Registration of Engineers

Discussion Paper

We are seeking your views on the proposed introduction of a registration scheme for professional engineers in South Australia. Initially, this would only cover engineers providing services related to construction work but is likely to be expanded to cover all professional engineering disciplines.

Summary of proposal

The Government of South Australia is developing a registration scheme for professional engineers. Initially, this is only intended to cover engineers who provide services related to construction work but the scheme is likely to be expanded to cover other fields of engineering at a later stage. Only engineers working at the professional level would need to be registered, not those working under the direct supervision of a registered professional engineer.

Registration would apply to engineers who reside in South Australia and are providing services for a South Australian project or a project in another state or territory. Engineers residing outside South Australia would also need to register where providing services for a South Australian project.

A combination of qualifications, based on those in the Washington Accord,[1] and experience would be required for registration. These would be assessed by approved Assessment Entities. Consumer and Business Services (CBS) would be the registration and regulatory agency. Registered professional engineers would need to complete continuing professional development activities to retain their registration.

The proposed registration scheme would be established by a separate Act and accompanying regulations.

Background

There is currently no requirement for engineers in South Australia to be registered or to have particular qualifications. This presents a risk for people who engage engineers and the general public.

This issue was highlighted in the *Building Confidence: Improving the effectiveness of compliance and enforcement systems for the building and construction industry across Australia* report by Professor Peter Shergold AC and Ms Bronwyn Weir (Building Confidence Report). The report recommended that engineers involved in the design, construction and maintenance of buildings be registered.

[1] The Washington Accord is an international agreement between bodies responsible for accrediting engineering degree programs.

For building work, the categories of engineers proposed for registration were:

- civil
- structural
- hydraulic
- mechanical
- electrical
- geotechnical
- fire safety

The Building Confidence Report also recommended that:

- consistent requirements for building engineers' registration be introduced across states and territories
- training should include compulsory training on the operation and use of the National Construction Code
- continuing professional development on the National Construction Code should be mandatory to retain registration
- applicants should undergo "fit and proper person" assessments
- practitioners should hold professional indemnity insurance

Consideration has also been given to the models in place in Queensland and Victoria, and that proposed for the Australian Capital Territory. Where possible, proposed arrangements have also been made consistent with other registration schemes administered by CBS.

Who would have to be registered?

Professional engineering services

Only people providing "professional engineering services" in a regulated area of work would be required to be registered. This is based on the definition used in Queensland and Victoria. Registration would be required for individuals performing this work; this includes providing services to clients, employers or on the person's own behalf.

It is not intended to also require a business licence for the entity carrying on business as an engineer.

Registration would not be required for people performing engineering work under the direct supervision of a registered professional engineer. Supervision would require oversight of the work performance and quality checking of completed tasks of the supervised engineer. The supervising engineer must check and take responsibility for the final results of the work they supervise.

Subject to consultation, the following definitions are proposed:

> *Professional engineering services* means an engineering service that requires or is based on the application of engineering principles and data to:
>
> a. design relating to engineering, or
>
> b. to a construction, production, operation or maintenance activity relating to engineering,
>
> other than an engineering service that is provided only in accordance with a prescriptive standard.
>
> *A prescriptive standard* means a document that states procedures or criteria:
>
> 1. for carrying out a design, or a construction, production, operation or maintenance activity, relating to engineering; and

2. the application of which, to the carrying out of the design, or the construction, production, operation or maintenance activity, does not require advanced scientifically based calculations.

Advanced scientifically based calculations include the science and mathematics calculations that are required for real world engineering applications and include:

- modelling – translating given physical or other information and data into mathematical form, into a mathematical model (a system of equations including differential equations or some other algebraic expression)
- solving – obtaining the solution by selecting and applying suitable mathematical methods and/or models (including computational), and in most cases doing computational analysis on a computer
- interpreting – understanding the meaning and the implications of the mathematical solution for the original problem in terms of physics – or wherever the problem comes from.

