





Decision Regulatory Impact Statement

Registration of Building Engineers in Western Australia

January 2022

Produced by:

The Department of Mines, Industry Regulation and Safety – Building and Energy Division

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Disclaimer:

This Decision Regulatory Impact Statement (D-RIS) has been prepared in compliance with the Western Australia (WA) Department of Treasury's Better Regulation Program.

The purpose of this D-RIS is to recommend reforms to building practitioners' registration requirements to include engineers who undertake work related to buildings, to ensure safe and high quality buildings in WA.

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Glossary

The following is a summary of key terms frequently used in this document. The definitions listed apply, unless otherwise indicated.

| ABCB | Australian Building Codes Board |
|----------------------------------|--|
| AIBS | Australian Institute of Building Surveyors |
| AQF | Australian Qualifications Framework |
| BMM | Building Ministers' Meeting (formerly called the Building Ministers' Forum) |
| BPEQ | Board of Professional Engineers Queensland |
| BSCRA Act | Building Services (Complaint Resolution and Administration) Act 2011 (WA) |
| BSR Act | Building Services (Registration) Act 2011 (WA) |
| BSR Regulations | The Building Services (Registration) Regulations 2011, made under the BSR Act |
| Building Act | Building Act 2011 (WA) |
| Building Regulations | Building Regulations 2012 (WA) |
| Building and Energy | Department of Mines, Industry Regulation and Safety – Building and Energy Division |
| Building Commissioner | Statutory office created under section 85 of the <i>Building Services (Complaint Resolution and Administration) Act 2011</i> (WA) |
| Building Confidence Report | Report by Professor Peter Shergold AC and Bronwyn Weir, entitled Building Confidence: improving the effectiveness of compliance and enforcement systems for the building and construction industry across Australia (February 2018) |
| commercial buildings | Class 2-9 buildings, as defined by the NCC, including apartment, hotel, office, retail, warehouse, factory and public buildings. (See Appendix A) |
| CPD | Continuing professional development |
| C-RIS | Consultation Regulatory Impact Statement – Registration of building engineers in Western Australia (July 2020) |
| DMIRS | Department of Mines, Industry Regulation and Safety |
| D-RIS | Decision Regulatory Impact Statement – Registration of building engineers in Western Australia (this document) |
| Government | The Government of Western Australia |
| HVAC&R | Heating, ventilation, air-conditioning and refrigeration |
| IEA | International Engineering Alliance |
| NCC | National Construction Code, being volumes 1 and 2 (Building Code of Australia) and volume 3 (Plumbing Code of Australia) |
| NRF | National registration framework |
| PII | Professional indemnity insurance |
| WA | Western Australia |

1 Executive Summary

This Decision Regulatory Impact Statement (D-RIS) recommends amending the Building Services (Registration) Regulations 2011 (BSR Regulations) to require engineers to be registered to carry out the following categories of building engineering work:

- Civil,
- Structural,
- Mechanical, and
- Fire Safety.

This D-RIS represents the final stage of a review into a proposal to introduce registration for building-related engineers in WA. This review forms part of the Western Australian (WA) response to the Building Confidence Report,¹ which was commissioned by the Building Ministers Forum (now Building Ministers Meeting (BMM)) in 2017 and which made 24 recommendations (see <u>Appendix B</u>). Recommendation 1 is for registration of building industry participants, including building engineers, to provide public accountability.

The recommended registration framework aligns with registration requirements for engineers in other Australian jurisdictions, including Queensland,² New South Wales³ and Victoria⁴ to facilitate mutual recognition. It is also in accordance with the national registration model developed by the Australian Building Codes Board (ABCB).⁵

The D-RIS also recommends introducing a code of conduct for registered engineers and requiring all registered building service providers to work within their area of competence. These recommendations, in part, address Building Confidence Report recommendations 1 to 3.⁶ Registering engineers will also support the implementation of other recommendations which include various measures to address building compliance throughout the design and construction process.

There are approximately 866 building engineers to be registered in WA, at an estimated cost of \$13,584,098 net present value, over the first ten years (see <u>Appendix D</u>).

This cost is expected to be offset by improved building compliance and an associated reduction in defects and rectification costs. Registering engineers will increase the accountability and consistency of engineering services and improve public safety and consumer protection. Engineers Australia notes that registration "creates a system to recognise people likely to perform competently, and a mechanism to exclude those found to be unsuitable to work as an engineer."⁷

Following Government approval of the recommendations, the BSR Regulations will be amended. Implementation will occur in 2 stages, with structural and fire engineers first, followed 12 months' later by civil and mechanical. Each stage will have a 2-year transition period, to allow everyone time to be registered before registration becomes mandatory.

¹ Shergold, P. and B. Weir, *Building confidence: improving the effectiveness of compliance and enforcement systems for the building and construction industry across Australia* (Australian Government, February 2018) ² Board of Professional Engineers Queensland, *Recognised areas of engineering*

³ Fair Trading NSW Guidance on professional engineering work

⁴ Victorian Building Authority Engineer

⁵ Australian Building Codes Board, National registration framework for building practitioners – model guidance on BCR recommendations 1 and 2 (2021)

⁶ Shergold and Weir, op cit, p 15-19.

⁷ Engineers Australia, *Inquiry into regulation of building standards, building quality and building disputes – submission no 125* (NSW Legislative Council inquiry, Aug 2019) p 6.

Upon completion of the second stage, further consultation will be undertaken with industry to examine the merits of broadening the registration scheme to include other engineering disciplines working on buildings, such as electrical engineers.

While this review has focused solely on improving building compliance and the accountability of engineering services provided in respect to buildings, consistent with the recommendations of the Building Confidence Report, there could be merit in considering a broader scheme, in the future, to regulate other types of engineering services, such as in mining, oil and gas, infrastructure, and energy generation industries. This may necessitate a comprehensive regulatory impact assessment to evaluate the scale of the problem in the other industries and the merits of a dedicated Professional Engineers Act.

The proposals in this D-RIS have been formulated with this in mind. Should government decide in the future to establish a broader registration scheme for engineers, building engineers registered under the BSR Act can be easily transferred to operate under a dedicated Engineers Act at any time.

1.1 Scope

The Department of Mines, Industry Regulation and Safety – Building and Energy Division (Building and Energy) has prepared this Decision Regulatory Impact Statement (D-RIS) to present recommendations to the Government to introduce registration for engineers working in the building industry in Western Australia (WA).

This D-RIS provides an overview of stakeholder input received during the review, an analysis of the impact of reform options, and recommendations for the Government's consideration. Implementing these recommendations will partially fulfil the Government's commitment to implement the recommendations of the Building Confidence Report. The remainder of the Building Confidence Report recommendations are the subject of concurrent reviews and consultation.

1.2 Limitations

This D-RIS, and the associated Consultation Regulatory Impact Statement (C-RIS), focus on registering engineers working on buildings in accordance with the National Construction Code (NCC), under the *Building Services (Registration) Act 2011* (WA) (BSR Act). This recognises and is consistent with the Government's commitment to implement the recommendations of the Building Confidence Report. Recommendation 1 of the Building Confidence Report is that people working in the building industry should be registered.

As indicated, the introduction of a dedicated Professional Engineers Act to register all engineers was outside the scope of this review.

2 Background

2.1 Building Confidence Report

The Building Confidence Report was commissioned by the Australian Building Ministers' Meeting (BMM), which consists of Ministers from the Commonwealth Government and all Australian states and territories responsible for the regulation of the building and construction industry. The BMM is committed to improve the effectiveness of compliance and enforcement systems for the building and construction industry across Australia by implementing the recommendations in the Building Confidence Report.

The Building Confidence Report concluded that there are a number of significant, systemic deficiencies in Australia's building industry culture and governance arrangements, and made 24 recommendations for reform. Recommendations 1 to 3 relate to registration requirements for key participants in the building industry, including several classes of engineers (see <u>Appendix B</u>).

The Building Confidence Report has prompted an in-depth review of building legislation in WA. This D-RIS is part of that work.

Recommendation 1 in the Building Confidence Report addresses the registration of people involved in building design, construction and maintenance to improve accountability for building compliance. It recommends that a number of building industry participants should be registered, including civil, structural, hydraulic, mechanical, geotechnical and fire safety engineers.

The WA Government supports the recommendations in the Building Confidence Report. It is committed to addressing the shortcomings identified in the regulation of the building and construction sector. Building and Energy is progressing reforms to address shortcomings identified and implement the Building Confidence Report recommendations.

Registering building engineers will, in part, implement Building Confidence Report recommendations 1 to 3. It will also support the implementation of recommendations 13 to 19, which include various measures to address building compliance throughout the design and construction process. This D-RIS details recommendations to register building engineers under the Building Services (Registration) Regulations 2011.

2.2 Building legislation in WA

The *Building Act 2011* (WA) (the Building Act) and its subsidiary regulations have been in force since April 2012. The Building Act is the primary piece of legislation governing the building approvals process in WA and assigns different responsibilities to different parties, including registration, approval, compliance and enforcement roles. Under the *Building Services (Registration) Act 2011* (BSR Act) building service providers are registered to undertake defined building services, including builders, building surveyors and painters.

Government regulation of the building industry aims to protect the health, safety and sustainability of the community by ensuring that buildings meet prescribed minimum construction standards. The building regulatory framework in WA does this in two ways, by:

- registering building service providers to ensure a minimum level of competence, performance, character, insurance and financial capacity; and
- legislating a building approval process to ensure compliance with minimum standards.

The building industry in WA is regulated via a suite of Acts and their respective subsidiary regulations, including the Building Act, the BSR Act and the *Building Services (Complaint Resolution and Administration) Act 2011* (BSCRA Act).

The BSR Act provides a framework to register building service providers and establishes the Building Services Board. Classes of building service providers are prescribed under the Building Services (Registration) Regulations 2011 (BSR Regulations), and currently includes builders, building surveyors and painters.⁸ The BSR Regulations can prescribe:

- which type of building service provider can be registered;
- what service(s) must be undertaken by registered building service providers; and
- the requirements of registration such as the qualifications and experience applicants must have.

Work to implement the recommendations of the Building Confidence Report provided the catalyst for an in-depth review of key aspects of the building industry's legislative framework in WA. Building and Energy is working to review WA's building legislation to implement the Building Confidence Report recommendations. The recommendations in this D-RIS are part of this work.

2.3 Why register engineers?

Engineering is one of the few professions to remain unregulated in WA. Members of other professions in Australia – including lawyers, doctors, nurses, accountants and teachers – are regulated through mandatory registration schemes. Regulation by government is not undertaken lightly and is designed to either control the use of scarce resources or to protect consumers from unqualified or inexperienced participants in a particular industry. Registration of engineers is strongly supported by members and peak bodies of the profession. A recent report prepared jointly by Professionals Australia, Engineers Australia and the Institute of Public Works Engineering Australasia argues for registration of engineers because:

Australia's economic success is underpinned by the significant contribution made to the establishment and operation of industry by highly skilled engineering professionals. Similarly, the design and delivery of critical infrastructure and major nation building projects depends on the application of engineering skills of the highest calibre and on accountability for ethical and responsible behaviour. ...

Changes in business practices that see more engineering work performed offshore is one example of why traditional industry self-regulating processes are no longer sufficient. The standard of professionalism among engineers must be maintained at a safe level to ensure competent practice, ethical conduct, maximum economic benefit and most importantly, the safety of the Australian community.⁹

Engineers play an important role in the building and construction industry, applying scientific and mathematic principles and standards to develop solutions to technical problems. Engineers are integral in ensuring that buildings meet NCC requirements and, in many cases, may be the only qualified person to assess the compliance of the building

⁸ Building Services (Registration) Act 2011 (WA) s9; Building Services (Registration) Regulations 2011 r6

⁹ Professionals Australia, Engineers Australia and Institute of Public Works Engineering Australasia Western Australian government brief: a model for registration of professional engineers in Western Australia (2019)

elements they design. Building surveyors rely on engineers' expertise to certify that a building is compliant.

The case to register building engineers is based on the number and types of building defects and the likelihood that benefits of regulation outweigh the costs of rectifying those defects. Challenges associated with engineering work include:

- information asymmetry for consumers and other industry practitioners to evaluate the qualifications and technical competencies of engineers; and
- potentially significant negative effects on health and safety, and environmental and economic costs, of poor engineering decisions and/or practices.¹⁰

Building failures can result in significant costs to remedy defective work, and increased risk to people living and working in non-compliant buildings. Recent Australian building engineering failures include Opal Tower in Sydney, December 2018,¹¹ and Catalyst Apartments in Darwin, May 2019.¹²

Registration provides benchmarks for competence and experience, giving the public, employers and clients confidence in a registered person's skills. Registration ensures that registered people meet and maintain recognised minimum standards of qualifications, experience, continuing professional development (CPD), conduct and insurance.

Registration provides a mechanism to define work that must be undertaken by registered people and the standard of qualifications, experience and conduct that must be met by registered people. It also provides a mechanism to manage those operating in the industry that do not meet the defined standards. Implementing a registration scheme for engineers can reduce the risk of building failure and professional misconduct, and increase levels of consumer protection and community confidence in the work that engineers undertake. The explanatory memorandum which supported the *Professional Engineers Registration Act 2019* (Vic) states that a registration scheme for engineers will:

help to promote professional development within the engineering profession, reduce the risk of loss and harm to the public, and give consumers more confidence in procuring engineering services. It will also improve opportunities for the export of engineering services by Victorian engineers.¹³

Registration also establishes benchmarks to ensure that engineers who come to work in the WA building industry from overseas have appropriate qualifications and competencies to carry out work to the required standard.

As part of its work to review WA building legislation and implement the Building Confidence Report recommendations, Building and Energy is progressing reforms to prescribe roles for engineers, including minimum requirements for documentation and inspections.¹⁴ The registration of engineers is key to implementing these changes.

¹⁰ ACIL Tasman, The economic basis of the case for national registration of engineers in Australia (2012) p x

¹¹ Hoffman, Mark, John Carter and Stephen Foster, *Opal Tower investigation* (NSW Government, Feb 2019)

¹² Jano Gibson, 200 homeowners caught up in Darwin's non-compliant building probe (ABC News, 1/5/2019)

¹³ Victorian Government, *Professional Engineers Registration Bill* 2019 – *Explanatory memorandum* (5/3/2019) p 1.

¹⁴ Department of Mines, Industry Regulation and Safety, *Consultation Regulatory Impact Statement -Reforms to the approval process for commercial buildings in Western Australia* (Government of Western Australia, Dec 2019) p 19-20

2.4 National model

To ensure greater consistency between states and territories, and respond to industry requests for best practice models, the BMM established the 'Building Confidence Report Implementation Team' (Implementation Team) within the Australian Building Codes Board (ABCB). The Implementation Team was tasked with developing proposals to support nationally consistent implementation of the recommendations of the Building Confidence Report. As part of this work, the ABCB has developed a national registration framework (NRF) to guide jurisdictions to register building related occupations, including engineers, recommended by the Building Confidence Report.¹⁵ The NRF defines the broad functions or scopes of work of the proposed categories while leaving it to each State and Territory to implement within their respective registration and building approval systems.

The NRF was approved for release by the BMM in December 2021 and is available on the ABCB's <u>website</u>.

The NRF provides a model for each jurisdiction to use as a benchmark against which to assess their respective existing legislative framework. It is the responsibility of each jurisdiction to identify and consult on specific reforms to implement the Building Confidence Report recommendations within its own legislative context.

Building and Energy worked directly with the ABCB to develop the NRF, and the recommendations in this D-RIS are consistent with the NRF as far as is possible and appropriate to the WA industry. Feedback from other stakeholders recognises the validity of this work:

WA is doing a very good job consulting on an extensive reform program, which is likely to have a high degree of integration with the BCR recommendations ... In fact, if done as we are anticipating, and in the absence of confidence about what any other jurisdiction is doing, WA will likely lead the country in respect of the conformity of its system with the recommended approach.¹⁶

Building and Energy will continue to ensure that any reforms implemented in WA are consistent with the relevant national model.

2.5 Mutual recognition

Each Australian State and Territory is responsible for regulating occupations involved in the building industry, and administers and issues their own occupational licences. Jurisdictions differ in the occupations they license, the types of licences they issue and the competencies they require applicants to have in order to acquire a licence.

The *Mutual Recognition Act 1992* (Cwth) supports recognition of equivalent occupations across all Australian States and Territories, enabling people to obtain registration in more than one jurisdiction, without the need for further assessment of qualifications and experience. While mutual recognition supports a mobile workforce, there are challenges in that each jurisdiction has its own legislative framework governing various industries.

It is important that registration requirements for engineers in WA align as far as practicable with those in other jurisdictions. This is both to promote national consistency, and to ensure that engineers from other States and Territories can be recognised as equivalent to WA engineers. The Building Confidence Report notes the importance of having consistent registration requirements across all Australian jurisdictions. While the report acknowledges

¹⁵ Australian Building Codes Board, op cit.

¹⁶ Australian Institute of Building Surveyors, Australian Building Surveyor 2/2020 (Dec 2020) p 54

the difficulties in achieving national consistency,¹⁷ it found that inconsistencies in registration across jurisdictions contributes to a lack of accountability for people in the building and construction industry who are responsible for compliance with the NCC.¹⁸

The recommendations in this D-RIS were developed with due consideration for national consistency. In particular, the categories identified for registration in WA – civil, structural, mechanical and fire safety engineering – were selected to be consistent with registration requirements in Victoria,¹⁹ New South Wales²⁰ and Queensland.²¹ This is in accordance with both the NRF and stakeholder feedback, and is anticipated to facilitate mobility for engineers to work across multiple jurisdictions.

2.6 Building industry registration in WA

Building industry participants currently required to be licensed or registered in WA include architects, builders, building surveyors, electricians, gas fitters, painters and plumbers.

