineering issue at their very core. The Barton Highway bridge collapse, the Belconnen wall collapse and the Marcus Clarke Street slab collapse are but some of examples of this—each of which could easily have led to a number of fatalities.”

Mandating the early input of engineering expertise by qualified, registered professional engineers will result in improved safety, quality, on time and on budget delivery of projects.

The ACT government have asked for stakeholder feedback on seven key areas in the design process for an ACT registration scheme. Over the last two months, Professionals Australia have had hundreds of engagements with ACT engineers to help develop Professionals Australia’s proposed model for engineer registration in the ACT. The engagement and input from engineers has helped identify the answers to the key considerations of mutual recognition, entry conditions, degree and scope of regulation, funding and definitions of key terms.

Participation in online polls, surveys, social media, campaign meetings and policy development workshops has shown clearly that ACT engineers want to see registration introduced and want to be involved in the design and implementation of the scheme. Following this engagement, Professionals Australia have finalised this submission to the government’s design process.

This submission is intended to address the seven key areas as specifically highlighted by the ACT government; it is not intended to exhaustively represent our position on all matters related to the regulation of engineers in the ACT. Professionals Australia reserve our rights to expand upon this position during the consultation process.



1. Mutual recognition

To what extent should the ACT scheme align with the other states that require registration of engineers?

Mutual recognition is a principle designed to ensure that state-based registration schemes set a consistent standard with consistent requirements. Victoria's engineer registration scheme is modelled on Queensland's scheme, in part to facilitate mutual recognition and promote national consistency. NSW has also taken an approach that is consistent with schemes in Queensland and Victoria.

Mutual recognition should be adopted to ensure the ACT has a scheme which supports labour mobility. It's important to many ACT engineers that they be able to practice across state lines without having to be assessed and registered multiple times.

As much as possible, mutual recognition should be applied to ensure that ACT registered engineers are able to practice interstate, while also ensuring registration is non-cost onerous and reduces the need for multiple concurrent assessments and registrations which would multiply the time and financial costs involved.

2. Entry conditions

How does an engineer become registered in the ACT under the scheme? Whose role is it to define and assess engineers to the requirement of the scheme?

Eligibility criteria

In general, professional registration schemes (including those for teachers, doctors, and lawyers), require applicants to demonstrate they meet minimum qualification, experience, character and continued learning requirements.

Applicants for registration under the Queensland, Victoria or NSW engineer registration schemes are all required to demonstrate:

- Attainment of an accredited engineering degree, which meets the international standard defined by the Washington Accord, for a professional engineer (this can include non-Washington Accord degrees or qualifications that are assessed as being equivalent to an Australian University course of study);
- A demonstrated minimum of 5 years' relevant experience practicing at a professional level.
- A minimum of 150 hours of completed continuing professional development within a three-year period.
- Fitness to practice / commitment to ethical standards

Professionals Australia support these eligibility requirements being adopted in the ACT, as they are consistent with existing accreditation and registration schemes – both voluntary and mandatory – offered by professional bodies in Australia, as well as international schemes. The most developed and workable example in Australia is covered in the Professional Engineers Act (QLD) (2002).

Renewal of registration

In the Queensland, Victorian and NSW schemes, registration must be renewed annually.

The BPEQ requires an annual renewal fee and a renewal process whereby the applicant must declare that they have undertaken the minimum requirement of Continuing Professional Development (CPD) within a three-year period. Professionals Australia supports this approach being adopted for consistency and to maintain an industry standard.

The ACT should include arrangements similar to Queensland related to renewal conditions in cases where an engineer goes on extended leave, takes a career break, parental leave etc.

Assessing eligibility

Leaving assessment of qualifications, experience and CPD to independent professional associations is appropriate because engineering bodies are better placed than government to assess an individual's qualifications, experience and CPD and are much better connected to latest development in areas like engineering CPD needs – this is a key to a co-regulatory model. Having multiple assessment entities also helps to promote competition on price and quality.

A co-regulatory model is far less expensive than a wholly Territory run scheme because it takes advantage of systems which are already set up by professional associations to assess competence.

Professionals Australia and others run forms of accreditation (eg RPEng) which are recognised in Queensland are in the process of being recognised in Victoria and NSW.

It means the Government can focus on its core business of compliance, rather than checking how many hours of CPD an engineer has done, or what their qualifications are, which is better left to professional associations.

An administering authority

The ACT scheme will need an authority which administers the registration scheme.