In the first operative phase of the Act, registration would only be required for people providing professional engineering services relating to "building work". This would be defined in the same way as in the *Building Work Contractors Act 1995*:

building work means—

(a) the whole or part of the work of constructing, erecting, underpinning, altering, repairing, improving, adding to or demolishing a building; or

(b) the whole or part of the work of excavating or filling a site for work referred to in paragraph (a); or

(c) work of a class prescribed by regulation

building includes a wall or structure and part of a building or structure

Scope of registration categories

The types of engineering work to be covered by the registration scheme would be set by regulation. It is initially proposed to introduce the following categories of registration and refine the category definitions following input from this public consultation.

Civil

Civil engineering involves the research, design, construction and maintenance of the natural and built environment. This may include:

- structures (including those made from steel, concrete or timber), for example, roads, railways, bridges, airports, pipelines, dams, canals, harbours, dockyards, towers and buildings
- analysing the likely behaviour of soil and rock when placed under pressure and designing above and below ground natural or build structures or foundations
- environmental impacts; for example, transport, urban development and municipal services, resource protection of building and construction of other infrastructure and service industries
- hydraulic supply and waste systems.

Structural

Structural engineers research, design, predict and calculate the stability, strength and rigidity of built structures.

Structural engineering primarily deals with the research, design, construction, monitoring, maintenance, rehabilitation and demolition of permanent structures. Structures include buildings, bridges, in-ground structures, footings, large tanks, silos and mining structures.

Hydraulic

Hydraulic Engineers design or certify the construction of plumbing and draining works and hydraulic fire services servicing buildings or structures of all classes. This includes plumbing and drainage works (including on-site sewerage treatment systems), fire hydrants, fire hose reels and fire sprinklers/suppression systems.

Mechanical

Mechanical engineers research, design, construct, analyse, manufacture and maintain devices, machines and mechanical structures and mechanical systems.

This may include mechanical equipment for buildings, such as lifts, escalators, air conditioning plants, ventilation systems, hoppers, weigh bridges, pipelines and wind turbines.

Geotechnical

Geotechnical engineering means an area of engineering that involves the mechanics of soil and rock and the application of the mechanics to the design and construction of foundations, retaining structures, shoring excavations and ground bearing structures for buildings and other systems constructed of, or supported by, soil or rock, but does not include activities involving only geology or earth science.

Electrical

Electrical engineers design, develop, manufacture and maintain equipment, devices, plant and systems that form part of a building, which use electricity, electronics and electromagnetism.

These activities can apply to electricity generation, transmission, distribution, electrical installations in buildings and on industrial sites, and control system applications.

Fire safety

Fire safety engineers apply scientific and engineering principles, rules and expert judgement based on an appreciation of the fire phenomenon, the effects of fire and the reaction and behaviour of people.

Fire safety engineers working in the building industry develop fire safety strategies and integrated fire safety designs that identify all the fire safety measures required to meet the performance requirements of the National Construction Code, through proper design, construction arrangements and use of building materials.

Eligibility criteria

Qualifications and experience

To be eligible for registration as a professional engineer, the person must:

<u>Qualifications</u>

- hold a Washington Accord accredited undergraduate Bachelor of Engineering degree or postgraduate Master of Engineering degree in the relevant area or areas of engineering in which registration is sought;

  OR

- have an Australian or overseas non-Washington Accord academic qualification in a relevant area or areas of engineering that has been assessed as substantially equivalent to an accredited Washington Accord degree;

  AND

Experience

- have at least five years of experience working in the relevant area or areas of engineering with at least four years being post-graduate. The experience must have been gained in the last 10 years unless an approved Assessment Entity assesses that the applicant meets the competency requirements and is competent to provide professional engineering services without direct supervision.

Competency

Training or assessment on the application of codes and standards relevant to the area of work to be covered by the registration may also be required. For example, engineers providing services related to construction work would need to complete training or assessment on the application of the National Construction Code.