Builders, building surveyors and painters are registered under the BSR Act and it is proposed to register engineers under this Act. Architects, electrical contractors, plumbers and gas fitters are registered under separate pieces of legislation (see Table 1).

| Occupation | Registration legislation | Other applicable legislation | |
|--|--|--|--|
| Architects | Architects Act 2004 | | |
| Building service providers:BuildersBuilding surveyorsPainters | Building Services (Registration) Act 2011 | Building Act 2011 Building Services (Complaint Resolution and Administration) Act 2011 Home Building Contracts Act 1991 | |
| Electrical contractors | Electricity Act 1945 | Energy Coordination Act 1994 | |
| Gas fitters | Gas Standards Act 1972 | | |
| Plumbers | Plumbers Licensing Act 1995 | | |

Table 1: Legislation governing the registration of building occupations in Western Australia

2.7 Regulation of engineers in Australia

Under the Australian Constitution, States and Territories regulate professional services within their respective jurisdictions. The ACT and WA are the only jurisdictions with no regulatory requirements for building-related engineers. All other jurisdictions regulate engineers in the building industry to varying degrees through building or occupational licensing legislation.

In Queensland the *Professional Engineers Act 2002* governs all engineers, requiring that anyone providing professional engineering services must be registered. As at 30 June 2020, the Board of Professional Engineers of Queensland registered 15,856 engineers under 26 different areas of engineering.²² These areas of engineering have since been reduced to 23.²³ The areas of engineering are defined by assessment schemes submitted

¹⁷ Shergold and Weir, op cit p 17

¹⁸ Shergold and Weir, op cit p 15

¹⁹ Victorian Building Authority Engineer

²⁰ Fair Trading NSW *Guidance on professional engineering work*

²¹ Board of Professional Engineers Queensland, Recognised areas of engineering

²² Board of Professional Engineers of Queensland, Annual Report 2019-20 (2020) p 17-18

²³ Board of Professional Engineers of Queensland, *Areas of engineering* (not dated)

by industry organisations, and authorised by the Minister.²⁴ Approximately 70 per cent of these engineers operate in building-related areas of practice.

Victoria's *Professional Engineers Registration Act 2019* is modelled on Queensland's Act, and will register structural, civil, mechanical, electrical, fire safety and any other prescribed area of engineering.²⁵ The regulations in Victoria are currently under development.

Other jurisdictions, including NSW, NT and Tas, register only building engineers under their building legislation,²⁶ and generally recognise registration in the relevant area of practice on the National Engineering Register as satisfying the qualification and experience requirements.²⁷ A similar scheme is proposed for WA (see <u>Proposal 1</u>).

In SA, engineers are not required to be registered. However the *Planning, Development and Infrastructure ACT 2016* provides that registered certifiers may rely on advice from independent technical experts, including people with engineering qualifications.²⁸

²⁴ Professional Engineers Act 2002 (Qld) s112B

²⁵ Professional Engineers Registration Act 2019 (Vic) s 4

²⁶ Building Act 1993 (NT) s4A; Building and Development Certifiers Regulation 2019 (NSW) schedule 1, s2; Tasmanian Government Occupational licensing (building services work) Determination 2019;

²⁷ Northern Territory Government, *Ministerial determination relating to building practitioners*

Gazette No. G40 (2 October 2019)

²⁸ Planning, Development and Infrastructure (General) Regulations 2017 (SA) r 25(5) and (7)

3 Review outcomes

3.1 Methodology

To implement the recommendations in the Building Confidence Report and address the shortcomings identified in the regulation of the building and construction sector, WA has initiated three projects to identify options for reform:

- 1. Review of the residential building approval process (NCC Classes 1a and 10);
- 2. Review of the commercial building approval process (NCC Classes 2 to 9); and
- 3. Review of registration requirements for the building industry.

Since implementation of most of the Building Confidence Report recommendations requires amendments to statutes and regulations, regulatory impact assessments on all proposed changes are required by State Government policy. In July 2020, Building and Energy released the *Consultation Regulatory Impact Statement – Registration of building engineers in Western Australia* (C-RIS). The C-RIS detailed three proposals to register and govern building engineers under the Building Services (Registration) Regulations 2011 (BSR Regulations), based on recommendations 1 to 3 of the Building Confidence Report. The C-RIS was open for public comment for five months until 3 December 2020.

Building and Energy received 42 written submissions on the C-RIS proposals, representing the views of a variety of stakeholders, including Australian and international industry organisations, local government, engineering professionals and other individuals working in the building industry, and consumer associations (see <u>Appendix C</u>).

The majority of stakeholders strongly support the recommendations of the Building Confidence Report to improve building compliance and enforcement of the NCC, including the recommendation to register engineers. All feedback received on the C-RIS has been analysed and further, targeted, consultation has been undertaken to work through suggested amendments to the original reform proposals with stakeholders.

3.2 Recommendations

| C-RIS Proposal | D-RIS Recommendation | Section | Cost (NPV for first 10 years' operation) |
|--|--|------------------|---|
| Register professional building engineers in the categories: civil; structural; hydraulic; mechanical; geotechnical; and fire safety. | Register professional and technical building engineering designers in the categories: civil; structural; mechanical; and fire. | <u>Section 4</u> | \$13,584,098 |
| | Amend the PI insurance requirement for registered building surveyors to match that for registered engineers | Section 4 | Unable to quantify, but |
| Introduce a Code of Conduct for registered engineering practitioners, based on Qld's Code of Practice. | Introduce a Code of Conduct for registered engineering practitioners, based on Qld's Code of Practice. | Section 5 | unlikely to be significant |
| Amend the BSR Act to require <u>all</u> registered building service providers work within their area of competence. | Amend the BSR Act to require <u>all</u> registered building service providers work within their area of competence. | Section 6 | |

The consultation process has resulted in four recommendations, which are presented in this D-RIS for Government's consideration and decision (see Table 2). The recommendations include both regulatory and non-regulatory measures to govern engineers working in WA's building industry. They have received a high degree of industry support and are aligned with both the national registration framework developed by the ABCB and engineers registration schemes in other jurisdictions. Implementing these recommendations will improve building compliance and improve public confidence in the WA building and construction industry.

3.3 Cost-benefit analysis

A central principle of the Government's Better Regulation Program is to ensure that new regulation is designed to support policy objectives and deliver maximum net benefit to the WA community.

Consistent with this principle, Deloitte Access Economics was engaged to complete a cost benefit analysis (CBA) of the recommended reforms contained in this D-RIS. The CBA was undertaken as a break-even analysis (BEA), due to the difficulty in quantifying the value of the likely benefits to be obtained through registering engineers.

The BEA estimates that the recommendations to register building engineers will cost <u>\$13,584,098 net present value over the first ten years</u> following commencement. Further details, including a cost breakdown, are provided at <u>Appendix D</u>. This represents an undiscounted average annual cost of \$2.1m, which is approximately 0.02 per cent of the average annual value of construction work undertaken in WA over the previous 10 years.²⁹

While registration of engineers will increase costs, which will be passed on to consumers, it will also increase the transparency, accountability and consistency of engineering services, and is anticipated to reduce building defects which will result in cost savings for both the industry and consumers. It's not possible to quantify either the cost of current defects, or the value of reduced defects likely to be achieved through registering engineers. However, the NSW chapter of the Master Builders Association (MBA) found that under-regulation of the building industry presents unnecessary costs for builders and homeowners, through increased costs of rework, disputes and insurance. The MBA estimated that this cost may represent up to 10 per cent of construction values:

Avoiding re-work is a key benefit of more effective regulation that is often overlooked ...

While not supported by empirical data, discussion with builders indicates that the size of remediation contingency may be around 5-10% of a project's contract price.³⁰

Deloitte's BEA on engineers registration is attached at Appendix D.

²⁹ Based on seasonally adjusted, quarterly figures from Sep 2010 to Jun 2021 for total building in WA. Source: Australian Bureau of Statistics *8752.0 Building Activity, Australia*, table 02 'Value of Building Work Done by Sector, States and Territories - Chain Volume Measures'

³⁰ Master Builders Association NSW, *Build better: a blueprint for delivering better building outcomes in New South Wales* (April 2019) p 47

4 Recommendation 1: Engineers registration

4.1 Overview

Proposal 1 of the C-RIS states:

Amend relevant regulations to register building engineers in accordance with the Building Confidence Report.

This proposal is recommended to be implemented. Most stakeholders supported this proposal, either wholly or conditionally. The details of the original proposal have been amended and clarified as a result of stakeholder feedback. In particular, the categories recommended for registration have been revised to better align with engineering qualifications and registration categories in other Australian jurisdictions. In addition, tiered registration has been introduced to better regulate the provision of technical engineering services, in accordance with the national registration framework.

The recommended requirements for registration are detailed in Table 3: Overview of recommended engineers' registration framework, below. The key definitions used in Table 3 are as follows:

Professional engineering work means engineering work 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 for a building, other than engineering work that is done only in accordance with a prescriptive standard.

Technical engineering work means engineering work 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 for a building that is done only in accordance with a prescriptive standard.

Medium-rise building means NCC Classes 1 and 10 buildings, and for NCC Classes 2 to 9 buildings to a maximum of three storeys above a storey used for the parking of vehicles but not including a building of Type A construction other than for NCC Classes 2, 3 or 9.³¹

Low-rise building means NCC Classes 1 and 10 buildings and for NCC Classes 2 to 9 buildings with a gross floor area of not more than 2000m², but not including Type A or Type B construction.

³¹ See Appendix A for further details on NCC building classifications

| Practitioner Registration | | | | | | Contractor Registration | | |
|---------------------------|-----|---|----------------|-------------------|--------------|--------------------------|-------------------------------|--|
| Cate gory | Lvl | Qualification | Experi ence | CPD | Fit & proper | PI Insurance | Financial capacity | Permitted work |
| | 1 | Bachelor or Master of civil engineering accredited to the level of the Washington Accord, or equivalent | 5 yrs | 150 hrs/ 3 yrs | Yes | Adequate PI insurance | Solvent and able to pay debts | Unlimited professional and technical civil engineering work |
| Civil | 2 | Bachelor of engineering technology, science or design in the civil discipline accredited to the level of the Sydney Accord, or equivalent | 5 yrs | 150 hrs/ 3 yrs | Yes | Adequate PI insurance | Solvent and able to pay debts | Medium rise technical civil engineering work |
| | 3 | Advanced Diploma or Associate Degree in civil design, construction or drafting accredited to the level of the Dublin Accord, or equivalent | 5 yrs | 150 hrs/ 3 yrs | Yes | Adequate PI insurance | Solvent and able to pay debts | Low rise technical civil engineering work |
| al | 1 | Bachelor or Master of civil or structural engineering accredited to the level of the Washington Accord, or equivalent | 5 yrs | 150 hrs/ 3 yrs | Yes | Adequate PI insurance | Solvent and able to pay debts | Unlimited professional and technical structural engineering work |
| Structura | 2 | Bachelor of engineering technology, science or design in the structural discipline accredited to the level of the Sydney Accord, or equivalent | 5 yrs | 150 hrs/ 3 yrs | Yes | Adequate PI insurance | Solvent and able to pay debts | Medium rise technical structural engineering work |
| | 3 | Advanced Diploma or Associate Degree in structural design or drafting accredited to the level of the Dublin Accord, or equivalent | 5 yrs | 150 hrs/ 3 yrs | Yes | Adequate PI insurance | Solvent and able to pay debts | Low rise technical structural engineering work |
| äl | 1 | Bachelor or Master of mechanical engineering accredited to the level of the Washington Accord, or equivalent | 5 yrs | 150 hrs/ 3 yrs | Yes | Adequate PI insurance | Solvent and able to pay debts | Unlimited professional and technical mechanical engineering work |
| Mechanio | 2 | Bachelor of engineering technology, science or design in the mechanical discipline accredited to the level of the Sydney Accord, or equivalent | 5 yrs | 150 hrs/ 3 yrs | Yes | Adequate PI insurance | Solvent and able to pay debts | Medium rise technical mechanical engineering work |
| | 3 | Advanced Diploma or Associate Degree in mechanical design or drafting accredited to the level of the Dublin Accord, or equivalent | 5 yrs | 150 hrs/ 3 yrs | Yes | Adequate PI insurance | Solvent and able to pay debts | Low rise technical mechanical engineering work |
| Fire Safety | 1 | Bachelor or Master in a relevant field of engineering accredited to the level of the Washington Accord, or equivalent, and a Graduate Diploma or Master degree in fire engineering if the foundation degree is not in Fire Engineering | 5 yrs | 150 hrs/ 3 yrs | Yes | Adequate PI insurance | Solvent and able to pay debts | Unlimited professional and technical fire engineering work |
| re ems gner | 2 | Diploma in fire systems design with units relevant to one or more prescribed fire systems | 5 yrs | 90 hrs/ 3 yrs | Yes | Adequate PI insurance | Solvent and able to pay debts | Unlimited technical fire engineering work |
| Fi syst desi | 3 | Certificate IV in fire systems design with units relevant to one or more prescribed fire systems | 3 yrs | 50 hrs/ 3 yrs | Yes | Adequate PI insurance | Solvent and able to pay debts | Medium rise technical fire engineering work |

Table 3: Overview of recommended engineers' registration framework

4.2 General feedback

Most stakeholders support registration for engineers, with 54.8% supporting it wholly, 33.3% supporting it conditionally and 11.9% opposing it (see Graph 1).



Graph 1: Percentage stakeholder support for building engineers' registration

4.2.1 Support

Support for engineers' registration came from stakeholders across all sectors, including industry practitioners, industry and consumer peak bodies, and state and local government regulators. Arguments made in support of the proposed framework to register engineers included that it will:

- improve consistency in the provision of engineering services;
- make engineers more accountable for their work;
- improve building compliance;
- reduce rectification costs from non-compliant building work;
- reduce risks to public health, safety and welfare from non-compliant buildings;
- provide regulatory oversight of engineering services;
- address the information asymmetry for consumers to assess engineering qualifications and expertise;
- improve industry and consumer information on, and confidence in, engineering expertise;
- provide additional channels for complaints about engineering services to be lodged and investigated;
- provide professional recognition for engineers; and
- provide legislative efficiency, by mirroring registration requirements in other Australian jurisdictions.

Some of these benefits are discussed in more detail, below.

Benchmark for engineering qualifications and expertise

Stakeholders agreed that a significant benefit in registering engineers is that it will provide a benchmark to assess engineers' skills and expertise. This view was shared by the general public, other people working in the building industry and local government. Comments include: I believe this is necessary as there is a growing, significant issue with an inadequate level of engineering experience within the construction industry and particularly in commercial construction.

Geoff Hesford Engineering

Without the registration of these engineers, it is not possible to know if the person/company issuing the certificate is sufficiently knowledgeable/ educated. IQ Building Surveyors Pty Ltd

builders and contractors should be able to have confidence that the individuals they interact with are adequately skilled and experienced to produce designs that comply with the necessary technical requirements applying to a particular building type and equally importantly that they are accountable for the compliance of their designs.

Housing Industry Association

it is important to ensure that people designing or certifying elements of buildings have suitable knowledge, are experienced and keep up to date with the knowledge required to do such work.

Reliable Energy Solutions

this will ensure building related engineers are appropriately qualified and remain accountable.

City of Armadale

The contribution made to the broad economy and community by the engineering professions is acknowledged and safeguarding a standard of professionalism is paramount.

Master Builders Association of Western Australia

Consumer confidence is incredibly important and building engineers are critical to the construction process, so a registration program should have the effect of improving consumer confidence in building products.

Strata Community Association (WA)

Registration of building engineers in WA is the first step in creating a system to recognise competent engineers in the building industry and exclude those found to be unsuitable to conduct activities required by a competent engineer.

Engineers Australia

BIG benefits. Over many years I have been involved in fixing problems created by non-accredited so-called 'engineers'

3E Consulting Engineers Pty Ltd)

One of the challenges associated with engineering work is the information asymmetry that exists between engineers and their clients to evaluate engineering qualifications and competencies. Stakeholder feedback indicates it is difficult for other parties working in the building industry to assess an engineer's competence, including for builders, building surveyors and local government. Registration will provide a benchmark for engineering qualifications to better understand and ensure engineering competence.

Accountability and oversight

Several stakeholders considered that registration would help to make engineers more accountable for their work, and expressed concern that the current regime of self-regulation provides ineffectual oversight to investigate complaints. Comments include:

industry practitioner registration is needed to see a level playing field with equal and appropriate accountabilities. ... The focus [of the C-RIS proposal] on ensuring clear standards for competence and measures for ensuring appropriate action can be taken where incompetence is proven is to be commended. Master Builders Association of Western Australia

"Professional" participants with limited liability and accountability are and will continue to be an issue.

Sapphire Homes (Aust) Pty Ltd

The current legislation provides NO oversight nor disciplinary powers over any of the identified category of building engineers. ... The State regulatory body (Building and Energy) really needs to have oversight and be able to accept complaints of a disciplinary nature

Citizen for Building Dispute Reform (WA)

This will allow proportionate liability to be applied under the Building Services legislation to individual registered parties.

Fire Safety Solutions Pty Ltd

The City supports the registration of all engineers involved in the building industry. This will ensure consistency in the registration of building professionals, as well as acknowledging the expertise required in the construction industry. Also, there will be opportunity for DMIRS to compete the necessary audits on the professional group when queries are raised in relation to their professional judgement.

City of Joondalup

Registration establishes a benchmark for engineering qualifications and experience. It also provides a mechanism for consumers to make complaints about engineering services, and empowers the regulator to take action where the provision of an engineering service fails to meet the minimum standard required. The recommended registration framework will regulate the provision of engineering services and provide regulatory oversight to hold engineers accountable for their work.

4.2.2 Conditional support

Conditional support for registering building engineers came from stakeholders who consider that registration should encompass all engineers. Several stakeholders, including the engineering industry peak bodies, proposed that the Government should develop a dedicated Engineers Act to register all engineers, rather than only registering building engineers under the BSR Act. Comments include:

registration requirements should be extended to all disciplines of engineering, not just those involved in building-related activities. A mandatory and comprehensive scheme for the registration of engineers, as exists in Queensland, would adequately regulate the profession and protect the public.

