

Regulatory Impact Statement

Proposed Practice Standard for Professional Engineers

Design and Building Practitioners Act 2020

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Glossary

The following is a list of terms and acronyms used in this document.

Term / Acronym	Description
ABCB	Australian Building Codes Board
Building Bill	A proposed Bill under development by the Department of Customer Service to consolidate building and construction legislation. A draft copy of the proposed Building Bill is available at www.haveyoursay.nsw.gov.au/reforming-building-laws .
BCA	Building Code of Australia
BDC Act	<i>Building and Development Certifiers Act 2018</i>
Building certifier	Has the same meaning as in the BDC Act.
Building element	Has the same meaning as section 6 of the DBP Act.
Building practitioner	Has the same meaning as section 7 of the DBP Act.
Building regulator	NSW Fair Trading/Office of the NSW Building Commissioner
Building work	Has the same meaning as section 4 of the DBP Act.
Class 2 building	Has the same meaning as in the NCC. A Class 2 building is a building containing two or more sole-occupancy units, where each sole-occupancy unit is a separate dwelling.
Class 3 building	Has the same meaning as in the NCC. A Class 3 building is a residential building providing long-term or transient accommodation for a number of unrelated persons, for example: a boarding house, guest house, hostel, lodging house, or the residential part of a hotel or motel.
Class 9c building	Has the same meaning as in the NCC. A Class 9c building is a residential care building where 10% or more of persons who reside there need physical assistance in conducting their daily activities and to evacuate but does not include a hospital.
Code of Practice	The Code of Practice for Professional Engineers is set out in Schedule 4, Part 2, Division 2 of the DBP Regulation.
DBP Act	<i>Design and Building Practitioners Act 2020</i>
DBP Regulation	<i>Design and Building Practitioners Regulation 2021</i>

Term / Acronym	Description
The Department	The Department of Customer Service
Design Compliance Declaration	Has the same meaning as Section 8(1) of the DBP Act.
Design practitioner	Has the same meaning as section 3(1) of the DBP Act.
NCC	National Construction Code. The NCC includes the Building Code of Australia and the Plumbing Code of Australia.
OC	Occupation Certificate, has the same meaning as Part 6 of the EP&A Act.
Performance solution	Has the same meaning as in the NCC.
Professional Engineer	A person who is registered under the <i>Design and Building Practitioners Act 2020</i> to carry out <i>professional engineering work</i> in a prescribed area of engineering.
Professional engineering work	Has the same meaning as section 31 of the DBP Act.
Regulated building	A building that is regulated under the DBP Act, as prescribed in section 12 of the DBP Regulation. A building where the building, or a part of the building, is a class 2, 3 or 9c building.
Regulated design	Has the same meaning as section 5 of the DBP Act.
RAB Act	<i>Residential Apartment Buildings (Compliance and Enforcement Powers) Act 2020</i>
Secretary	Secretary of the Department of Customer Service

Executive summary

The *Design and Building Practitioners Act 2020* (the DBP Act) was introduced in phase one of the NSW Government's reform agenda to improve the effectiveness of compliance and enforcement systems for the building and construction industry in NSW. The DBP Act delivers on the reforms committed to by the NSW Government in response to the *Building Confidence Report*, authored by Professor Peter Shergold AC and Ms Bronwyn Weir.

One of the reforms introduced by the DBP Act was a new registration scheme for Professional Engineers in NSW to lift accountability throughout the industry. The scheme requires the registration of Professional Engineers who carry out professional engineering work on regulated buildings including engineering services that require, or are based on, the application of engineering principles and data to a design or a construction, production, operation, or maintenance activity relating to engineering.

At commencement of the scheme, engineers were required to be registered to carry out engineering work for the purposes of designing or constructing a Class 2 building (for example, residential apartment buildings) or a building containing Class 2 part. The Government prioritised applying the reforms to Class 2 buildings to address the recurrence of serious defects arising in residential apartment buildings.

From 3 July 2023, registration schemes established under the DBP Act were expanded to cover work on Class 3 and 9c buildings, in keeping with the NSW Government's focus on multi-unit residential accommodation.

As of June 2023, there are more than 1,800 Professional Engineers registered under the scheme in NSW.

The Department of Customer Service has developed the proposed Practice Standard to provide a clear and enforceable standard of what is expected and required of Professional Engineers registered under the DBP Act. The proposed Practice Standard will complement the existing compliance regime established under the DBP Act and is intended to assist Professional Engineers in understanding and complying with their obligations under the DBP Act.

The key features of the proposed Practice Standard for Professional Engineers include:

- introducing a requirement that designs must be fit for purpose;
- requiring on-site inspections during the construction phase of a project;
- introducing requirements regarding independent third-party reviews;
- reinforcing the importance of the existing Code of Practice for Professional Engineers;
- providing clarity regarding supervision requirements; and
- introducing additional obligations for certain classes of Professional Engineers and certain professional engineering work.