Probity

An applicant must also be a fit and proper person to provide professional engineering services. This would be assessed by CBS. An applicant's prior offence history, along with any adverse complaint or disciplinary history relevant to engineering responsibilities would be considered. Applicants would need to provide a National Police Certificate with their application.

Professional Indemnity Insurance

It is proposed to not require professional indemnity insurance as an eligibility requirement for registration as a registered professional engineer.

Appeals

An applicant who is refused registration would have a right of appeal to the South Australian Civil and Administrative Tribunal (SACAT).

Role of Assessment Entities

Assessment Entities would verify the qualifications, experience and competency of professional engineers. This assessment would be used by CBS in assessing whether an applicant meets the requirements for registration.

Assessment Entities would be approved by the Commissioner for particular registration categories. It is expected that these would generally be industry bodies; however, other organisations may also seek approval.

When assessing whether to grant approval for an organisation to act as an Assessment Entity, the Commissioner would consider factors such as:

- the organisation must adequately provide for the assessment of qualifications and competencies of engineers in an identifiable area of engineering
- the organisation's proposed assessment scheme must be consistent with national and international standards for the recognition of professional engineers
- competent persons must be employed to perform assessments
- assessment of applicants for registration must be conducted in an independent and professional manner
- there are adequate procedures for monitoring and improving the assessment process, including an audit function
- the fees imposed must be reasonable, having regard to the scope of services provided

Ongoing obligations

Code of Conduct

Registered professional engineers will be required to comply with a "Code of Conduct" issued by the Commissioner to ensure that they carry out their functions with the highest ethical standards.

The code would have requirements to:

- Act in a lawful manner
- Act in the public interest
- Offer a duty of care
- Act with honesty, impartiality and integrity
- Act with a level of professional competence
- Apply risk management principles
- Avoid conflict of interest and bias
- Provide client confidentiality
- Not accept gifts or benefits that may sway the decision-making process
- Be accountable for works undertaken

Continuing Professional Development (CPD)

The Commissioner would determine the Continuing Professional Development requirements for the maintenance of registration. The professional institutes currently offer the provision of development education and training to members and non-members. Their programs run on a three-year cycle, requiring 150 points/hours over this period, and the regulatory scheme will seek to mirror these requirements.

It is proposed that the Commissioner would endorse CPD programs on a case-by-case basis. A certificate of compliance from an endorsed CPD provider would be accepted when considering the suitability of a practitioner's CPD for renewal of registration purposes. It would be expected that such a program would include an appropriate audit schedule maintained by the endorsed CPD provider

Registration renewal

Registration would require renewal every three years. There would be an on-line renewal facility, similar to that used for other occupational licences administered by CBS. To renew registration, professional engineers would need to provide evidence that CPD requirements have been met, maintain fit and proper person requirements and pay a prescribed fee.

Fees

It is intended that the scheme would be self-funding and that application and registration fees would provide sufficient funds for CBS to administer the scheme, including registration and compliance activities. Fee levels are yet to be determined.

Separate fees would also be payable to Assessment Entities for initial assessment of an applicant's qualifications and experience. Costs for CPD activities would also be payable to education providers.

Regulatory oversight

Responsible Agency

The Commissioner for Consumer Affairs would be the regulatory authority. CBS would administer registration and compliance requirements on behalf of the Commissioner. The Minister for Consumer and Business Affairs would have ministerial responsibility for the legislation. This is a similar arrangement to that in place for the regulation of several other occupational licences and registrations.

Public register

People seeking to engage a professional engineer could check their registration status through a public register on the CBS website. This would include the following details:

- Full name of the registered professional engineer
- Registration number
- Registration status
- Conditions of registration
- Date of first registration
- Details of any disciplinary action
- Archived details of previously registered professional engineers

Details of disciplinary action would be included for a specified period after being imposed or after any sanction has expired.