Board of Professional Engineers of Queensland

While APEA supports the registration of building engineers as proposed in this consultation paper, we believe that a broad-based engineer registration scheme, which is not limited to the building sector but covers all categories of engineering work in all sectors is required. ... unless the proposal is broadened to apply to all engineers in WA, it will be severely limited in scope and be inconsistent with schemes already established in Queensland, being established in Victoria and proposed in the ACT.

Association of Professional Engineers Australia

Rather than restricting registration to the building sector, Engineers Australia advocates for compulsory registration for anyone providing professional engineering services. That will enable significant enhancement to public safety and consumer protection. ... It is acknowledged that the registration of building engineers in WA, through amending the Building Services (Registration) Regulation, is deemed by Government as an efficient means to quickly register building engineers. Whilst Engineers Australia agrees this is a step in the right direction, we continue to advocate for an Engineers Registration Act to introduce regulation to the profession as a whole

Engineers Australia

We must strive for uniform national registration that covers all professional categories of engineering e.g. Mining, Environmental, Mechanical, etc NOT just "Commercial" building.

Golder Associates Pty Ltd

a dedicated and tailored Engineer Act may be a more effective approach of prescribing the requirements for registration of all engineers in WA, not just those involved with building work; including possible tiers of registration reflecting the associated risks of certain design work.

Housing Industry Association

A dedicated Building Engineers Act should be a goal for the industry in the long term, however the proposed model laid out in the C-RIS gives speed to implementation and if it can be adjusted correctly can work well in the short to medium term.

Strata Community Association (WA)

Limiting the registration of engineers to only within the building and construction engineers does not cover the areas of greatest risk and as a result engineering activities in high risk areas will go unregulated. ... Development of registration requirements should not be focused on the fastest or easiest method to create a process, but should be done properly to ensure that society has a degree of confidence in their engineers, and the engineering process across all industries. Alan Punch

While there may be benefit in a dedicated Engineers Act to register all engineers working in WA, registering all engineers is beyond the scope of the Government's current commitment to implement the recommendations of the Building Confidence Report. Establishing a dedicated Act to register engineers will also be a lengthy process. Amending the BSR Regulations to register building engineers is a comparatively simple process that can be undertaken in a much shorter timeframe, and will fulfil the Government's commitment to implement the Building Confidence Report recommendations. It is recommend that building engineers be registered first, under the existing BSR Act.

If and when a dedicated Engineers Act is contemplated in the future, registration for professional building engineers could be transferred across to the new Act.

Experience in other jurisdictions, including Queensland, NSW and Victoria, indicates that an Engineers Act is likely to only cover registration for professional engineers, and not engineering technicians and associates. This D-RIS recommends registering three levels of building engineer, with professional engineers being level one, and engineering technicians and associates registered at level 2 or 3, respectively (see <u>section 4.4</u>). It is likely that registration for level 2 and 3 building engineering designers, as recommended in this D-RIS, will remain under the BSR Act even if registration for professional engineers is transitioned across to a potential future Engineers Act.

4.2.3 Opposition

Opposition to engineers' registration came from several stakeholders who see registration as an unnecessary layer of bureaucracy and cost, and question what value it will provide. Comments include:

the present move towards registration is an exercise in bureaucracy which will not achieve the objectives of Government, seeming to provide surveillance which will not exist.

Airey Taylor Consulting Engineers & Scientists

I am currently entitled to use the following post nominals: BE NER3 CP ENG MIE(AUST) APEC ENGINEER PE (AUS). These post nominals indicate to my clients my educational standard and levels of standing and capability in the profession. It seems that WA are now considering adding another layer to this, as well as an additional further annual expense for the practitioner. Is WA of the opinion that the standards required by the organisations that confer these qualifications on a professional need second guessing?

Graham Roberts

As a registered engineer in Qld, NSW, Victoria & Tasmania, I oppose registration of engineers. It is a waste of resources.

James Taylor

Registration was also opposed by AIRAH, the peak body for HVAC and refrigeration design, as well as individual HVAC designers, who were concerned that registering building engineers will require HVAC designers to employ a mechanical engineer to certify their designs. Comments include:

If not careful, the introduction of registered engineers may negatively impact on the HVAC industry. The HVAC industry in (commercial) Building Services is not a large industry but it has large ramifications within the building section, greenhouse reduction, etc. Every effort should be made to limit the impact on the HVAC industry by recognizing previous qualifications and experience. ACMV Design Consultants

Consult Australia also expressed concern that registration was not the best mechanism to improve building compliance:

Our view is that registration is not the best policy lever to deliver professionalism to the industry. ...registering will create an unnecessary administrative burden noting that this reform is focussed on building compliance. The reforms should therefore focus on ensuring the appropriate standard for quality of work to be delivered, rather than requiring individual registration to manage the quality of the output.

Consult Australia

It should be noted that improving building compliance is only one of the benefits of registering engineers, other benefits are discussed in <u>section 4.2.1</u>, above.

Other measures to improve building compliance are being progressed through a separate D-RIS addressing the building approvals process. These measures include defining minimum documentation requirements, mandating inspections for all construction work, implementing a process to document and approve variations to the design during construction, and changes to building surveyor engagement. Registration for engineers will support many of these reforms, for example by empowering engineers to issue technical certificates and undertake mandatory inspections.

Multiple registrations

Some stakeholders expressed concern about the cost and administrative burden of registration, particularly in relation to multiple registrations, either within WA or across multiple jurisdictions. Comments include:

I presume that your proposed registration does not preclude multiple registrations, but I would also presume that this will attract multiple fee payment, (one for each discipline). This appears to be unfair, as most experienced consultant 'civil' engineers servicing the building industry in WA would be competent in structural, civil and hydraulic engineering and have sufficient knowledge of geotechnical engineering to cover the vast majority of buildings erected in Perth.

Graham Roberts

I do about three jobs a year in Tasmania, and only because I have Qld clients who happen to snag a job in Tasmania. I pay about \$600 in fees to register but the labour costs of the jobs are only worth about \$500 in fees.

James Taylor

Primarily, our members are concerned about the cost on many SME businesses that make up the industry, the possibility of 'double dipping' on fees (in particular for those who work in multiple jurisdictions) and adding further administrative burdens to their businesses.

Consult Australia

Concerns about multiple registrations within WA are unfounded. It is proposed to define the categories for registration in WA by qualification, rather than work type (see section 4.1.3). Under this categorisation, a civil engineer will be able to do civil, structural, hydraulic and geotechnical work through a single registration. It is also not proposed to charge multiple fee payments to register an engineer in multiple categories. When an engineer applies to register, they will be able register to work in as many engineering categories in which they can demonstrate competence, for a single registration fee. This can be compared to the existing WA licensing scheme for plumbers, which allows a plumber to carry out different types of plumbing work under a single licence.

The issues around cost for engineers to register in multiple jurisdictions is anticipated to be addressed through the recent passage of the *Mutual Recognition Amendment Act 2021* (Cth), which will introduce a uniform scheme of automatic mutual recognition (AMR). AMR will enable an individual who is registered for an occupation to carry on those activities in all states and territories without applying for any additional registration. This will reduce both the cost and administrative burden for engineers who work in more than one jurisdiction.

HVAC&R designers

Several stakeholders expressed concern about the effect that engineers' registration could have on technically complex occupations that fall outside the scope of professional engineering. There are various categories of engineering technicians and associates, such as heating, ventilation, air conditioning and refrigeration (HVAC&R) designers and fire system designers. These people are not usually professional, degree-qualified engineers. It is important that a registration framework for professional engineers does not preclude engineering technicians and associates from working independently. Comments include:

A tertiary Mechanical degree within Australia is more specific for mining and not in HVAC. ... The only way to proceed would be to include a separate category of HVAC Designer for non-degree qualified design professionals.

RVAC Design

AIRAH believes that there should be a category for engineers working in heating, ventilation, air conditioning and refrigeration (HVAC&R) – building services. HVAC&R – building services is a unique branch of engineering that combines skills from both mechanical and electrical engineering. Equally, HVAC systems incorporate passive smoke and fire control measures that fall into the area of fire safety engineering.

Australian Institute of Refrigeration, Air Conditioning and Heating

for many of the HVAC Design professionals currently running the industry, the pre-requisite of 4-year Mechanical Degree is completely unworkable as the majority of HVAC Designers probably do not have a Mechanical Engineering Degree and, even if they did, it would be irrelevant to the HVAC Design profession. ... The only conceivable answer to this problem is for a separate category of registered HVAC Designer

Ross MacMillan

The technical knowledge required for HVAC engineer is mostly gained from industry experience and training as opposed to university education as there is no dedicated HVAC engineering undergraduate degree course currently on offer by any Australian university. Thus, the demonstration of 10 or 15+ years industry experience in combination with an engineering technologist qualification should be sufficient to demonstrate competency and therefore warrant registration. DB Mechanical Consulting

there is no avenue for candidates holding a Diploma in Mechanical Engineering(via TAFE), Certificate in Compliance or a Professional Diploma in Building Services HVAC&R ... pathways to achieve registration [should be] expanded to include non-degreed persons with lower levels of qualifications and tones of design experience.

ACMV Design Consultants

Consideration should also be made for those engaged in the building sector who complete building work that is allied to that of professional engineers but who are not considered professional engineers themselves. ... An example of this are Engineering Geologists. ... The pathway for an engineering geologist typically requires an undergraduate degree in geology with either post-graduate studies in engineering geology or significant practical engineering experience working in the geotechnical industry. ... As a minimum, clear regulations and guidance materials is needed to avoid the risk that some occupations are unnecessarily prevented from practising independently.

Engineers Australia

It is proposed that this issue be addressed through a tiered registration framework, as recommended in the ABCB's national registration framework. Registering engineering designers at three different levels will provide a framework to regulate both professional engineers (level 1), engineering technicians (level 2) and engineering associates (level 3). See <u>section 4.4</u> for more details on tiered registration.

4.3 Categories to register

The C-RIS proposed to register engineers in the categories of civil, structural, hydraulic, mechanical, geotechnical, and fire safety, as recommended by the Building Confidence Report.³² Building and Energy has revised these categories as a result of stakeholder feedback. Geotechnical and hydraulic engineering are subsets of a civil engineering

³² Shergold and Weir, op cit p16

qualification and it is therefore unnecessary to register them as separate categories. The engineering categories recommended for registration are:

- Civil;
- Structural;
- Mechanical; and
- Fire safety.

These categories are based on both engineering qualifications and the categories registered in other Australian jurisdictions. Stakeholders agreed that these were important considerations in identifying categories to register, serving to clarify which category an engineer must be registered in and also facilitating mutual recognition of registration in other jurisdictions.

The main purpose of registering engineers is to reduce the risk of poor engineering work for the community, and provide a higher level of consumer protection. This was recognised and supported by several stakeholders, whose comments include:

The Engineering Council supports the proposal of registering professional engineers in the area of Building Engineering, especially in areas of engineering that are safety critical and require a high level of competence.

Engineering Council, UK

We support the registration of engineers for building and infrastructure projects where safety and reliability require high levels of competence. Communications Experts Group Pty Ltd

In the Civil, Structural, Electrical and Fire Safety fields, where poor design could risk human safety or even life, it is essential to be a degree-qualified Engineer Ross MacMillan

The categories recommended for registration are therefore those that present a risk that needs to be addressed. Considerations in determining which categories to register in WA include stakeholder feedback, as well as the need to align the categories registered in WA with those in other Australian jurisdictions and the ABCB's national registration framework.

An additional consideration, informed particularly by the Board of Professional Engineers of Queensland's (BPEQ) review of Queensland's categories of engineering, is the benefit of tying categories for registration to an associated qualification, instead of attempting to define categories by areas of work. This approach has several benefits: it will enable fewer, broader categories of registration that more clearly indicate which category an engineer needs to be registered under, and it reduces the need for people to be registered in multiple categories. Engineers Australia noted that clarity in the categories to be registered is important, to ensure that people understand exactly if and how they are required to be registered:

To ensure all relevant engineering work is captured within the Regulations, it is recommended that clear definitions are used, and supporting materials published to ensure the profession and industry understand when their work is regulated. For example, some engineers identify as façade engineers rather than within their usual primary qualification as a civil, structural or mechanical engineer. In this example, the government's guidance material should explain that an engineer who specialises in facades will need to be registered under the most appropriate regulated area of practice.

Engineers Australia

Qualification-based registration provides a more uniform approach, rather than having a mix of categories based on both qualifications (e.g. civil and mechanical) and areas of work (e.g. building services, façade design and vertical transportation). Additionally, it will align the registration scheme for WA engineers more closely with the registration frameworks in Victoria and NSW, as well as the ABCB's national registration framework. This alignment will more readily facilitate automatic mutual recognition. Qualification-based registration will also enable registration of professional building engineers to be transferred easily to a dedicated Engineers Act, should this ever be enacted.

4.3.1 Additional categories proposed

The Building Confidence Report noted that further consultation was required to determine the appropriate disciplines to be registered.³³ The C-RIS asked stakeholders which categories of engineering should be registered (see Graph 2).



Graph 2: Stakeholder suggestions of categories of engineering to be registered.

Four stakeholders do not believe that engineers should be registered at all and six want all engineers to be registered. Thirteen stakeholders support the categories proposed in the C-RIS with no amendments, and the remaining stakeholders collectively proposed an additional 31 categories of engineering to be registered.

Most of the additional categories proposed for registration are based on areas of work, rather than qualifications. For example façade engineers likely studied structural

³³ Ibid.

engineering, while building services and vertical transportation engineers may have studied either electrical or mechanical engineering. Stakeholders indicated that there are multiple pathways by which an engineer with a degree in one engineering discipline might migrate to other engineering disciplines through experience gained throughout their career.

It is considered that the work undertaken by many of the 31 additional categories proposed for registration is captured under the four qualification-based categories that are recommended for registration.

4.3.2 Defining regulated work under registration categories

Stakeholders queried how registration will apply to engineers working across multiple categories:

How the proposed scheme may apply to multiple discipline engineers and the scope of works to which they can provide designs for is not completely clear, i.e. geotechnical, civil or structural engineers may each provide footing designs for buildings.

Housing Industry Association

There is significant overlap in areas of work under the recommended qualification-based categories of engineering work. This is recognised through the overlap in content covered in the different qualifications. For example civil, structural and mechanical engineering degrees contain common foundation units. This means that engineers within different categories may have common work that they are equally qualified to undertake.

It is not intended to rigidly define boundaries around the categories of engineering work. Nor is it intended to require that engineers be registered in each and every category that their work might fall under. For example, to work in area X, as shown in Figure 1, an engineer may be registered in the category of mechanical, fire, *or* structural engineering.



Figure 1: Diagram of possible overlaps between regulated categories of engineering work.

Equally, engineering work may require multiple engineers to complete it. For example a fire engineer to determine *what* level of smoke management a building is required to have, and a mechanical engineer to determine *how* the building's ventilation system will meet the smoke management requirement.

So long as an engineer works within the scope of the registration they hold, and they are competent to do any work they contract for, they will meet the requirements of their registration.

Specific categories that are, and are not, recommended for registration are discussed in more detail below.

4.3.3 Fire engineering

Fire engineering is a recommended category for registration.

Fire engineering encompasses a number of specialty fields, including the design of holistic fire safety performance solutions and specific fire safety features and systems. Stakeholders suggested that fire engineering should be divided into multiple categories, for example, fire safety, fire protection and fire system design. Comments include:

Fire protection engineers should be added as a separate discipline to fire safety engineering.

Chartered Institution of Building Services Engineers

ensure that the role of the professional fire safety engineers in developing fire safety strategies for the whole building in order to meet the NCC Performance Requirements is clearly distinguished from the equally important roles of the fire systems design practitioners who design active and passive fire protection systems to meet Australian standards and other prescriptive requirements. Warren Centre

The roles of Fire Safety Engineers and Fire Protection Engineers are very different ... Being a Fire Protection Engineer does absolutely not qualify to be Fire Safety Engineer

Geoff Hesford Engineering

fire services engineering and fire protection engineering are separate from that of fire safety engineering. ... Clarification, and possibly further discussion, is required in relation to this item to determine whether a "parent" discipline for all of the above will be determined.

Master Builders Association of Western Australia

Fire Engineering and Fire Safety Engineering are the effectively the same area of engineering, however Chartered Fire Engineers have their chartership with the Engineering Council (United Kingdom) and Fire Safety Engineers chartership is with Engineers Australia.

Institution of Fire Engineers Australia Branch

the nuanced role of a Fire System Designer about their technical drawing component, equipment and specification selection expertise, must retain a clear and concise exemption for Fire System Designers enabling the role to be practiced in the context of a prescribed suite of prescriptive standards. National Fire Industry Association, Australia

hydraulic consultants currently design and document fire hydrant and hose reels systems also.

W Lupton + Partners Pty Ltd

Fire engineering qualifications vary more than most other categories because there is no bachelor of fire engineering available in Australia. Fire engineers do an engineering degree in another field and then complete a graduate diploma or masters of fire engineering. The necessity for fire engineers to obtain dual qualifications results in a greater variety of pathways than other qualification-based categories.

However, the different categories of professional fire engineering proposed by stakeholders generally relate to different areas of work, not different qualifications. The comments on technical engineering work, including that of fire systems design, will be accommodated through tiered registration. It is recommended to register a single category for professional fire engineers, with levels 2 and 3 to capture fire systems designers. Registered professional and technical fire engineering designers will then be able to work in one or more of the subsets of fire engineering design in which they are competent.

Where fire engineering work overlaps with other categories of engineering work, such as civil (hydraulic services) or mechanical, the work may be done by an engineer registered in any appropriate category and working within their area of competence.

4.3.4 Electrical engineering

Electrical engineering is **not** a recommended category for registration at this point in time, but may be considered later.