In larger states Professionals Australia have advocated for the establishment of a Board of Professional Engineers (however named) to administer the functions of the registration Act, including:

- To register persons who are eligible for registration under the act
- To issue certificates of registration;
- To maintain a register of registered professional engineers;
- To assess and appoint suitable assessment entities; and
- To advise the Government about the ongoing operations of the scheme.

During design processes interstate Professionals Australia has previously recommended that the structure of the Board consists of:

- An independent Chairperson appointed by Government;
- Equal representation by each of the assessment entities;
- A representative from an Engineer Consulting association; and
- A lawyer of at least 10 years standing with experience in building and construction; and
- A consumer representative.
- Where any member of the board is an engineer, that person would be required to obtain registration. It would be the responsibility of the Minister to appoint the Board.

In the ACT context, it is conceivable that the functions of the administering authority could be discharged by an arrangement between existing authorities, such as Access Canberra and the ACT Civil & Administrative Tribunal (ACAT) for the purposes of licensing and regulation, with professional expertise and oversight provided from the office of the Chief Engineer. Under such a model, it is our view that the office of the Chief Engineer would need to be expanded and equipped with sufficient resources to provide engineering expertise and oversight to the operation of the registration scheme, with the Chief Engineer established as a stand alone position reporting to the Chief Minister.

3. Degree of regulation

Who will be responsible for regulation of the ACT registration scheme? Government? Industry? A mixture of both?

Professionals Australia supports co-regulation - a situation where the profession is involved in the development and administration of a regulatory scheme, with government providing the legislative backing

to enforce the requirements under the scheme. The co-regulatory model will enhance the registration of engineers as it leverages expertise from both the engineering profession and government.

A well designed co-regulatory model will establish a clear division of responsibility between the profession and government. It would also have an inherent mechanism to keep up to date with developments in the professions, at low cost to government. This would see:

- an engineer's qualifications, experience and continuing professional development assessed by professional associations that hold the expertise to conduct such assessments and are competent in doing so; and
- enforcement and compliance remaining the responsibility of the Territory.

The experience interstate is that the coregulatory scheme will have no net cost to the taxpayer after initial establishment, it is our understanding that the ACT government has access to data to that effect.



This approach also ensures the scheme remains more contemporary than a wholly state-run process. Engineering bodies like ourselves are required to maintain knowledge of best practice in their sector. Professionals Australia already runs an engineer registration schemes (in our case RPEng) to assess the competence of engineers, meaning we have deep experience and established systems and processes. The ACT should capitalise on that existing capacity.

In comparison, a registration system that relies entirely on industry might not provide public confidence in the independence and integrity of the scheme, and:

- may not be capable of adequate/consistent enforcement across the entire profession (akin to optional industry codes of conduct)
- would not support mutual recognition

- may generate several competing registration models, which may not be directly comparable or intelligible to the public
- may not adequately incentivise better outcomes

A scheme that relies entirely on Government would likely be more costly for government to maintain and update, and:

- may not be capable of keeping pace with industry developments
- would be much more expensive and/or slower
- would be capable of enforcement
- may be more susceptible to political interference/lobbying

4. Funding

How will the scheme be funded and maintain a sustainable income to support its administration?

The cost of regulating

The experience interstate is that the co-regulatory scheme should have no net cost to the taxpayer. The Victoria, NSW and Queensland schemes are supported by a small fee paid by engineers wishing to obtain registration. This is tax deductible and may be paid by the employer.

The profession has accepted these fees as a small price to pay to protect the integrity of the profession and raise its standing. Research also shows that engineers who hold registration, like RPEng, CEng or CPEng, earn up to 15% more than unregistered engineers. It is a mark of confidence that consumers can place their faith in.

There should be complete portability between the Queensland, Victorian and NSW schemes and once the ACT introduces their scheme, there is no reason that cannot be recognised as part of those inter-governmental recognition arrangements. This could mean an engineer would only need to be assessed once for the whole country, and Professionals Australia provides that service to members for only \$300, paid once. Queensland then change an annual fee of \$236.95 Plus application fee of \$64.20 for new applicants.

The cost of failing to regulate engineering

Today, the absence of a professional engineer registration scheme for all engineers in the ACT has widespread consequences for:

- public safety; the community ultimately deserves to know the bridges, roads, buildings, systems and other infrastructure they use has been designed, scoped and developed by an engineer with the professional training and experience to do the work; and that they have maintained their skills through continual professional development.
- Consumer confidence; when a consumer (whether household, business, or government) employs an engineer they should have the confidence the person they are dealing with is a verified professional.
- Significant economic waste; While safety is always the first concern, poor scoping of engineering dependent/critical projects can contribute to cost over-runs and delays on major infrastructure projects.
- The profession; It is sometimes overlooked that professional registration schemes are supported by all engineering professional bodies and the professionals themselves who want their profession protected from unscrupulous operators. The profession simply wants the respect which is afforded to other related trades and professions.