Complaints and disciplinary action

CBS would investigate and action any information that suggests there may be grounds for disciplinary action against a professional engineer or where a person is acting as a professional engineer without registration.

Where a person is no longer eligible for registration, the Commissioner could:

- Cancel the professional engineer's registration
- Suspend the registration for a period or until stipulated conditions have been met or
- Impose conditions or restrictions on the registration

The Commissioner would also be able to suspend a registration or impose conditions in urgent circumstances where a professional engineer's activities pose a risk of harm or significant loss to others.

A separate offence and penalty would be included for individuals who provide professional engineering services without registration. Additionally, this penalty would extend to registered professional engineers who provide professional engineering services in a field of engineering for which they are not registered.

The general disciplinary body would be the South Australian Civil and Administrative Tribunal (SACAT). The Commissioner or any other person could lodge a complaint with SACAT, which would then conduct a hearing. The grounds for disciplinary action would be:

- Registration was improperly obtained
- The engineer has acted unlawfully, improperly, negligently or unfairly in relation to their engineering functions
- The engineer has breached the Code of Conduct
- The engineer no longer meets registration eligibility or renewal requirements
- The engineer has acted contrary to an assurance they have given under the *Fair Trading Act 1987*

Disciplinary sanctions that could be imposed by SACAT would include:

- Reprimand
- Fine of up to $20,000
- Impose conditions on the registration
- Suspension of registration
- Cancellation of registration
- Disqualification from being registered
- Prohibition from acting as an engineer or being involved in an engineering business

PDI Act Interaction

The *Planning, Development and Infrastructure Act 2016* (PDI Act) regulates building surveyors and the approval and construction of building development. The provision of engineering services is key to the sound decision making process by building surveyors when certifying building development meets the standards set by the National Construction Code and other regulatory standards.

The Planning, Development and Infrastructure (General) Regulations 2017 provide for the use of an "independent technical expert" which is in many cases an engineer. With the introduction of registration of professional engineers, the PDI Act would recognise that in cases requiring the use of independent engineering advice, a registered professional engineer must be used. Further it would ensure accountability for this advice assigns to the engineer and not to the Building Surveyor who relies on this advice in their assessment. Consideration could also be given to instigating a further (engineering) certification within the building approval process to separate the accountability of the building surveyor and the professional engineer.

The National Construction Code contains the "Building Complexity Criteria" which defines the attributes which heighten the risk posed by a building. It then defines a "Building Complexity Level" which relates to the level of risk posed by the building. This complexity level is in plain language terms of Low, Medium, High and Very High.

Buildings meeting this complexity criteria need special consideration to ensure the risk posed by the building is properly addressed. It is proposed to introduce a regulatory obligation for registered professional engineers to be utilised in the engineering design and construction of these buildings.

Implementation

Implementation of the registration scheme is subject to the passing of legislation by Parliament. Feedback from this consultation paper will be used to refine the proposed scheme and to inform the drafting of a Bill.

Submissions

All interested parties are asked to provide feedback on this proposal by COB Friday **8 September 2023** either by email to CBSReforms@sa.gov.au, responding to the survey on the YourSAy website, or by mail to:

Regulatory Services - Reform

Consumer and Business Services

GPO Box 1719

ADELAIDE SA 5001

Please note that submissions (including name and address details) may be made publicly available. If you do not wish for your submission or any part of your submission to be made public, please mark your submission 'Confidential – Not for Publication' and provide your reasons for this.

Please be aware that, unless a request for confidentiality is made, information contained in any submission may be referred to publicly or published. Any material identified as 'confidential' is still subject to the *Freedom of Information Act 1991* and, while efforts will be made to keep the material confidential, in some circumstances it may be disclosed under that Act. Where disclosure of information may identify you attempts will be made to consult with you under the *Freedom of Information Act 1991* before the documents are disclosed.