Electrical engineering is not recommended for registration at this time. Electrical engineers are not identified in the Building Confidence Report. The Building Confidence Report focuses on ensuring building compliance with the National Construction Code, while electrical work is regulated under AS/NZS 3000 *Electrical installations*, which is not referenced in the NCC. The WA Government has committed to implement the recommendations in the Building Confidence Report to improve building compliance with the NCC. Electrical engineering work does not fall within the scope of this reform proposal.

In addition electrical work is already heavily regulated in WA. Licensing for electrical workers and contractors, and a comprehensive regime of inspections of electrical work reduce the risk of faulty electrical installations.

In light of the Government's commitment to implement the Building Confidence Report recommendations, and the Building Confidence Report's focus on NCC compliance, it is recommended that electrical engineering work is not included as a category for registration in WA at this time.

The current proposal to register three tiers of engineers, being professional, technician and associate, is focused on building compliance in accordance with the Building Confidence Report.

The registration scheme under the BSR Regulations could be extended in future, to include electrical engineers that work on buildings, if recommendations from a separate review (currently being finalised) is implemented to require that certain building designs (including electrical elements) be issued by registered persons.

4.3.5 Building services engineering

Building services engineering is not a recommended category for registration.

Building services engineering was a category supported by eight stakeholders, which suggested 'building services' and 'building services HVAC&R'. The category of building services engineering was considered for registration. However it was rejected for several reasons, including that it is not consistent with a qualifications-based framework, it was tried and rejected in Queensland, and it is not consistent with other Australian jurisdictions or the ABCB's national registration framework.

The Board of Professional Engineers Queensland (BPEQ) currently registers a total of 26 different areas of engineering, including building services engineers which is defined as:

Building Services Engineering is concerned with aspects of the built environment, involving air conditioning and mechanical ventilation, electrical light and power, fire services, fire safety engineering, water and waste services, data and communications, security and access control, vertical transportation, acoustics in buildings and energy management.³⁴

BPEQ reviewed the existing areas of engineering and will recommend that the Queensland Minister for Energy and Public Works *not* approve Building Services as an assessable (recognised) area of engineering, as Building Services is not considered to be a core area of engineering practice. 'Building Services' is a broad term used as an all-encompassing term to describe work across disciplines. Registering professional engineers in this way creates a potential risk in allowing a registered engineer to carry out or supervise engineering services in an area that they are not qualified or competent in.

Victoria and NSW also do not register building services engineers. Victoria registers civil, mechanical, electrical and fire safety engineers.³⁵ NSW registers these same four, plus geotechnical and structural engineers.³⁶

The ABCB's national registration framework (NRF) recommends registering engineering designers under the categories of geotechnical, structural, electrical, mechanical and fire safety.

On the basis of the BPEQ's experience and in the interests of both national consistency and qualifications-based categories, building services engineering is not recommended as a category for engineer registration in WA.

4.3.6 Hydraulic engineering

Hydraulic engineering is **not** a recommended category for registration.

Hydraulic engineering was one of the categories proposed in the C-RIS, because it was recommended in the Building Confidence Report. However, several stakeholders suggested that it was not an appropriate category to register, because there is no dedicated qualification for hydraulic engineering. Instead, hydraulic design work is done by civil engineers. Hydraulic services are also often designed by licensed plumbers. Stakeholder comments include:

hydraulic engineering is not a specific area of engineering recognised by the Board. An engineer practising in hydraulic engineering would likely be registered in the area of civil engineering.

Board of Professional Engineers of Queensland

In my experience, 'Engineers' designing hydraulic services who have no practical experience in the Plumbing and Gasfitting field are generally the ones who make the most errors ... I do not believe that Hydraulic Services design (including fire hydrant and hose reel systems which are typically installed by Plumbers), should be constituted as 'engineering' work. ... It should also be noted that there is currently no such thing as a tertiary level 'Hydraulic Services' degree on offer in Australia.

TJ Peach & Associates

³⁴ Board of Professional Engineers Queensland, Recognised areas of engineering viewed 10/6/2021

³⁵ Victorian Building Authority *Engineer* (2021) viewed 10/6/2021

³⁶ Fair Trading NSW Guidance on professional engineering work (May 2021) viewed 10/6/2021

In addition, hydraulic engineering is not included in the ABCB's national registration framework for engineering designers. Accordingly, hydraulic engineering is <u>not</u> recommended as a category for engineers' registration.

4.3.7 Geotechnical engineering

Geotechnical engineering is not a recommended category for registration.

Geotechnical engineering was one of the categories proposed in the C-RIS, because it was recommended in the Building Confidence Report. However, there is no dedicated qualification for geotechnical engineering, instead, geotechnical design work for buildings is done by people with qualifications in civil engineering. The categories identified for registration in WA are based on qualifications rather than areas of work. Geotechnical engineering is therefore not recommended to be registered as a separate category. This aligns with the engineers' registration regime in Victoria.³⁷

4.4 Tiered registration

It is recommended to introduce a tiered registration framework to register professional engineers and engineering technicians and associates. The recommended framework is detailed in Table 3 and is in accordance with both stakeholder feedback and the ABCB's NRF.

Under this framework, professional engineers will be registered at level 1, and will be able to do professional engineering work. Engineering technicians and associates will be registered at levels 2 and 3 respectively, and will be able to do technical engineering work in accordance with prescriptive standards.

| Level Qualification | | Experience | Scope of work | |
|---------------------|---------------------|------------|---------------|--|
| Level 1 | AQF 7/8/9 Degree | 5 years | Unlimited | |
| Level 2 | AQF 5/6 Diploma | 3 years | Medium Rise | |
| Level 3 | AQF 3/4 Certificate | 3 years | Low Rise | |

Table 4: NRF competency benchmarks for tiered registration

The NRF proposes three levels of registration for engineering designers, with professional engineers being registered at level 1 and engineering technicians and associates being registered at levels 2 or 3. The NRF sets benchmarks of qualifications and experience for each level of occupation to define the level of competence expected and how that relates to other occupations. The NRF has a consistent structure, based on qualifications and core competencies (see Table 4).

The C-RIS did not contemplate tiered registration. However, it became clear through stakeholder feedback that tiered registration is necessary to regulate the breadth of engineering designers who work on buildings, in all categories of engineering design. Comments include:

a one-person structural engineering operation focussed solely on residential retaining walls, patio post footings and the like, should not be subjected to the same level of registration and renewal requirements as a fire safety engineer formulating Performance Solutions for complex multi-storey building ...

³⁷ Professional Engineers Registration Act 2019 (Vic) s4

some of the obligations prescribed by the proposed regulation may be onerous for smaller operators. A potential way to address this may include consideration of a 'tiered' level of registration framework, applying this tiering to the education/experience requirements for certain specialities or practices and the PII insurance requirements proposed.

Housing Industry Association

there is no avenue for candidates holding a Diploma in Mechanical Engineering(via TAFE), Certificate in Compliance or a Professional Diploma in Building Services HVAC&R (the latter two being recognised training provided by the Australian Institute of Refrigeration Airconditioning and Heating (AIRAH)). ACMV Design Consultants

Because of a lack of engineering degrees that specifically deal with HVAC&R – building services, mechanical engineers working in this sector have over the years obtained widely differing tertiary qualifications. Many well-respected professionals – including some who provide input for the NCC and chair Australian Standards committees – do not have an engineering degree. AIRAH recommends that alternative pathways to registration are provided for these people.

Australian Institute of Refrigeration, Air Conditioning and Heating

in the HVAC field there is simply no engineering degree qualification that is relevant the requirements of a competent HVAC Design professional, so there are many, if not the majority of HVAC Design practitioners, including myself, who, although having the necessary experience and competence, do not have an Engineering Degree qualification and therefore cannot call themselves "Engineers," but operate as "Designers." In the HVAC field there needs to be two categories of registration, for Degree plus experience-qualified "Engineers" and experience-qualified Designers.

Ross MacMillan

the registration board needs to recognise the significant number of individuals who have relevant technical qualifications and significant industry experience, but who have not completed an engineering degree. ... those who qualify or are recognised as an "Engineering Technologist" by Engineers Australia should be considered to have adequate technical training.

DB Mechanical Consulting

In the event of dedicated engineers registration legislation being enacted in the future to register all professional engineers, it is likely that registration for levels 2 and 3 – technical engineering designers – will remain within the BSR Act. The Engineers Acts in Queensland, NSW and Victoria only register professional engineers, not technicians or associates.

4.5 Pathways to register

4.5.1 Prescribed qualifications and experience

The recommended prescribed qualifications and experience required to be registered are based on the ABCB's national registration framework. In general, engineers registered at level 1 will have a degree accredited to the Washington Accord and 5 years' experience. Engineering designers registered at level 2 will have a degree accredited to the Sydney Accord and 5 years' experience, and at level 3 will have an advanced diploma accredited to the Dublin Accord and 5 years' experience (see Table 3).

People with alternative combinations of qualifications and experience to those prescribed can still be registered; see <u>section 4.5.3</u> for more details.

It is proposed that the assessment of applicants' qualifications and experience will be undertaken by industry associations, particularly for professional engineers registered at level 1. Professional engineering is highly complex and technical work; DMIRS' licensing staff do not have the expertise to assess the competence of engineers. The most costeffective means of assessing engineers' competence is through existing industry-based accreditation schemes, as discussed below.

4.5.2 Co-regulatory accreditation

It is recommended that a co-regulatory model to assess engineers' qualifications and experience is implemented in WA, in line with engineers' registration schemes in Queensland, New South Wales and Victoria. Building and Energy will work with industry organisations to regulate the provision of engineering services in WA. The roles assigned to each party under this model are listed in Table 5.

Table 5: Overview of distribution of functions under the proposed regulatory model to register engineers

| Recognised Industry organisation | Building and Energy |
|---|---|
| Assess qualification(s).Assess length and breadth of experience. | Assess suitability and equivalence of industry- based accreditation schemes. |
| Assess competence for independent practice. | Assess fit and proper requirements, including police clearance, of practitioners. |
| Manage CPD requirements. Industry-based code of conduct (optional) | Assess insurance requirements (if any) and financial capacity of contractors. |
| | • Establish a code of conduct under BSCRA Act. |
| | Monitor and audit registered engineers. |
| | Receive and investigate complaints. |
| | Undertake disciplinary inquiries and action. |

Under the recommended co-regulatory model, industry organisations will be responsible for assessing applicants' qualifications and experience and accrediting people who are deemed competent to be registered. The C-RIS proposed four pathways by which applicants could apply to be registered, which included three industry-based accreditation schemes: Engineers Australia, Professionals Australia and the Chartered Institution of Building Services Engineering.

There was a high level of stakeholder support for using industry-based accreditation schemes, particularly because it's in accordance with registration requirements in other Australian jurisdictions (Queensland, Victoria and New South Wales) and will more readily facilitate automatic mutual recognition. Comments include:

Yes. This is in line with what has been adopted by other states.

Associated Engineers Pty Ltd

Recognising existing professional accreditation schemes will assist in reducing cost duplication, administration and time burdens on individuals needing to register. Flexibility should be maintained to allow incoming qualified and accredited individuals to easily demonstrate alignment with the preferred schemes.

Consult Australia

Using assessing authorities can help simplify compliance requirements and avoid red tape. It offers a mechanism for assessing the qualifications and experience

requirements of a statutory register, with a letter of assessment that is issued once but can be used in all jurisdictions that require registration of engineers. For governments, independent assessment entities can provide confidence, transparency and consistency across jurisdictions.

Engineers Australia

We support professional engineer associations playing a key role in establishing engineer assessment schemes and holding responsibility for administering the assessment of engineers on behalf of a statutory body which carries appropriate oversight, enforcement and compliance roles.

Association of Professional Engineers Australia

We support the proposal to use recognised industry accreditation schemes, providing that they comply with nationally or internationally recognised standards (such as the International Professional Engineers Agreement, are fully auditable and structured to ensure that a candidate for registration is competent, regardless of the individual engineer's pathway to registration.

Engineering Council, UK; Institution of Engineering Technology WA

However, stakeholders noted that there were a number of industry accreditation schemes that were not recognised in the initial pathways proposed in the C-RIS. Comments include:

The Table excludes registered professionals by the Institution of Fire Engineers (IFE) as a Chartered Engineer (CEng) in the field of fire engineering, which is a globally recognised qualification.

Institution of Fire Engineers Australia Branch

For fire safety engineers, the CEng accreditation and registration scheme for fire safety engineers operated by the international Institution of Fire Engineers (IFE) under the UK Engineering Council should be considered

Warren Centre

The Institution of Fire Engineers. The IFE is licensed by the Engineering Council to assess fire safety engineers for registration as a Chartered Engineer.

Fire Safety Solutions Pty Ltd

A fully fledged Chartered Engineer from the Institution of Structural Engineers (UK) as recognition for Structural Engineers.

Associated Engineers Pty Ltd

An ideal approach would be for the Western Australia Board to provide recognition of the UK Chartered Engineer (CEng) title for registration without further assessment, subject to applicants demonstrating knowledge of any local legislation required and subject to providing evidence of CPD and good standing, as specified.

Engineering Council, UK; Institution of Engineering Technology WA

The Institution of Structural Engineers, UK

Cockburn Solutions WA

CIBSE are one of the 40 UK-based Professional Engineering Institutions (PEIs) who are licenced by the Engineering Council to assess candidates for inclusion on its register ... can the proposed pathway be extended to include those CEngs from a relevant sector of expertise who are not CEng registered members of CIBSE, but from other PEIs who have members employed as building engineers Institution of Engineering and Technology UK

AIRAH has launched a professional accreditation scheme specifically designed for engineers operating in HVAC&R – building services. The AIRAH Registered

Professional Engineer (ARPEng) accredits professional engineers in the mechanical engineer HVAC&R – building services discipline. The ARPEng accreditation program has been designed to meet the requirements in Queensland.

Australian Institute of Refrigeration, Air Conditioning and Heating

There is also an AIRAH qualification that provides a pathway to Mechanical Services registration in Victoria. This should be considered for WA Geoff Hesford Engineering

Yes, the Australian Institute of Refrigeration, Ventilation Air-conditioning and Heating (AIRAH). This organization represents the majority of the HVAC industry from mechanical services contractors to HVAC designers.

ACMV Design Consultants

The HVAC Designer registration process would need to be administered by AIRAH, the only HVAC industry organisation with members sufficiently experienced to assess the suitability of applicants.

Ross MacMillan

It is suggested that industry associations that have attained "pass" status with the International Professional Engineers Agreement (IPEA) overseen by the International Engineering Alliance (IEA www.ieagreements.org/) be included in the Pathways proposed to register building engineers.

Communications Experts Group Pty Ltd

It is recommended that these concerns are addressed by prescribing in the BSR Regulations that persons seeking registration must be accredited to the relevant level through an approved industry-based scheme by an authorised member of an International Engineering Alliance (IEA) agreement, or equivalent as approved by the Building Services Board (see Table 6). Building and Energy will liaise with industry stakeholders to ensure that the regulations do not exclude any accreditation scheme unduly.

| Pathway | Qualifications | Experience |
|---------|---|---|
| Set 1 | A minimum four-year full-time Bachelor or Master of Engineering from an accredited Australian institution, or | 5 years of relevant building engineering industry experience in the past 7 years in their area(s) of practice; and |
| | An equivalent qualification as determined by the Board. | 150 hours of continuing professional development in the previous 3 years. <i>(CPD to be assessed at renewal)</i> |
| Set 2 | | Accredited to the relevant level through an approved industry-based scheme by an authorised member of an International Engineering Alliance (IEA) agreement, or equivalent approved by the Board. |

Table 6: Pathways proposed to register building engineers.

Building and Energy will develop a guideline for industry practitioners, listing all the accreditation schemes available that are known to meet this requirement. The guideline will be updated as new schemes become known or existing schemes are amended.

The IEA requires that accreditation schemes assess engineers against a benchmark competency standard, and provides the following list of elements that must be assessed:

• An overall level of academic achievement as a requirement of registration, licensure or other equivalent recognition which is not less than substantially

equivalent to that of a graduate holding an engineering degree accredited by an organisation holding full signatory status of, and acting in accordance with the terms of, the Washington Accord; and

- The professional engineering competence for independent practice; and
- A prescribed minimum period of practical experience since graduation; and
- A prescribed minimum period in responsible charge of significant engineering work; and
- Sufficient continuing professional development to maintain the currency of knowledge and skills; and
- Ethical responsibility in practice; and
- Accountability for personal actions and decisions as a professional engineer.³⁸

The suitability of industry-based accreditation schemes will be assessed and monitored as described in <u>section 7.1</u> below.

Stakeholder feedback indicates that the IEA provides a good benchmark to assess the suitability of industry-based engineering accreditation schemes. Two stakeholders also commented on the importance of ensuring that applicants had some experience working in the Australian building industry:

It is essential that the engineer has a minimum level of experience in Australian Industry.

Geoff Hesford Engineering

Work experience definitions should include a clear statement with regards to a minimum Australian work experience requirement.

Alan Punch

The NSW Design and Building Practitioners Regulations 2021 requires that applicants to register as an engineer have a minimum of five years practical experience, with at least two years' experience working in Australia.³⁹ There is also a provision to grant registration in certain other circumstances, including where the Secretary is satisfied that the person's qualifications, experience, knowledge and skills are at least equivalent to the qualifications, experience, knowledge and skills specified for that class.⁴⁰ This allows for recent migrants to be registered sooner, where they can demonstrate that their experience was obtained in a country with a comparable building industry to that of Australia.

Queensland and Victoria do not distinguish where engineers obtain their experience.

For WA, it is recommended that the industry accreditation assess competency to practice independently, and that Building and Energy be empowered to assess and approve industry-based accreditation schemes (see Table 5). It is considered that these two measures in combination will provide sufficient discretion to assure that applicants to be registered are competent to work in WA. It is not recommended to mandate that applicants be required to demonstrate a minimum period of work experience in Australia.