Cost over-runs and delays on infrastructure projects have now become a serious problem in Australia. It is well known that projects routinely blow out in the order of 6% to 12% as a result of the lack of engineering expertise at critical points. Research by Deloitte for the Australian Constructor's Association estimated the average cost blow-out at 6.5% across all projects and 12.6% for projects over \$1 billion.

Put plainly, the poor management of infrastructure projects costs Canberrans millions of dollars every year. Any opponents to the introduction of engineer registration in the ACT on the basis that running the scheme will come at a cost must consider this fact.

Based on the ACT Government Infrastructure Plan's forward projection of \$14 billion to be spent on infrastructure, even 6.5% in cost blow outs amounts to \$910 million wasted. The ACT simply cannot afford this type of waste. By contrast, setting up the registration of engineers could cost as little as \$1.00m. \$1.00m spent to save hundreds of millions in waste and prevent loss of life and injury should be a no brainer.

Quantitative economic analysis conducted by ACIL Tasman in the early 2010's quantified the economic impacts of registration and demonstrated that the net value of a registration scheme to the Australian economy, through underpinning competent, safe professional practice, was in excess of \$10 billion.

5. Areas of practice

How many engineering fields should be registered under the scheme? How should different fields be delineated to ensure maximum coverage and reduce edging effects?

The most responsive and accommodating coverage of a statutory scheme would be discipline based. The nature of engineering is that it can be broad, so that the skills and knowledge are often transferrable across sectors and industry, but can also be incredibly specialised with professional engineers required to develop very specific skill sets which non-specialised engineers do not hold.

The challenge is balancing the interests of the profession as a whole, which means a broader categorisation, while at the same time ensuring that registered professional engineers within an area of competency can be readily recognised by people wishing to engage their services.

The Queensland scheme is largely discipline-based, where accredited assessment entities can specialise their categories of registration, with approval from the responsible Minister. Under this system, where there is a clear need expressed by the engineering profession for specialisation, the Act can accommodate assessment entities to meet the demands of professional engineers and their markets.

A decision to closely limit the coverage of the ACT's registration scheme would be counter-productive and fail to address public cost and safety issues across a wide variety of infrastructure work. For example, limiting



the requirement for registration solely to the building industry, would leave all other sectors where engineers work exposed to unregistered practitioners.

The ACT's scheme should therefore broadly cover all engineers within specified disciplines without an artificial differentiations between areas of engineering work, for example those who work on buildings and those who work on other infrastructure (i.e. bridges, roads, water, energy, rail).

Covering specific engineering disciplines will ensure the ACT is able to participate in streamlined mutual-recognition arrangements being established between Queensland and Victoria (and which NSW will also be able to join by virtue of its decision to enact a broad-based engineer registration scheme).

Professionals Australia support an approach to legislate the inclusion of Civil, Electrical, Mechanical, Structural and Fire Safety, with the ability to add further disciplines via regulation rather than legislation. This approach would bring the ACT into close alignment with our close neighbours in Victoria and New South Wales. There is some mood amongst engineers to add software and IT to this list however were the ACT government to include this discipline it may be necessary to include provision for the appropriate and tailored entry conditions specifically dealing with this discipline.

6. Exit conditions

[How can penalties be administered under the scheme for non-compliant employers and/or engineers? How can a government regulator make fair, educated rulings on penalties, and appeals?](#)

CPD

Surveys show that engineers believe it is critical to undertake continued learning to maintain an ability to practice at a professional level, and that majority of professional engineers are already undertaking self-directed professional development.

The minimum amount of CPD required under the QLD scheme is 150 weighted hours over three years – or, 50 hours per annum – which is consistent with the requirements of Professionals Australia's scheme, Engineers Australia's National Engineering Register, and international equivalents such as CEng in the UK. We also support legislating the requirement to undertake CPD, with applicants having flexibility to demonstrate compliance with the requirement to the assessment entity they use.