4.5.3 Alternate pathways to register

The minimum prescribed qualifications and experience required for an engineer to be registered are based on those proposed in the national registration framework. However, the NRF notes that:

³⁸ International Engineering Alliance, Competence agreements (1 November 2020) p 10-11

³⁹ Design and Building Practitioners Regulations 2021 sch 2, clauses 1 and 4

⁴⁰ Ibid, clause 3
The qualifications listed reflect current or developing education and training schemes for new entrants to each discipline. Existing practitioners may have different qualifications, reflecting earlier Australian schemes or overseas education and training. Registration authorities implementing the NRF should provide for assessing equivalence of different qualifications and measuring competence at the required level.⁴¹

The NRF further explains that:

Registration schemes applying the NRF must have pathways or processes for assessing applicants who do not have the prescribed qualification, but who can demonstrate the required competence through different qualifications, on-the-job-training, or a combination of both.⁴²

Stakeholders noted that any new registration requirements introduced for engineers will need to have flexibility to enable existing practitioners to be registered. This particularly affects people who obtained qualifications internationally and/or before the Washington Accord was signed in 1989. Stakeholder comments include:

AIRAH also believes "grandfathering"⁴³ will be an important issue for many of our senior members and that it will be necessary to provide guidelines on acceptability of "grandfathering".

Australian Institute of Refrigeration, Air Conditioning and Heating

should include industry qualified professional who have 10+ years industry experience, who are fully insured and have successfully operated consultancy practices, as an alternative to BEng.

TJ Peach & Associates

I DO NOT support the pathways as shown in Table 3 as they do not take into account practitioners with 40 years of industry experience and knowledge who do not have an engineering degree. ... Alternative pathways must be considered for persons who can demonstrate significant experience and required knowledge. This could be carried out by any of the listed organisation and utilise project history, insurance records, examination, interviews, references and the like. Reliable Energy Solutions

we suggest that the most important indicator of an engineer's competence is the attainment of a professional title, and that prescribed academic qualifications are of secondary importance as long as competence in the relevant practice area has been proven through rigorous assessment. ... One of the requirements to demonstrate competence is providing evidence of the appropriate level of underpinning knowledge and understanding, as well as the application of that knowledge in an engineering context, coupled with the required level of professional competence in areas such as management, communication and interpersonal skills and commitment to professional values.

Institution of Engineering Technology WA; Engineering Council UK

the Permitted Work and Qualifications are too restrictive in description as it does not identify alternatives to degreed engineers. (Prior learning and experience in my case.)

ACMV Design Consultants

⁴¹ Australian Building Codes Board, *National registration framework – model guidance on BCR recommendations 1 & 2* (June 2021) p 9

⁴² Ibid, p 66

⁴³ 'Grandfathering' refers to transitional provisions implemented to enable existing practitioners to be registered under a new registration regime.

In terms of determining equivalence, we would like to draw attention to the international schemes which compare the relative levels of academic qualifications internationally, ensuring that equivalent academic qualifications are recognised, based on learning outcomes achieved at graduation, rather than being based upon a specified number of years study on a recognised undergraduate course.

Institution of Engineering and Technology UK

It is recognised that there will be people with different combinations of qualifications and experience than those proposed to be prescribed for registration. The prescribed qualifications and experience for registration provides a benchmark against which alternatives may be assessed. People who have different combinations of qualifications and experience than those prescribed will still be able to have their competence assessed by an industry organisation. If their particular combination of qualifications and experience has resulted in a degree of competence that is equal or superior to the prescribed benchmark, they will be able to be registered.

Registering people who are currently working in the building industry will therefore involve assessing their qualifications and experience to judge competence against the benchmark for registration. Industry organisations have indicated their ability to assess competence gained through alternative combinations of qualifications and experience. For example, the Institution of Fire Engineers Australia states that:

There are two routes for CEng registration (i.e. Fire Engineering Designer Level 1):

- 1. **Standard route** Individuals holding the following minimum academic qualifications:
 - an accredited Bachelor's degree with honours in engineering together with an accredited or approved Master's degree or approved further learning to masters level (fire safety); or
 - an accredited integrated Master's degree in engineering (fire safety)
- **2. Individual route** Individuals not having the above minimum exemplifying qualifications:

Individually assessed applicants have a number of ways of demonstrating the required level of knowledge and understanding but must clearly demonstrate they have achieved the same level of knowledge and understanding as those with exemplifying qualifications. Ways to demonstrate include completing appropriate work-based or experiential learning, writing a technical report or taking appropriate further qualifications. The individual's knowledge and understanding will be rigorously assessed via this route from a first principles engineering perspective.

Guidance will be provided to existing practitioners and industry organisations as required to enable people to be assessed and registered appropriately under the new framework.

4.5.4 Grandfathering

One stakeholder suggested that a period of 'automatic' registration should be made available for existing practitioners:

there will be fire safety engineers who are generally not eligible to go through these accreditation schemes as our first degree is not in an engineering discipline but building surveying. This needs to be recognised. If a person has been working as a fire safety engineer for 15 years or more, and that person holds a Degree or Master's Degree in Fire Safety Engineering, then they should be automatically registered through a grandfather clause that would operate for a short period of time. This suggestion is similar to the transition clauses that enabled existing building surveyors to transfer their registration across to the new registration framework when the BSR Act commenced in 2012. A short transition period of automatic registration was made available for existing building surveyors.

However, before the BSR Act commenced, building surveyors were accredited under the *Local Government (Miscellaneous Provisions) Act 1960* and the Local Government (Building Surveyor) Regulations 2008. This accreditation framework included prescribed qualifications, lengths of experience and scopes of work, and was governed by the Building Surveyors Qualifications Committee. The existing accreditation framework provided a basis from which to automatically grandfather existing building surveyors across to an equivalent level of registration within the new framework under the BSR Act.

Engineers are currently not registered in WA. Their qualifications and experience to provide engineering services have never been previously assessed. Therefore there is no basis to 'automatically' register existing engineers. The intent of registering engineers is to ensure a consistent, minimum level of competence across all registered engineers. This requires that each applicant's competence be assessed before they can be registered.

It is recommended that existing practitioners **not** be automatically registered through a grandfather clause. Stakeholder feedback supports the recommendation to assess each engineer's competence individually:

Fire Engineering ... is an excellent example of a specialisation where demonstration of competence is essential in establishing an engineer's suitability for registration. This is because there are very few directly relevant degrees in Fire Engineering. ...competence is developed through experience and post-graduation training. Any registration system needs to flexible enough to take account of these areas of specialism. We would therefore urge that the State adopts professional competence as the standard for recognising engineers and avoids over-specification of and over-reliance on the academic component of an engineer's formation.

Institution of Engineering Technology WA

Industry-based accreditation schemes are established to assess an engineer's competence based on their individual combination of qualifications and experience. As discussed in <u>section 4.5.3</u>, above, existing engineers whose qualifications and experience do not match the prescribed requirements will still be able to be registered if their competence is assessed as being equivalent to or higher than the level prescribed for new registrants. It is recommended that each engineer be required to have their competence assessed before being registered.

4.6 Continuing Professional Development

Stakeholders agreed that continuing professional development (CPD) is an appropriate requirement for engineers, with everyone who commented on this issue supporting mandatory CPD either wholly or conditionally (see Graph 3).

It is necessary for engineers to maintain up-to-date knowledge of industry developments and requirements. Stakeholders noted that the proposed requirement for 150 hours of CPD every three years was consistent with other jurisdictions and also industry standards.



Graph 3: Percentage stakeholder support for proposed minimum CPD requirements.

Comments supporting CPD include:

Yes, it is important for all practitioners to keep their knowledge up to date, to be aware of the latest developments, legislation, products, construction materials and techniques.

Reliable Energy Solutions

It ensures a practitioner remains up to date with current practices. Fire Safety Solutions Pty Ltd

We support mandatory continuing professional development (CPD) in order to ensure that the practitioner providing engineering services is up to date in knowledge, skills, and innovation.

Association of Professional Engineers Australia

Yes, I consider that this is essential to keep up with developments in technology and professional practices.

Crabtree Engineering Software

CPD is essential to engineers maintaining the currency of their competency. The requirements for 150 hours over three years is consistent with industry practice Warren Centre

AIRAH strongly supports the proposed minimum CPD requirements for registered engineering practitioners. CPD is vital for expanding practitioners' knowledge, maintaining up-to-date technical skills and progressing their careers. Note that the ARPEng accreditation is aligned with the proposed requirements: a minimum of 150 hours over three years.

Australian Institute of Refrigeration, Air Conditioning and Heating

The Board notes the proposed CPD requirements align with its own and supports the threshold.

Board of Professional Engineers of Queensland

The minimum CPD requirement for registered engineering practitioners is supported by Engineers Australia. ... Engineers Australia recognises that the requirement outlined by the Western Australian Government is consistent with our policy and Queensland's model. This supports harmonisation and mutual recognition.

Engineers Australia

Consult Australia supports the CPD requirements to be consistent where possible and transferable to different schemes where necessary.

Consult Australia

Some stakeholders noted the need for *relevant* CPD, as a requirement to maintain and improve an engineer's competence. Stakeholders were divided over whether the breakdown of CPD hours in different areas should be mandated, or if it is necessary to allow each engineer to determine his or her own learning. Comments include:

professional development needs to be greater than the total of hours prescribed to it. The development must develop the individual and that is an important focus of the scheme rules for CPD.

Institution of Fire Engineers Australia Branch

it is, in our view, more important that the CPD has a clear benefit in maintaining or developing competence relevant to the area of engineering practice. Individual registrants should take ownership of their personal development plan and must be able to reflect upon what they have learned and how this has enhanced their competence.

Engineering Council, UK; Institution of Engineering and Technology UK and WA

Government mandated training should be excluded from CPD, as self engagement in CPD is a key benefit that helps to demonstrate that engineers are self-aware of their obligations.

Alan Punch

The Consultation Paper does not articulate the specific breakdown of the CPD, i.e. hours attributed to field of practice, risk management and or business/ management skills etc.

Master Builders Association of Western Australia

The eligible CPD activities should consist of the following minimum criteria:-

- Technical Presentations and Peer reviewed papers,
- Risk Management practices and developments,
- Review and analysis of Standards (Local and International),
- Knowledge gained as part of performing new or different engineering work (or on-the job-learning),
- Review and analysis of Legislation and any proposed changes that may affect building engineering work. ...

A survey of CPD requirements from 5 industry accreditation schemes identified some CPD criteria that are of no benefit to registered building engineers e.g.

- Required reading of "in house" magazines,
- Rewarding volunteer activities, and
- Excluding review and analysis of standards and legislation.

Communications Experts Group Pty Ltd

Industry organisations that accredit engineers provide guidance on CPD. For example, Engineers Australia requires that the 150 hours of CPD be broken down as follows:

- at least 50 hours must relate to the engineer's area of practice;
- at least 10 hours must cover risk management;
- at least 15 hours must address business and management skills; and
- the remainder must cover a range of activities relevant to their career and interests.⁴⁴

⁴⁴ Engineers Australia, Continuing Professional Development (2021)

Engineers with more than one area of practice must record at least 50 hours for each area. For example, a person registered in both civil and structural engineering will need to record at least 50 hours related to civil engineering and at least 50 hours related to structural engineering. However, if some technical CPD activities overlap the two areas of practice, the activities can be counted as both civil and structural CPD, so that the total number of hours' CPD relating to the areas of practice may be less than 100.⁴⁵

There is also guidance on the number of hours that may be claimed for different types of CPD activities, for example formal learning, unstructured or self-directed learning, on-thejob learning, preparing and delivering presentations, writing articles, etc.⁴⁶

Building and Energy will develop a guideline on CPD requirements for registered engineers in WA, in consultation with industry. Industry organisations will generally be responsible for ensuring that their members meet CPD requirements, including setting record-keeping requirements for registered engineers and conducting random audits of CPD activities undertaken. This is in accordance with existing requirements, for example Engineers Australia's CPD procedure provides for auditing and assessment of chartered and registered engineers' CPD activities.⁴⁷ Building and Energy may also audit registered engineers. In addition, industry organisations will report annually to Building and Energy on CPD requirements, including providing evidence that registered engineers are randomly reviewed to ensure that they maintain their level of competence (see <u>section 7.1</u>).

Questions were raised as to whether evidence of CPD would be required at initial registration, or only at renewal. Comments include:

The continuing professional development (CPD) requirement should be clarified to state whether it is the intent for an engineer to comply with the CPD requirement only for renewal of registration or for the initial registration as well. Engineers Australia

Yes, however this cannot be for initial registration because many consultants have not carried out any CPD as it was not required, also consultants in country areas must be given some leniency on achieving the 150 hours unless remote learning is offered.

W Lupton + Partners Pty Ltd

It is recommended that CPD not be formally assessed as part of initial registration, only at renewal. This is in accordance with Engineers Australia's accreditation process. New applicants are expected to be aware of ongoing CPD requirements, and to have undertaken some CPD activities. However, they are not required to provide a record detailing 150 hours of CPD over the previous three years as part of an initial application to be registered. CPD would only be assessed at registration renewal.

The Housing Industry Association (HIA) suggests that while 150 hours CPD every 3 years is reasonable for professional engineers there could be a lesser requirement for engineering technicians and associates, registered at levels 2 and 3:

HIA proposes that lower risk engineering work should not be burdened with same level or type of mandatory CPD for continued registration renewals Housing Industry Association

Engineers Australia recommends setting the same CPD requirement for all levels, because all levels require people to maintain and apply detailed technical knowledge. However,

⁴⁵ Engineers Australia, Continuing Professional Development (2021)

⁴⁶ Engineers Australia, *Continuing Professional Development Procedure* (2019) sch 1

⁴⁷ Engineers Australia, Continuing Professional Development Procedure (2019) p 2-3

there are a variety of activities that may be counted as CPD, including writing journal articles, mentoring, and on-the-job learning such as learning new software, developing new systems, and research work. Registered engineers are not expected to undertake 150 hours of formal, structured learning every three years.

4.7 Fit and proper person requirements

The BSR Act requires that each applicant to be registered as a practitioner must be "a fit and proper person to be registered".⁴⁸ It is recommended that registered engineering practitioners be subject to the same fitness and propriety assessment as is applied to building surveying practitioners. Applicants would be required to provide an Australian police check dated not more than three months before the date their application is submitted, and also answer the following questions:

- 1. Have you ever been refused registration as an engineer by a registration board or similar body in any Australian state or territory?
- 2. Have you ever been refused a registration or occupational licence, other than as an engineer, by a registration board or similar body in any Australian state or territory?
- 3. Has your registration with any registration board ever been suspended or cancelled, other than for non-payment of registration?
- 4. Have you ever been the subject of disciplinary proceedings by any registration board?
- 5. Are you currently the subject of disciplinary proceedings by any registration board, including any preliminary investigation or action that might lead to disciplinary proceedings?
- 6. Have you ever been the subject of an order made by the State Administrative Tribunal?
- 7. Have you been a director or officer of a corporation which has been the subject of disciplinary proceedings for contravention of the *Building Act 2011*, *Building Services (Registration) Act 2011, Building Services (Complaint Resolution and Administration) Act 2011*, or the Home Building Contracts Act 1991?
- 8. Have you ever been disqualified from being a director of a company?
- 9. Have you ever been a director or officer of a company that has been declared insolvent?
- 10. Have you ever been declared bankrupt?
- 11. Are there any other matters which may be relevant to your suitability for registration about which the Board should be informed?

A "yes" response to any of these questions will be considered by the Building Services Board on the facts presented and may not necessarily affect the applicant's ability to be registered.

While this requirement was not raised in the C-RIS, it is consistent with registration schemes for other professions and trades. It is also consistent with industry-based engineering codes of conduct and ethics, which require, amongst other things, that engineers be law abiding and of good repute. For example, Engineers Australia requires that engineers must be honest and trustworthy, not engage in fraudulent, corrupt, or criminal conduct, and must uphold the reputation and trustworthiness of the practice of engineering.⁴⁹ Likewise, Professionals Australia requires engineers to comply with relevant government legislation, promote ethical behaviour, and at all times further the standing of

⁴⁸ Building Services (Registration) Act 2011 (WA) s17(c)

⁴⁹ Engineers Australia, Code of Ethics and Guidelines on Professional Conduct (Nov 2019)

the engineering profession through conducting themselves with professionalism and by displaying integrity, diligence and decency.⁵⁰

4.8 Insurance

Stakeholders generally agreed that engineers should hold professional indemnity (PI) insurance. Opinions differed widely regarding how much cover they should be required to hold, with suggestions ranging between one and ten million dollars. There was, however, general agreement that the level of PI insurance that is adequate for an engineering contractor depends on a number of commercial factors, can vary over time, and needs to be determined based on the contractor's individual level of commercial risk. Contractual requirements also affect the level of PI insurance that engineers hold. Comments include:

Yes consultants should carry a minimum of \$1mill indemnity insurance. W Lupton + Partners Pty Ltd

Yes, although the quantum may vary with the building sector – for commercial buildings I consider that \$10,000,000 would be an appropriate minimum. Crabtree Engineering Software

Yes - \$10m as this is generally the consistent minimum in a commercial contract Geoff Hesford Engineering

Yes, the same insurance requirement that applies to building surveyors. This ensures proportionate liability will be in place.

Fire Safety Solutions Pty Ltd

HVAC Designers normally require \$5M Professional Indemnity and \$10M Public Liability Insurances ... Since retiring, I continue to maintain \$5M PI Insurance. Ross MacMillan

For companies not an issue – ours is already up at \$10 million. ACMV Design Consultants

HVAC Designers and Engineers personally should carry \$5M Professional Indemnity

RVAC Design

The introduction of mandatory minimum PI insurance ... does not reflect the diversity of the businesses and project that would need to be insured.

Consult Australia

Minimums proposed are adequate for small projects, however may need to be scaled up for larger projects. I would suggest, for Elec Engineering work \$2.0M and claim, \$4.0M in the aggregate

3E Consulting Engineers Pty Ltd

Yes it should be mandatory, risk are with every projects no matter how much you prove theoretically on paper and computer. I am insured for \$1 million, I will go for \$5 million as I draw into more projects and risks.

Cockburn Solutions WA

given that each engineer has a different risk profile we urge that professional indemnity insurance for these engineers be principles-based, rather than a prescriptive approach.

⁵⁰ Association of Professional Engineers Australia, *Ethical commitment* (2020)

Association of Professional Engineers Australia

Engineers Australia supports the requirement of registered engineers to hold adequate professional indemnity insurance. Determining appropriate limits is not straightforward and is based on several factors. What is relevant is that registrants have PI Insurance that is 'adequate', having regard to the nature of the business carried on by the registrant ... It should be the responsibility of each registrant to determine an adequate level of PI Insurance cover

Engineers Australia

Companies and Contractors will still need to review their own business risks and maintain a higher level of insurance if required.

Communications Experts Group Pty Ltd

A blanket criteria for Professional Indemnity Insurance (PII) as a pre-requisite for registration and renewals may not be warranted for much of the lowest risk categories of engineering work. If required, PII cover should be reflective of the risks associated with the services provided.

Housing Industry Association

purely depends on the size / scale of works the Engineer is undertaking, i.e. why impose \$5 or \$10 mil PI for a structural engineer who designs single level project homes only.

TJ Peach & Associates

The nominated amount of \$1 million is very low. This needs to be tiered and increase with the size and scope of the project.

Strata Community Association (WA)

CIBSE supports a requirement for all engineers to have appropriate PI cover for the work they undertake. The CIBSE Code of Professional Conduct requires it – "Assess relevant liability, and if appropriate hold professional indemnity insurance".

Chartered Institution of Building Services Engineers

Only two stakeholders opposed mandatory PI insurance. The Master Builders Association of Western Australia believes that, due to the increasing difficulty and expense of obtaining PI insurance in the building industry, other options should not be precluded, for example monies held in trust:

Master Builders is of the view that as with Queensland, there should be no obligation to hold a minimum level of professional indemnity insurance ...

Anecdotal evidence has shown some within various professional disciplines (including engineers) have taken to opt for not having professional indemnity but having alternatives which include monies held (in trust or other) in the event of claims and damages. For example, a PI cover for a Pty Ltd being \$300,000 (not including excess) for minimum amounts: \$5 million/\$10 million. Taken over 5 years the cost for PI cover would equate to \$1.5 million.

Depositing funds at a set rate over the same period (say \$200,000 p/a) would equate to \$1 million being held, and a (potential) saving of \$500,000. Master Builders Association of Western Australia

It is noted that the example provided above does not demonstrate an equivalent level of cover – one million dollars accrued in trust after five years does not provide an equivalent level of cover to an insurance policy for five to ten million dollars. However, accruing money in trust could, over time, be demonstrated to provide a sufficient and equivalent level of protection.

Opposition also came from a stakeholder who is already registered in Queensland, NSW, Victoria and Tasmania, who commented that he is required to have different insurance policies for the different states:

I have to have extra PI insurance for the different states. (insane)

James Taylor

It is acknowledged that there is complexity in prescribing a required value of PI coverage that is adequate to manage the risk presented by every engineering business. Instead of prescribing a required value, it is recommended that regulations require that each registered engineering contractor must be adequately indemnified to manage the liability presented by the type, size and volume of projects they undertake.

It is also acknowledged that PI insurance requirements for engineers and building surveyors should be equivalent. Therefore, it is further recommended that the required PI insurance for building surveying contractors be amended to match that required for engineering contractors.

It will be the responsibility of contractor applicants to demonstrate that the level of indemnity they have is adequate to manage the risk presented by the work they undertake.

It is anticipated that this recommendation will ensure that engineering contractors who work in multiple Australian jurisdictions will not be required to maintain a separate insurance policy to be registered in WA. So long as an engineer's indemnity coverage is adequate for the total volume and type of work undertaken, and is irrespective of location, it should not be necessary to maintain separate insurance specifically for work done in WA.

This recommendation is in accordance with insurance requirements for engineers registered in NSW, as discussed below.

Building and Energy will work with industry stakeholders, and NSW regulatory staff, to develop consistent guidelines for industry practitioners on assessing liability and the appropriate associated PI insurance requirements.

4.8.1 Insurance requirements for engineers registered in NSW

NSW's *Design and Building Practitioners Act 2020* requires that registered engineers must be "adequately insured".⁵¹

Engineers working in NSW are responsible for determining what level of coverage is adequate for their circumstances. The law in that state requires that a professional indemnity policy must, in the reasonable opinion of a registered professional engineer, provide for an adequate level of indemnity for the liability that could be incurred by the professional engineer in the course of their work.⁵²

In determining whether a policy provides for an adequate level of indemnity, the registered professional engineer must take into account the following matters:

- (a) the nature and risks associated with the work typically carried out;
- (b) the volume of the work typically carried out;
- (c) the length of time that the practitioner has been registered;
- (d) a reasonable estimate of claims that could be brought on the basis of paragraphs (a) (c);
- (e) the financial capacity of the professional engineer; and

⁵¹ Design and Building Practitioners Act 2020 (NSW) s33(1)

⁵² Design and Building Practitioners Regulations 2021 (NSW) r77(1)

(f) any limits, exceptions, exclusions, terms or conditions of the policy.⁵³

It should be noted that the length of time a practitioner has been registered may be of less relevance for engineers in WA, where there is no legislated duty of care. In NSW, people preparing designs for building work owe a duty of care to each owner of the land for a period of up to 10 years. A person to whom a duty of care is owed is entitled to damages for any loss caused.⁵⁴ This legislation is comparatively new, and it is not yet certain how it will affect designers' liability, although a recent judgement indicates that the mere fact of defect is not in itself sufficient to establish a breach of duty of care.⁵⁵



4.9 Financial capacity

Graph 4: Percentage stakeholder support for proposed contractor financial requirements.

The BSR Act and the associated BSR Regulations set minimum financial capacity requirements for all registered contractors.⁵⁶ The C-RIS proposed that registered engineering contractors should be required to meet the same financial capacity requirements as those for registered building surveying contractors. Stakeholders generally supported this proposal (see Graph 4). Stakeholder comments in support of this proposal include:

It is warranted that in a similar manner to existing requirements for registered contractors (builders and building surveyors), registered engineering contractors should have minimum financial requirements to be met.

Master Builders Association of Western Australia

Yes, the public need to be confident that they are dealing with businesses and practitioners that as part of their registration have proved they run sound businesses and they have the ability to meet their debts.

Reliable Energy Solutions

Should be the same as building surveyors

IQ Building Surveyors Pty Ltd

⁵³ Design and Building Practitioners Regulations 2021 (NSW) r77(2)

⁵⁴ Design and Building Practitioners Act 2020 (NSW) Part 4

⁵⁵ The Owners - Strata Plan No 87060 v Loulach Developments Pty Ltd (No 2) [2021] NSWSC 1068

⁵⁶ Building Services (Registration) Act 2011 (WA) s18(1)(b)

The IET West Australian Network supports the proposed minimum financial requirements for registered engineers, as those Specified in Table 5 are consistent with the requirements of other organisations.

Institution of Engineering Technology WA

SCA (WA) broadly supports minimum financial requirements for engineering contractors ... Choosing one financial figure is difficult though, as engineers act at different scales on different sized projects and with different business models. Strata Community Association (WA)

Engineers Australia has no objection to the proposed minimum financial requirements for engineering contractors. However, it is noted that these requirements indicate ability to conduct business and are not a measure of competence to provide engineering services.

Engineers Australia

Conditional support came from stakeholders who were unsure how onerous the financial capacity requirements would, or should, be for business owners:

I am not sure. As majority of the work is done now computer and simulation studies. A good vehicle, basic survey equipment and laptop is enough for a start up like us.

Cockburn Solutions WA

Yes from the perspective that a competent Engineering Contractor should be capable of holding the financial. No from the perspective of a business owner who understands how much work is involved in starting a business, employing staff and building a bank account.

TJ Peach & Associates

Consult Australia was the only stakeholder that opposed the proposed financial capacity requirements:

Consult Australia does not see value in the introduction of proposed minimum financial requirements. Firstly, the intent of the changes is to improve the outcomes of buildings and this element does not drive this outcome. Secondly, the financial requirements are adequately managed through other legislative processes. Finally, it is not clear how the department proposes to ensure compliance with this element.

Consult Australia

It is noted that the purpose of registration under the BSR Act is not *solely* "to improve the outcomes of buildings". It is also intended to provide increased consumer protection by ensuring that businesses that contract to provide building services have the appropriate financial and supervisory capacity to do so. The explanatory memorandum supporting the *Building Services (Registration) Bill 2010* states that the Bill:

significantly strengthens consumer protection by enhancing controls over the supervision requirements of building service providers. Building companies, for example, will be required to nominate one or more supervisors to oversee all building work and to submit details to the Building Services Board of their supervision arrangements for its approval.

In addition, the financial capacity requirements proposed for registered engineering contractors are either that they not be insolvent, or that they have the capacity to pay their debts as and when they fall due. This is not considered to be an onerous or unreasonable requirement for a registered business.

As noted by Engineers Australia, "these requirements indicate ability to conduct business and are not a measure of competence to provide engineering services." The BSR Act provides two categories of registration: practitioner and contractor. *Both* categories of registration are required for a business to contract to provide building services.

Practitioner registration assesses personal capabilities such as qualification, skills, experience, continuing professional development, etc. – factors that affect an individual's competence to provide engineering services. Contractor registration covers contractual capabilities such as financial capacity, insurance cover, organisational capacity, etc.⁵⁷ See Table 3: Overview of recommended engineers' registration framework for more details on the assessments for practitioner and contractor registration.

4.10 Definitions

4.10.1 Engineering work

A definition of building engineering work is necessary to define and regulate the work which only a registered engineer may contract to undertake. This definition will restrict unregistered people from doing such work. The definition of engineering work will operate similarly to the definitions of 'builder work',⁵⁸ 'building surveying work'⁵⁹ and 'painter work'.⁶⁰ The C-RIS proposed the following definition of building engineering work:

building engineering work means engineering work that requires, or is based on, the application of engineering principles and data to a design relating to engineering for a building other than engineering work that is done only in accordance with a prescriptive standard.

It is recommended that the definition proposed in the CRIS be amended as follows:

Building engineering work means professional and/or technical engineering work that relates to a building.

Professional engineering work means engineering work that requires, or is based on, the application of engineering principles and data to a design relating to engineering, other than engineering work that is done only in accordance with a prescriptive standard.

Technical engineering work means engineering work that requires, or is based on, the application of engineering principles and data to a design relating to engineering that is done only in accordance with a prescriptive standard.

These amendments are necessary to accommodate a tiered registration framework, and are in accordance with the NRF. The NRF defines professional and technical engineering work for each category of engineering, for example, structural engineering design is defined as being:

Professional structural design work means engineering work that requires, or is based on, the application of structural engineering principles and data to a design for a building other than engineering work that is done only in accordance with a prescriptive standard.

⁵⁷ Building Services (Registration) Bill 2010 – Explanatory memorandum p 5

⁵⁸ Building Services (Registration) Regulations 2011 (WA) r 13(1)

⁵⁹ Building Services (Complaint Resolution and Administration) Regulations 2011 (WA) r 4A

⁶⁰ Ibid, r 4

Technical structural design work means engineering work that requires, or is based on, the application of structural engineering principles and data to a design for a building that is done only in accordance with a prescriptive standard.⁶¹

The proposed definitions are also in accordance with stakeholder feedback. Stakeholders support a nationally consistent definition of engineering work; comments include:

Consult Australia supports alignment of any definition across Australia.

Consult Australia

Engineers Australia supports efforts to keep a nationally consistent approach to definitions to aid cross-border harmonisation.

Engineers Australia

Happy with definition as it matches ABCB's national registration.

Cockburn Solutions WA

The definition of "building engineering work" is supported for the purposes of engineering registration. The concept of adopting a nationally consistent approach to improve mutual recognition is supported.

Communications Experts Group Pty Ltd

It is noted that this definition aligns with the proposed definition in the ABCB's national registration model.

Master Builders Association of Western Australia

The Board supports the proposed definition as it relates to engineers in the building sector alone. The definition would have to be broadened should the Western Australian Government adopt a mandatory and comprehensive scheme of registration for engineers.

Board of Professional Engineers of Queensland

Conditional support for the definition proposed in the C-RIS came from stakeholders that were concerned either that it may capture work that is currently being done by engineering technicians and associates, or that it may only capture work that incorporates performance solutions under the NCC. Comments include:

There is concern that a broad definition of 'building engineering work' being applied to all levels of engineering work within the nominated categories may be inappropriate. Some elements within structural engineering work present little to no comparative risk and should not be captured by the proposed scheme. Housing Industry Association

Fire systems design entails the rote application of prescriptive standards which detail precisely what system parameters should be and where components must be located.

National Fire Industry Association, Australia

90% of hydraulic design work is carried out to meet a prescriptive standard, being AS3500.

W Lupton + Partners Pty Ltd

the term excludes any building works undertaken only in accordance with a prescriptive standard which may cause confusion because building engineering

⁶¹ Australian Building Codes Board, op cit. p 67

work undertaken in accordance with a prescriptive standard may also be referred to as 'building engineering work' in general terms.

Institution of Fire Engineers Australia Branch

In principle, yes, but it must be recognised that in the HVAC Design field, "Engineering Work" can be equally well or better carried out by an experienced and competent "Designer" compared to a degree qualified Mechanical Engineer without many years of experience and structured on-the-job training.

Ross MacMillan

The definition appears to state that if the work is conducted in accordance with the standard then no registration is required. If this is the intent then no, I do not agree with definition. Australian Standards cover all aspects of mechanical; services work and could hence all be taken as 'prescriptive', this cannot mean that no registration is required.

Geoff Hesford Engineering

These concerns are addressed through the introduction of tiered registration for engineering technicians and associates, and clarification on the meaning of 'prescriptive standard'. The definitions of engineering work will be supported by a definition of 'prescriptive standard' (see below). Building and Energy will work with stakeholders to provide guidance on how these definitions will apply in practice.

Engineers Australia suggested that the definitions of professional and technical engineering work be amended to include "a design, or to a construction, production, operation or maintenance activity", because:

Engineers are involved in the full life cycle of buildings, including initial concept, detailed design, construction, commissioning, operation and maintenance. The definition of 'building engineering work' could be amended to include engineering work in all the life cycle stages, and not refer specifically only to design. Engineers Australia

This suggestion is based on the definition of 'professional engineering service' from both Queensland and Victoria.⁶² Queensland's Professional Engineers Act states:

professional engineering service means 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.

It is recommended that WA initially adopt the definition in the NRF, limited to design work. Engineering technicians and associates are not registered other jurisdictions, and the effect of requiring registration for construction, production, operation or maintenance activities relating to technical engineering work is unknown. After testing the NRF definition for technical engineering work in WA, it may be appropriate expand the definitions to include construction, production, operation and maintenance activities at a later date.

4.10.2 Prescriptive standard

The definition of 'building engineering work' expressly excludes engineering work that is done in accordance with a prescriptive standard. It is recommended that 'prescriptive standard' be defined in accordance with the Queensland definition, as follows:

prescriptive standard means a document that states procedures or criteria-

⁶² Professional Engineers Act 2002 (Qld) schedule 2; Professional Engineers Registration Act 2019 (Vic) s3

- (a) for carrying out a design, or a construction, production, operation or maintenance activity, relating to engineering; and
- (b) 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.

Example— AS1684—Timber framing code, published by Standards Australia⁶³

A 'prescriptive standard' does not automatically include all Australian Standards, or all NCC deemed-to-satisfy solutions.

The Board of Professional Engineers Queensland has published guidance on prescriptive standards to support the interpretation of this definition.⁶⁴ For example, *AS1684 – Timber Framing Code*, published by Standards Australia, is considered to be a prescriptive standard, because:

- it is a document;
- it states procedures or criteria;
- the procedures or criteria are for carrying out a design or a construction, production, operation or maintenance activity, relating to engineering, and the document explains how to apply those procedures or criteria to the particular task to which the document relates;
- the document leaves little to no room for personal choice or judgement in applying the procedures or criteria stated in the document; and
- applying the procedures or criteria stated in the document does not require advanced scientifically based calculations.

However, most Australian Standards are not 'prescriptive standards' because they require the exercise of judgement or personal choice and/or require advanced scientifically based calculations. Building and Energy will work with stakeholders to clarify the definition of a 'prescriptive standard' and how it will be applied in practice. Several stakeholders expressed their willingness to help with this work:

AIRAH would be very pleased to provide more detailed technical input on which standards related to HVAC&R – building services could be considered prescriptive and which work should be considered "building engineering work" as the legislation is developed.

Australian Institute of Refrigeration, Air Conditioning and Heating

For industry and regulator certainty, the proposed definition should provide some expansion on:

- which standards are acceptably prescriptive standards, and/or
- elements of a design standard that constitute a prescriptive standard, and/or
- acceptable processes and criteria that a standard must meet to be considered prescriptive, including datasets and processes relied upon within, and/or
- which body(ies) are considered an authority to deem a standard prescriptive.

Clear guidance is required on what a prescriptive standard is or what existing national framework is being adopted as a definition.

Housing Industry Association

⁶³ Professional Engineers Act 2002 (Qld) schedule 2

⁶⁴ Board of Professional Engineers of Queensland, *Practice Note 4.6(2A) Prescriptive standards* (Aug 2018)

The definition of 'prescriptive standard' will support engineers registration by clarifying what work is required to be undertaken by registered professional engineers and what work may be done by engineering technicians and associates (see <u>section 4.4</u> for more details on tiered registration).