Guidelines should be made for completion of CPD as part of a scheme, but we warn against attempting to legislate categories or weight, as this will become too prescriptive and would not reflect the nature of professional development activities for engineers. Engineering as a lead innovation profession is changing rapidly, and so too is how and where engineers work – including how they complete CPD. Onus should be on the assessment entities to detail the conditions of their CPD requirements as they are best placed to stay abreast of the daily professional lives of their members.

We do not support a reliance on random auditing of CPD but instead believe that every five years, applicants must provide evidence to the statutory body of their completed CPD and that this evidence should be provided by the assessment entity. Randomised auditing can – and has – resulted in some registered engineers going many years without audit.

Professional bodies already collect, and store completed CPD activities for registered professional engineers in easy-to-use dashboards which allow applicants to easily submit CPD activities and monitor the progress toward the 150-hour requirement.

We recommend the ACT government legislates a requirement to undertake continued learning, and that the onus be on the individual to undertake these activities in-line with requirements detailed in the assessment entities individual assessment schemes.

Disciplinary actions available to the regulator

Consumers of engineering services should have confidence that the regulation of professional engineers will deliver high-quality engineering outputs and that the engineers undertaking these services will do so in an ethical manner. To provide this confidence, there should be an avenue for complaints against engineers registered under the scheme.

We support the development of a robust and practical process, which gives the engineer the benefit of the doubt. Uninformed purchasers/consumers can become disgruntled or dissatisfied with an engineering service, even if they have acted against advice. Following a 'show cause' process which identifies non-compliant practice by a registered professional engineer, we support disciplinary action, which could include:

- A demerit point system, potentially based on those already used in the licencing of occupations in the ACT
- Written warnings;
- Undertaking to do or not to do something;
- Imposition of conditions of registration; and
- Suspension or cancellation of registration.

An additional benefit of the complaints-based investigation approach is that it may assist in eradicating unethical practices of employers. While pathways to discipline or remove non-compliant engineers from the scheme are critical to the regulation of the scheme, other forms of disciplinary action are of equal importance. With respect to the integrity of the engineering profession, it should be recognised that engineers alone are not the only source of engineering non-compliance and thus should not be the only focus of disciplinary action under the proposed framework.

Employers and organisations responsible for the delivery of engineering services must ensure that suitable resources are allocated to the task.

One of the fundamental objectives of a framework to provide registration of professional engineers is to protect the integrity of the profession by disincentivising or otherwise prohibiting non-engineers from misrepresenting themselves and providing poor service under the guise of a professional engineer. There must be avenues available to take action against non-engineers or organisations who misrepresent themselves as being compliant with the scheme or otherwise hold themselves out as having the requisite skills, qualifications and experience required to provide engineering services.

Again, in the ACT context, it is conceivable that disciplinary functions and exit processes could be discharged between Access Canberra and the ACT Civil & Administrative Tribunal (ACAT) with professional expertise and oversight from an appropriately resourced office of the Chief Engineer.

Exit processes adopted in the ACT will need to:

- Consider whether an individual engineer was constrained organisationally from being able to meet the requirements of the registration scheme, either through stand over tactics or misinformation.
- Consider avenues to take action against someone registered in the ACT who loses their registration or has action taken against them under another state's scheme.
- Develop robust processes which mandate the application of engineering knowledge and subject matter expertise to the policing of the scheme and any disciplinary processes undertaken.

7. Definitions of key terms

How can terms such as "engineering," "design," "sign-off" and "supervision" be defined to provide wording for legislation?

Professionals Australia are in favour of aligning the definitions in the ACT engineer registration scheme, with those in Queensland.

For any registration scheme to be successful, it must set minimum acceptable and assessable standards. It is also crucial that the eligibility criteria are comparable to the other local and international registration schemes to facilitate the mobility of labour.

Queensland's scheme sets the standard for the definition of "Professional engineering services", which is defined as "an engineering service that requires, or is based on, the application of engineering principles and data to a design, or to a construction, production, operation or maintenance activity, relating to engineering, and does not include an engineering service that is provided only in accordance with a prescriptive standard."

"Direct Supervision". An engineer is working under direct supervision when a qualified and experienced registered professional engineer must review or sign off their work to ensure it is of an appropriate standard. According to the Queensland practice note, depending on the nature of the service being supervised, direct contact need not be in person, but may be through written correspondence (letters, photos, drawings, or emails), telephone, or voice or video chat.

These arrangements have worked successfully in Queensland for many years. Practice notes are issued by the Board of Professional Engineers Queensland (BPEQ) to guide professional engineers in complying with, and understanding the requirements of, the Professional Engineers Act 2002 (QLD) and the Code of Practice.