4.10.3 Other definitions

Other definitions to support implementation of the recommended registration framework are:

Medium-rise building means NCC Classes 1 and 10 buildings, and for NCC Classes 2 to 9 buildings to a maximum of three storeys above a storey used for the parking of vehicles but not including a building of Type A construction other than for NCC Classes 2, 3 or 9.

Low-rise building means NCC Classes 1 and 10 buildings and for NCC Classes 2 to 9 buildings with a gross floor area of not more than 2000m², but not including Type A or Type B construction.

These definitions are in accordance with the ABCB's national registration framework for level 2 and 3 engineering designers.

4.11 Proposed amendments

The registration framework proposed in the C-RIS has been revised as a result of stakeholder feedback, including:

- the categories recommended to be registered have been amended and are now based on qualifications, rather than areas of work;
- three tiers of registration are now proposed, to better regulate people doing technical engineering work in accordance with prescriptive standards;
- the industry accreditation process aligns with the requirements of the International Engineering Alliance;
- the process to register people with alternative qualifications and experience has been further developed and clarified;
- the insurance requirements for engineers and building surveyors have been amended to align more closely with requirements in NSW;
- CPD requirements have been further defined and clarified consistent with current industry benchmarks;
- 'fit and proper' requirements have been clarified, consistent with the requirements for registered building surveyors; and
- the supporting definitions have been revised to accord with the NRF and stakeholder feedback.

4.12 Recommendation

Recommendation 1

Amend the Building Services (Registration) Regulations 2011 to register engineering designers, including:

- 1. Register engineering designers in the categories and levels detailed in Table 3.
- 2. Define:
 - a. Building engineering work;
 - b. Professional engineering work;
 - c. Technical engineering work;
 - d. Prescriptive standard;
 - e. Medium rise building; and
 - f. Low rise building

in accordance with <u>section 4.10</u>.

- 3. An applicant to register as an engineering practitioner must:
 - have their qualifications and experience accredited to the relevant level through an industry-based scheme recognised by the International Engineering Alliance;
 - be a fit and proper person to be registered, in accordance with <u>section 4.7</u>; and
 - c. undertake continuing professional development in accordance with <u>section</u> <u>4.6;</u>
- 4. An applicant to register as an engineering contractor must:
 - a. demonstrate that they have adequate professional indemnity insurance to manage their commercial liability, in accordance with <u>section 4.8</u>; and
 - b. have the financial capacity to be a registered contractor, in accordance with section 4.9

Registration of electrical engineers working on buildings should be considered at a later date, once the recommendations from the review into improving buildings approvals in WA are implemented.

Recommendation 1a

Amend the Building Services (Registration) Regulations 2011 to require that a registered building surveying contractor must have adequate professional indemnity insurance, in accordance with <u>section 4.8</u>.

4.13 Professional Engineers Act

A broader Professional Engineers Act, covering all engineering work, was not recommended in the Building Confidence Report, nor within the scope of the review. Nonetheless, some stakeholders support registration of all professional engineers.

Subject to acceptance of the above recommendation and its successful implementation, there would be merit in a comprehensive cost-benefit analysis to consider registration for all engineers. The framework recommended here, to register professional engineers who work on buildings, is consistent with the frameworks to register all professional engineers in other Australian jurisdictions, including Queensland and Victoria. That is, the categories, qualifications, experience, CPD, insurance, and fitness and propriety requirements are comparable, as are the definitions and regulated work. Therefore, the registration of professional building engineers under the BSR Act could be easily transferred to operate under a dedicated Engineers Act at any time.

5 Recommendation 2: Code of Conduct

5.1 Overview

Proposal 2 of the C-RIS states:

The Building Commissioner is empowered to develop and enforce codes governing the conduct of any building service providers registered under the BSR Act.⁶⁵

Engineering professionals must have detailed technical and professional understanding and apply their understanding appropriately. A code of conduct for engineers sets out the minimum standard of professional conduct required to be met by registered engineers so that they can carry out all their roles with due integrity, care for the public, and competence.

It is proposed that a code of conduct for registered engineers in WA is modelled on Queensland's Code of Practice for Registered Professional Engineers.

The introduction of an engineers' code of conduct was supported by all stakeholders who commented on it. A code of conduct is recommended to be aligned with, and complementary to, existing codes of conduct operated by engineering industry associations.

5.2 Feedback



Graph 5: Stakeholder support for the introduction of a Code of Conduct for engineers.

All of the stakeholders who commented on this proposal support a code of conduct for registered engineers, either wholly or conditionally (see Graph 5).

In general stakeholders agreed with the aims of the proposed code, to set out the minimum levels of conduct required to be met by registered engineering practitioners and contractors

⁶⁵ Building Services (Complaint Resolution and Administration) Act 2011 s 96(1)(b)

in WA so that they can carry out all their roles with integrity, competency, accountability and in the public interest. Comments include:

Yes. All providers of professional services for a fee must be and remain responsible and held accountable for the quality, integrity, and honesty of the service they provide and guarantee the performance of the systems they design. Ross Macmillan

It sets the standards all professional consultants must adhere to when providing consultancy services.

Fire Safety Solutions Pty Ltd

Yes, it will benefit the practice and reputation of the industry. Crabtree Engineering Software

Yes. Maintains accountability and professionalism.

TJ Peach & Associates

Yes – to ensure the scope of the work role is not limited by contractual conditions. Institution of Fire Engineers Australia Branch

The adoption of a code of conduct that enforces a code of ethics, including practicing within their area of competence, identifying and minimising risk, escalating matters of public risk and delivering affordable services is strongly supported.

Institution of Engineering Technology WA

A commitment by engineers to carry out their roles with integrity, care for the public and competence must underpin any registration scheme. Engineers should be bound to only practice in their area of competence or seek to address new competencies if required. They should also be required to escalate matters of public risk. This is the principle that protects the public.

Engineers Australia

Yes. Engineers must have a set of rules that they can be measured against and held accountable to.

Reliable Energy Solutions

Yes there needs to be standards and consequences.

Sapphire Homes (Aust) Pty Ltd

A code of conduct is essential to uphold standards of practice of registered engineers.

Board of Professional Engineers of Queensland

There was support for WA's code to align with that of Queensland (with some amendments to allow for WA conditions), enabling consistency across jurisdictions. Comments include:

Engineers Australia supports that the code of conduct for registered engineers in WA is modelled on Queensland's Code of Practice. Adopting this supports national consistency and mutual recognition amongst jurisdictions

Engineers Australia

We note that WA proposes to model its code of conduct for registered engineers on Queensland's Code of Practice for Registered Professional Engineers and support this approach which will ensure greater consistency between states. Association of Professional Engineers Australia There is support for the code of conduct as proposed in Appendix A which is similar to the Queensland code of ethics.

Communications Expert Group

The Board notes the similarity of the proposed code of conduct with its own Code of Practice for Registered Professional Engineers and agrees with what is proposed.

Board of Professional Engineers Queensland

Consult Australia suggested that any code of conduct should be easily updated, and responsive to feedback:

If the WA government wishes to pursue a formalised code of conduct, it is suggested that it does so through regulations rather than amendments to legislation. This is a more responsive mechanism that can be updated as necessary in the future.

Consult Australia

Section 96 of the *Building Services (Complaint Resolution and Administration) Act* 2011 (WA) empowers the Building Commissioner to issue codes relating to both the carrying out of building services and the conduct of registered building service providers. A code of conduct for registered engineers can therefore be implemented directly by the Building Commissioner without legislative amendment. This means that it can easily be revised as necessary in response to industry feedback in the future.

The Warren Centre noted that a code must be enforced through auditing to be effective:

codes of conduct must be mandated and practitioners audited and the code enforced to be effective. Just having a code of conduct is insufficient.

Warren Centre

The draft code of conduct for building surveyors incorporates a compliance policy. This is based on the national model code of conduct for building surveyors, developed by the ABCB to assist jurisdictions to implement the recommendations of the Building Confidence Report. It is recommended to append this compliance policy to the final version of a code of conduct for engineers.

5.3 Proposed amendments

Some stakeholders requested further consultation be undertaken on the code before it is finalised. Concerns were raised on some specific aspects of the proposed code, such as the requirement for engineers to consider and reduce "reasonably foreseeable adverse effects of the provision of engineering services on the natural environment." The MBA states that:

This provision in its current format is far too objective and is not easily quantifiable from a compliance and/or disciplinary perspective. Further consultation and discussion are warranted on this matter.

Master Builders Association of Western Australia

Other suggestions include:

It is suggested that under section 3.9 of the code that the phrase 'must report instances of professional misconduct...' be change to 'should report instances of professional misconduct.' Engineers Australia does not believe it should be a breach of the code outright. Allowance needs to be made that, for example, a

supervisor might be able to fix the problem/breach and educate the practitioner, rather than reporting it to the regulator.

Engineers Australia

Clause 3.9, the mandatory reporting of misconduct is a "one size fits all" approach. Allowance should be made for:

- a) decisions which are raised under "matter of public risk". e.g. a client or project manager specifies or declines conditions which lead to a possible claim for misconduct, and
- b) where attempts are made to rectify the issue.

Communications Experts Group Pty Ltd

I would add some guidelines regarding completion and handover of a building and its services.

Crabtree Engineering Software

I can see social and environmental; it would be good just to add something like delivering sustainable engineering services instead of delivering engineering services

Cockburn Solutions WA

If it is not already covered, an addition may be that professionals exercising their duty of care in their work.

Institution of Fire Engineers Australia Branch

I would also like to add that an engineer shall not supplant the work of another engineer.

Associated Engineers Pty Ltd

Further consultation with industry stakeholders will be undertaken to refine the proposed code to ensure that it is compatible with WA's legislation and industry practice, while staying aligned with the Queensland Code of Conduct to aid consistency across jurisdictions.

5.4 Recommendation

Recommendation 2

Building and Energy will consult with industry stakeholders to finalise a code of conduct for registered engineers. The code of conduct will then be issued by the Building Commissioner, under section 96 of the BSCRA Act.

6 Recommendation 3: Registered people to work within area of competence

6.1 Overview

Proposal 3 of the C-RIS states:

Amend the BSR Act to require that ALL registered building service providers must work within their area of competence.

This is a necessary part of a registration scheme to allow an engineer to be registered only once. Under the recommended WA scheme, a registered engineer can undertake professional engineering work of a type that may overlap with other engineering disciplines (see Figure 1). This proposal recognises that most categories for registration are very broad, empowering registered people to work on a variety of buildings. It is neither practicable nor desirable to require that every registered person be competent to work on every type and size of building, therefore registered people must take responsibility for ensuring that they are competent to undertake the work they contract for.

A requirement to operate within their area of competence limits the possibility of a registered building service provider doing work outside their skill set.

This proposal is consistent with requirements in Tasmania and Queensland. Tasmania's *Building Act 2016* requires that a person undertaking building design work must ensure that "he or she acts only within the area of his or her competence".⁶⁶ Queensland's Code of Practice for registered engineers, which is a statutory instrument,⁶⁷ requires that:

A registered professional engineer must:

- (a) undertake professional engineering services only within their area of competence;
- (b) not misrepresent their competence;
- (c) not knowingly permit those whose work they are responsible for to breach paragraph (a) or paragraph (b);
- (d) recognise where other professional advice is required and either seek it or recommend to an employer and/or client to seek such expert advice in appropriate areas.⁶⁸

6.2 Feedback

There was almost universal support for the requirement for engineers to operate within their area of competence. 62% of stakeholders fully supported the proposal and 17% gave conditional support. Only 5% of stakeholders – that is, two stakeholders – did not support the proposal (see Graph 6).

⁶⁶ Building Act 2016 (Tas) s 43.

⁶⁷ Professional Engineers Act 2002 (Qld) s108(6)

⁶⁸ Board of Professional Engineers of Queensland, *Code of practice for registered professional engineers* (Nov 2013) p 5.



Graph 6: Stakeholder support for engineers to operate only within the area of competence.

6.2.1 Support

Support centred on the importance of practitioners working in areas where they have sufficient knowledge or expertise. Stakeholders noted that this proposal accords with the requirements of various other legislative instruments and industry codes of conduct. Comments include:

Yes, the PE Act [*Professional Engineers Act 2002* (Qld)] creates an offence (s115(3)) for a registered professional engineer to carry our professional engineering services in an area of engineering for which they are not registered. Board of Professional Engineers of Queensland

working within the engineer's area of personal competence is already a key element of the CIBSE Code of Professional Conduct as well as other UK licensed engineering bodies.

Chartered Institution of Building Services Engineers

It is a requirement of all professional registration schemes and codes of conduct for engineers to practise within their area of competence.

Warren Centre

This aligns well with our Statement of Ethical Principles which all registered engineers are required to adopt and contains the statement; 'Engineering professionals should always act with care and perform services only in areas in which they are currently competent or under competent supervision'.

Engineering Council, UK; Institution of Engineering Technology WA

Stakeholders also noted that this proposal could reduce the risk of errors and rectification work, and improve public confidence in registered people. Comments include:

Requiring registered building service providers to work within their area of competence helps avoid practitioners seeing their class of registration as a licence to work in any area of their discipline. This is particularly important when registering broad categories of engineers such as civil engineers as a civil engineer who is competent in pavement design is not necessarily competent to design a high-rise building. Engineers should use their professional judgement to ensure that they only conduct work within their area of knowledge and capability. Engineers Australia

Practitioners should work within their area of competence to ensure their designs are appropriate, safe and cost effective. The public need to know that the right engineer with the appropriate experience and knowledge designed each element of a project correctly.

Reliable Energy Solutions

This reduces the risk of mistakes being made that may impact on life safety or create a financial burden on building owners.

Fire Safety Solutions Pty Ltd

Restricting registered engineers to only carrying out work within their area of competency mitigates risks of engineering faults.

Board of Professional Engineers of Queensland

Yes, I see many consultants working outside of the field of expertise and I am often called in to rectify work that has been carried out to incorrect documentation.

W Lupton + Partners Pty Ltd

This proposal emphasises the need for all registered engineers to provide services within their area of competence... It is accepted that Proposal 3 may take time to be implemented, however failure to implement Proposal 3 leaves a significant regulatory loophole that can be exploited.

Communications Experts Group WA

That should be obvious. I am a level 1 building surveyor but would not accept work for a hospital as I have no experience with it.

IQ Building Surveyors Pty Ltd

6.2.2 Conditional support

One stakeholder expressed concern that the requirement to operate within their area of competence might restrict engineers from working in multiple disciplines:

Proposal 3 will restrict registered engineers to work only within their area of expertise. A considerable number of engineers' expertise can encompass more than one discipline. Providing that the engineers can demonstrate that they are competent in more than one area, there should be nothing to preclude them from undertaking work of a multidisciplinary nature.

Institution of Engineering Technology UK

An engineer's area of expertise, or competence, is not necessarily tied to a single discipline. It is understood that an engineer may be competent to undertake work within multiple disciplines, either because they have dual qualifications or due to the areas of overlap between the different categories of engineering (see Figure 1). Both of these situations are proposed to be accommodated to allow engineers to be registered appropriately to work in their area competence (see sections <u>4.2.3</u> and <u>4.3.1</u>, above).

However, there can also be a considerable variety of work within a single registration category. For example, a civil engineer may specialise in structural, hydraulic or geotechnical work. A requirement for engineers to work within their area competence addresses the fact that there will be work that falls within the scope of an engineer's registration, that they are nevertheless not competent to undertake.

This requirement is consistent with the Institution of Engineering and Technology's (IET) own rules of conduct for its members, which states that:

Members shall not undertake professional tasks and responsibilities that they are not reasonably competent to discharge.⁶⁹

Stakeholders also questioned how an area of competence will be defined, assessed and audited. Comments include:

There should be a means for systematic review of the areas of practice. In Canada, engineers are required to submit an annual report on the activities taken that is used as a record to demonstrate that the engineers are working within their area of competence.

Alan Punch

this proposal could present issues for registered persons in the event of a complaint/dispute resolution matter in demonstrating their competence Master Builders Association

An engineer's specific area(s) of competence will not be incorporated into their registration. Instead it will be the responsibility of each registered person to be aware of what work they are competent to do, and to ensure that they only undertake work for which they are competent. One stakeholder noted that there is already an onus on people to demonstrate their own competence in the event of a dispute:

The so called disadvantage to "place a legal burden on registered people to prove their competence, in the event of a dispute" is incorrect. All legal cases require the demonstration of competence when things go wrong

Warren Centre

WA will align definitions of area of competence with those in other jurisdictions. In general, however, a person's area of competence will be defined by the study and experience they have undertaken to gain registration.

An area of competence can be expanded or changed over the course of a person's career, through appropriate CPD training, further study in the relevant discipline or by learning onthe-job while under the supervision of an appropriately qualified, competent and registered engineer. If this expanded area of competence is still considered to fit within the practitioner's category of registration, for example mechanical engineering, then an amended registration would not be required. However, if the new area of competence is outside the scope of practitioner's registration, then an amended registration will be required before any unsupervised work is undertaken.

6.2.3 Opposition

Opposition to this proposal came from a stakeholder that is of the view that an engineer's area of competence will be too onerous to classify:

No, as it would be too onerous to classify. You could not use the NCC building classification as the size of the building would change the complexity and type of mechanical services provided. I think that at some point, review of the designer's previous experience and works of a similar nature of the registered engineer by the client would have to be taken into account.

ACMV Design Consultants

It is not proposed to classify engineers' areas of competence as part of their registration. Under this proposal, it will be the legislated responsibility of *all* registered people to judge

⁶⁹ Institution of Engineering and Technology, *Rules of conduct* (3 Oct 2019) rule 6

their own level and extent of expertise, and to only undertake work they are competent to do.

Professionals Australia states that a legislative requirement for engineers to work within their area of competence is "not necessary":

Formally requiring registered persons to work within their area of competence is not necessary for Professional Engineers under our proposal for a broad-based registration scheme but is not inconsistent with it.

Association of Professional Engineers Australia

It is noted, however, that Professionals Australia already requires engineers to work within their area of competence through their code of ethics, which states that registered engineers are required to:

Practice solely in their areas of competence and communicate to relevant stakeholders when the scope of work falls outside their area of competence.

Engineers are already bound to act within their area of competence under multiple industry-based codes of ethics. It will be of benefit to the building and construction industry for legislation to reinforce that <u>all</u> registered people must work within their area of competence.

6.3 Recommendation

Recommendation 3

It is recommended that section 11 of the BSR Act be amended to require that all building services practitioners must work within their area of competence.

Building and Energy will provide additional guidance to industry on applying and complying with this recommendation.

Note that, as this recommendation requires an Act amendment, it will be progressed separately to the other recommendations presented in this D-RIS. See <u>section 7.2</u> for more details.

7 Implementation

7.1 Co-regulatory registration using industry accreditations

Industry organisations will be responsible for assessing engineers' qualifications and experience to determine their competence for registration. Building and Energy will establish a memorandum of understanding (MOU) with each organisation whose members apply for registration in WA. The MOU will require the organisation to report annually on their accreditation assessment process, demonstrating sufficient rigor to ensure that applicants are competent to be registered. This is in accordance with requirements in other Australian jurisdictions and the International Engineering Alliance (IEA). Queensland's BPEQ administers a similar registration model, and stakeholders supported this view. Comments include:

The Board maintains control of the assessment entities by issuing prescribed instructions for the carrying out of assessments. These approved entities and their schemes are subject to review and renewal. This oversight should be maintained by an appropriate government agency or statutory authority under any registration scheme operating in Western Australia.

Board of Professional Engineers of Queensland

If additional industry accreditation schemes are to be accepted as pathways to registration, they should be subject to formal review by Government to ensure that a suitable level of rigour to the assessment process is maintained. Engineers Australia

a registration framework should be consistent across those pathways and not be subject to interpretation or differing checks-and-balances depending on which pathway is chosen. Further to this, it considered that rather than industry bodies setting the required qualification and experience requirements for registration, that this should be set by the Government informed by the relevant industry bodies.

Housing Industry Association

we note that not all membership bodies are created equally. We need to avoid a situation where engineers access the cheapest or easiest ways to fulfil their CPD requirements. ... The requirements to be registered, and to obtain CPD, must be similar across organisations and regulated by government or relevant body for quality.

Strata Community Association (WA)

It is recommended that any engineering accreditation scheme that is recognised for registration in WA be required to be in accordance with the IEA requirements. Beyond that, each organisation should be required to report annually on the following issues:

- 1. That they are currently an authorised member of the relevant IEA competence agreement International Professional Engineers' Agreement.
- 2. Details of the assessment process, including confirmation that:
 - a. assessors are eligible for registration, appropriately trained and have 'appropriate and relevant engineering experience' in relation to the applicant being assessed;
 - b. there is a documented structure to govern the assessment and audit process;
 - c. the assessment and decision-making processes are fully documented and auditable;
 - d. individual assessments are randomly reviewed to ensure a consistent, rigorous assessment of all applicants against the relevant standard;

- e. assessors are selected using criteria to ensure that:
 - i. their own qualifications and experience comply with that required to conduct the assessment; and
 - ii. they understand and correctly apply the assessment process in accordance with interview standards; and
- f. there is a documented process for appealing against an assessment outcome which will be reviewed by an independent panel of assessors.
- 3. Continuing Professional Development requirements, including evidence that registered engineers are randomly reviewed to ensure that they maintain their level of competence.

This aligns with processes to approve assessment schemes in Queensland, New South Wales and Victoria, and also the IEA's annual reporting requirements for industry-based accreditation schemes. It is therefore not expected to result in any additional administrative burden for industry organisations.

7.2 Implementation process

Recommendations 1, 1a and 2 can be implemented through regulation amendments. The recommendations can commence, with their associated transition periods, as soon as the regulation amendment is gazetted.

Recommendation 3 requires an amendment to the BSR Act. Amending an Act is a longer, more complex process requiring passage of a Bill through both houses of the State Parliament. To implement the Building Confidence Report recommendations, amendments to several Acts in the Building and Energy portfolio, including the BSR Act, will be consolidated into a single Amendment Bill. Amendments to the BSR Act to implement recommendation 3 will be progressed as part of that consolidated Bill.

7.3 Transition period

Registering engineers represents a significant change for the building industry in WA. Therefore a two-stage implementation process is recommended, with a transition period of two years for each stage.

In the first stage, registration will commence for structural and fire engineers, with a twoyear transition period.

The second stage will commence one year later, that is at the mid-point of the transition period for stage one, when registration will commence for civil and mechanical engineers, again with a two-year transition period.

This will give a total transition period of three years to register all building engineers, across all categories. The proposed transition periods to introduce registration for building engineers in WA is illustrated in Figure 2. By the end of the third year, registration will be mandatory for all engineers in the prescribed categories who work on buildings under the NCC.

| | Year 1 | Year 2 | Year 3 |
|--|---|--|--------|
| Registration of structural and fire engineers commences 1 Jan 2023 | Stage 1: structural and fire engineers registration 2-year transition period | | |
| Registration of civil and mechanical engineers commences 1 Jan 2024 | | Stage 2: civil and mechanical engineers registration 2-year transition period | |

Figure 2: Proposed transition periods to introduce registration for building engineers in WA

Implementing registration for engineers over three years is intended to provide time for people working in the industry to obtain the necessary accreditation(s) and apply to be registered. It will also help to ensure that application and renewal timeframes are staggered, allowing both industry accreditation organisations and DMIRS' licensing staff to better manage the flow of applications and renewals.

Stakeholders generally agreed that a two-year transition period was appropriate to register engineers:

There is strong support for the proposed 24 month transition period, because it is reasonable to expect competent engineers who are not industry organisation members to complete the registration within 24 months.

Communications Experts Group Pty Ltd

AIRAH believes 24 months is sufficient as a transition period. Australian Institute of Refrigeration, Air Conditioning and Heating

Yes, 24 months' transition period is sufficient. Engineers Australia cautions against a transition period longer than 24 months.

Engineers Australia

Some stakeholders suggested that a longer transition would be required. Comments include:

Transition period may need to be longer, depending on the work required by the consultant to become registered, as many consultants operate their own business and time to undertake this work is limited.

W Lupton + Partners Pty Ltd

The 24 months appears reasonable, but will there be the capacity to assess all those engineers in this time frame. Once it become "law" there will also be a delay while resumes and CPD cases were compiled before being submitted for review. ... reinforce that a good percentage of HVAC designers in WA are not degreed engineers.

ACMV Design Consultants

Perhaps make allowance of a transition period that accommodates an extension where the person has made proper action to fulfil the registration requirements. Institution of Fire Engineers Australia Branch

It is anticipated that the recommended two-stage implementation process, with a total transition of three years, will address these issues.

As discussed <u>above</u>, engineers are not currently required to be registered in WA, therefore there are no existing registrations to transfer into the new framework. Instead, all engineers in the prescribed categories who work on buildings will be required to have their qualifications and experience accredited by an industry organisation (if they have not already done so) and then apply to be registered.

7.4 Education

Building and Energy will work closely with industry to implement the reforms. Education and information will be provided through guidelines, bulletins and emails, as well as faceto-face information sessions, to communicate how the reforms will affect people working in the building industry.

8 Evaluation

The C-RIS proposed to evaluate the effectiveness of the reforms through online surveys. Stakeholders agree that surveys are an appropriate way to obtain feedback from a wide range of people, so long as other feedback forums are also used, including ongoing, faceto-face engagement with industry stakeholders. Comments include:

I wouldn't be responding to this survey if I didn't hope that my response would be of assistance in providing a better outcome.

ACMV Design Consultants

Yes, this seems reasonable. CIBSE is also willing to engage in ongoing dialogue over the introduction of registration requirements.

Chartered Institution of Building Services Engineers

I think that on-line surveys would be informative but periodic industry workshops may also add value to the process. These could be organised by Engineers Australia and/or CIBSE WA in conjunction with DMIRS.

Crabtree Engineering Software

Master Builders is of the view online surveys are one appropriate platform to obtain industry feedback on reform operational matters. However, in addition, the Regulator needs to provide other platforms which would see industry representative bodies to be consistently engaged. This would include, but not limited to workshops, seminars, and direct individual contractor and practitioner engagement.

Master Builders Association of Western Australia

Yes, but not in isolation. The Board employs staff to perform engagement and feedback gathering functions. Strategies involving regular in-person engagement have proven very effective in reaching target groups, increasing registration numbers and gathering feedback from engineering 'in the field'.

Board of Professional Engineers of Queensland

Open forums / round table discussions are also great for these types of things. TJ Peach & Associates

Online surveys are an appropriate way to obtain industry feedback when used in conjunction with other mechanisms. Reforms of this type require feedback from multiple stakeholders including 1) employees; 2) business; and 3) assessment authorities. Industry forums and direct feedback from assessment authorities (such as Engineers Australia) should also be considered in evaluating the effectiveness of these reforms.

Engineers Australia

Online surveys are only one possible tool that may be used to seek feedback from both impacted parties and the general public. These should be used judicially, recognising their limitations and other tools be considered (either as alternatives or to complement the weaknesses of online surveys) to ensure that the Government receives an appropriate and valid response to its question of effectiveness.

Consult Australia

We would also recommend regular external stakeholder meetings with groups such as AIRAH, Engineers Australia etc. to identify any issues affecting the members of these organisations. These networks can likewise help with disseminating communications materials.

Australian Institute of Refrigeration, Air Conditioning and Heating

Professionals Australia represents professional engineers, we can provide valuable information, feedback, and advice on behalf of our members in terms of the design, operation, and review of an engineering registration scheme in WA. Association of Professional Engineers Australia

Online surveys will be used in conjunction with other means of consulting with the building industry. Other means of gathering feedback include forums and workshops in conjunction with industry organisations, and encouraging submission of comments by email to <u>be.info@dmirs.wa.gov.au</u>

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Appendix A – NCC building classifications

| 1a | A single dwelling including the following: | | |
|-----|---|--|--|
| | a) A detached house. b) One of a group of two or more attached dwellings, each being a building, separated by a fire-resisting wall, including a row house, terrace house, town house or villa unit. | | |
| 1b | a) A boarding house, guest house, hostel or the like that— would ordinarily accommodate not more than 12 people; and have a total area of all floors not more than 300 m² (measured over the enclosing walls of the building or buildings); or b) four or more single dwellings located on one allotment and used for short-term holiday accommodation. | | |
| 2 | A building containing two or more separate sole-occupancy units. | | |
| 3 | A residential building providing long-term or transient accommodation for a number of unrelated persons, including: a) A boarding house, guest house, hostel, lodging house or backpacker accommodation. b) A residential part of a hotel or metal. | | |
| | b) A residential part of a hotel of motel. c) A residential part of a school. d) Accommodation for the aged, children, or people with disability. e) A residential part of a health-care building which accommodates members of staff. f) A residential part of a detention centre. g) A residential care building. | | |
| 4 | A single dwelling in a Class 5, 6, 7, 8 or 9 building. | | |
| 5 | An office building used for professional or commercial purposes | | |
| 6 | A shop or other building used for the sale of goods by retail or the supply of services direct to the public, including— | | |
| | a) an eating room, café, restaurant, milk or soft-drink bar; or b) a dining room, bar area that is not an assembly building, shop or kiosk part of a hotel or motel; or c) a hairdresser's or barber's shop, public laundry, or undertaker's establishment; or d) a market or sale room, showroom, or service station. | | |
| 7a | A carpark. | | |
| 7b | A building that is used for storage, or display of goods or produce for sale by wholesale. | | |
| 8 | A process-type building that includes the following: | | |
| | a) A laboratory. b) A building in which the production, assembling, altering, repairing, packing, finishing, or cleaning of goods or produce for sale takes place. | | |
| 9a | A health-care building including any parts of the building set aside as laboratories, and includes a healthcare building used as a residential care building. | | |
| 9b | A public assembly building, including a library, theatre, public hall or place of worship, school, nightclub, bar, cinema, stadium, or public transport station. | | |
| 9c | A residential care building. | | |
| 10a | A non-habitable building including a private garage, carport, shed or the like. | | |
| 10b | A structure that is a fence, mast, antenna, retaining wall or free-standing wall or swimming pool or the like. | | |
| 10c | A private bushfire shelter. | | |

Appendix B – *Building Confidence Report* recommendations

- 1. That each jurisdiction requires the registration of the following categories of building practitioners involved in the design, construction and maintenance of buildings:
 - a. Builder
 - b. Site or Project Manager
 - c. Building Surveyor
 - d. Building Inspector
 - e. Architect
 - f. Engineer
 - g. Designer/Draftsperson
 - h. Plumber
 - i. Fire Safety Practitioner
- 2. That each jurisdiction prescribes consistent requirements for the registration of building practitioners including:
 - a. certificated training which includes compulsory training on the operation and use of the NCC as it applies to each category of registration;
 - b. additional competency and experience requirements;
 - c. where it is available, compulsory insurance in the form of professional indemnity and/or warranty insurance together with financial viability requirements where appropriate; and
 - d. evidence of practitioner integrity, based on an assessment of fit-and-proper person requirements.
- 3. That each jurisdiction requires all practitioners to undertake compulsory Continuing Professional Development on the National Construction Code.
- 4. That each jurisdiction establishes a supervised training scheme which provides a defined pathway for becoming a registered building surveyor.
- 5. That each state establishes formal mechanisms for a more collaborative and effective partnership between those with responsibility for regulatory oversight, including relevant state government bodies, local governments and private building surveyors (if they have an enforcement role).
- 6. That each jurisdiction give regulators a broad suite of powers to monitor buildings and building work so that, as necessary, they can take strong compliance and enforcement action.
- 7. That each jurisdiction makes public its audit strategy for regulatory oversight of the construction of Commercial buildings, with annual reporting on audit findings and outcomes.
- 8. That, consistent with the International Fire Engineering Guidelines, each jurisdiction requires developers, architects, builders, engineers and building surveyors to engage with fire authorities as part of the design process.
- 9. That each jurisdiction establishes minimum statutory controls to mitigate conflicts of interest and increase transparency of the engagement and responsibilities of private building surveyors.

- 10. That each jurisdiction put in place a code of conduct for building surveyors which addresses the key matters which, if contravened, would be a ground for a disciplinary inquiry.
- 11. That each jurisdiction provides private building surveyors with enhanced supervisory powers and mandatory reporting obligations.
- 12. That each jurisdiction establishes a building information database that provides a centralised source of building design and construction documentation.
- 13. That each jurisdiction requires building approval documentation to be prepared by appropriate categories of registered practitioners, demonstrating that the proposed building complies with the National Construction Code.
- 14. That each jurisdiction sets out the information which must be included in performance solutions, specifying in occupancy certificates the circumstances in which performance solutions have been used and for what purpose.
- 15. That each jurisdiction provides a transparent and robust process for the approval of performance solutions for constructed building work.
- 16. That each jurisdiction provides for a building compliance process which incorporates clear obligations for the ongoing approval of amended documentation by the appointed building surveyor throughout a project.
- 17. That each jurisdiction requires genuine independent third party review for specified components of designs and/or certain types of buildings.
- 18. That each jurisdiction requires on-site inspections of building work at identified notification stages.
- 19. That each jurisdiction requires registered fire safety practitioners to design, install and certify the fire safety systems necessary in Commercial buildings.
- 20. That each jurisdiction requires that there be a comprehensive building manual for Commercial buildings that should be lodged with the building owners and made available to successive purchasers of the building.
- 21. That the Building Ministers' Forum agree its position on the establishment of a compulsory product certification system for high-risk building products.
- 22. That the Building Ministers' Forum develop a national dictionary of terminology to assist jurisdictions, industry and consumers to understand the range of terminology used to describe the same or similar terms and processes in different jurisdictions.
- 23. That the Building Ministers' Forum acknowledges that the above recommendations are designed to form a coherent package and that they be implemented by all jurisdictions progressively over the next three years.
- 24. That the Building Ministers' Forum prioritise the preparation of a plan for the implementation of the recommendations against which each jurisdiction will report annually.
Appendix C – List of submissions received on C-RIS

The following stakeholders submitted written feedback on the reform proposals presented in the C-RIS. Stakeholders are listed chronologically, in the order their submissions were received.

- 1. IQ Building Surveyors Pty Ltd
- 2. 3E Consulting Engineers Pty Ltd
- 3. Airey Taylor Consulting Pty Ltd
- 4. Sapphire Homes (Aust) Pty Ltd
- 5. Graham Roberts
- 6. Cockburn Solutions WA
- 7. City of Armadale
- 8. City of Swan
- 9. ACMV Design Consultants
- 10. Geoff Hesford Engineering
- 11. Golder Associates Pty Ltd
- 12. Om Prakash Singh
- 13. James Taylor
- 14. City of Joondalup
- 15. Reliable Energy Solutions
- 16. Alan Punch
- 17. Western Australian Local Government Association
- 18. Ross Macmillan
- 19. DB Mechanical Consulting
- 20. Australian Institute of Refrigeration, Air Conditioning and Heating
- 21. Engineering Council UK
- 22. Consult Australia

- 23. Engineers Australia
- 24. Institution of Engineering Technology WA
- 25. Communications Experts Group WA
- 26. Associated Engineers Pty Ltd
- 27. Institution of Engineering Technology UK
- 28. RVAC Design HVAC consultancy
- 29. Institution of Fire Engineers Australia
- 30. TJ Peach Ltd
- 31. Strata Community Association WA
- 32. Board of Professional Engineers Queensland
- 33. Professionals Australia
- 34. W. Lupton and Partners
- 35. Master Builders Association
- 36. National Fire Association Australia
- 37. Fire Safety Solutions Pty Ltd
- 38. Housing Industry Association
- 39. The Warren Centre
- 40. Citizens for Building Reform WA
- 41. Crabtree Engineering Software
- 42. Chartered Institute of Building Services Engineers

Appendix D – Cost benefit analysis

See attached report.