The proposed Practice Standard would introduce a requirement that designs must be fit for the purpose for which they were contracted or engaged. The fit for purpose requirement only relates to the engineering work undertaken and does not extend to the as built product. It is intended that a fit for purpose obligation will enhance collaboration between relevant practitioners.

The proposed Practice Standard introduces a requirement that Professional Engineers play a proactive role in all stages of the building process. This will include undertaking on-site inspections during the construction process, as necessary, to check that work is being carried out in accordance with the NCC and relevant engineering designs. This requirement does not make a Professional Engineer responsible for certifying building work, but rather allows for more defects to be identified throughout the construction stage, minimising the cost of rectification.

The proposed Practice Standard sets out mandatory minimum requirements for a Professional Engineer undertaking an independent third-party review including specific review requirements and on-site inspection requirements where applicable. The Practice Standard reinforces that a Professional Engineer undertaking a third-party review is bound by the Code of Practice for Professional Engineers and will be held liable for their conduct and the engineering work they undertake by the building regulator.

The Department of Customer Service are also considering mandating independent third party review of designs for high risk and complex buildings. This Regulatory Impact Statement seeks feedback on how high risk and complex buildings should be identified and which parties should be held responsible for seeking independent third party review when required. The introduction of mandatory third party review would also support the NSW Government's continued implementation of the Building Confidence Report recommendations.

The NSW Government are currently progressing a range of reforms to building and construction in NSW. This Regulatory Impact Statement is focused on seeking feedback on the impacts of the proposed Practice Standard for Professional Engineers, and related issues of relevance for engineers, specifically insurance requirements and suggested consequential changes related to independent third party review.

The Department of Customer Service is undertaking consultation outside this process to seek feedback on other reforms, including the development of a consolidated plain English Building Bill. Information about the impact of the proposed Building Bill on the professional engineering registration scheme has been included in this document as general information. Feedback on the proposed Building Bill can be provided to the Department during this process as well.

The NSW Government remains committed to addressing ongoing issues in the building and construction industry and will continue to consult with industry and the public on proposed reforms.

Consultation process

MAKING A SUBMISSION

We invite you to read this paper and provide comments.

Interested organisations and individuals are invited to provide a submission on any matter relevant to the proposed Practice Standard for Professional Engineers, whether or not it is addressed in this Regulatory Impact Statement. You may wish to comment on only one or two matters of particular interest, or all issues raised.

Submissions can be in any written format.

An electronic form has been developed for targeted consultation to assist you in making a submission on the Regulatory Impact Statement and the proposed Practice Standard. You can upload your response or email them to the address below.

The electronic form is available on our website at www.haveyoursay.nsw.gov.au/hys213.

You can email your submission to the address: bcr@customerservice.nsw.gov.au

The closing date for submissions is **18 August 2023**.

Important Note: Release of Submissions

Submissions may be made publicly available.

If you do not want your personal details or any part of your submission published, please indicate this clearly in your submission together with reasons. Automatically generated confidentiality statements in emails are not sufficient.

You should also be aware that, even if you state that you do not wish certain information to be published, there may be circumstances where the Government is required by law to release that information (for example, in accordance with the requirements of the *Government Information (Public Access) Act 2009*). It is also a statutory requirement that all submissions are provided to the Legislation Review Committee of Parliament.

Evaluation of Submissions

All submissions will be considered and assessed. The Practice Standard for Professional Engineers will be amended, if necessary, to address issues identified in the consultation process. If further information is required, targeted consultation will be held before the Practice Standard for Professional Engineers is finalised.

Objective of the Practice Standard for Professional Engineers

NEED FOR GOVERNMENT INTERVENTION

Modern buildings are no longer just four walls and a roof. Construction is complex, integrated and evolving. Future home and building owners deserve to know they are buying a quality design and expert construction that is protected by strong building laws.

Building incidents, such as Opal Towers and Mascot Towers, have driven reforms under the Construct NSW transformation strategy to improve transparency, accountability, and the quality of work in the NSW building and construction industry. The reforms have highlighted the costs of substandard work to consumers, building practitioners and the industry as a whole.

Failures by design and building practitioners to deliver compliant work increase costs for building owners, other practitioners, financiers, and insurers to remediate defects and are an increased risk to safety for people left with non-compliant building work. These failures tarnish the industry even for those who produce quality work and negatively impact overall confidence in the building and construction industry.

The Department has implemented significant reforms under Construct NSW, focused on creating clear lines of accountability and significant consequences when practitioners deliver substandard work, including the *Design and Building Practitioners Act 2020* (DBP Act), and the *Residential Apartment Buildings (Compliance and Enforcement Powers) Act 2020* (RAB Act).

Under the professional engineering registration framework in the DBP Act, a person is required to be registered to carry out professional engineering work if that work is in civil, electrical, fire safety, geotechnical, mechanical or structural engineering and it is carried out directly in relation to the design or construction of a regulated building. As of 3 July 2023, the DBP Regulation prescribes Class 2, 3 and 9c buildings (and mixed use buildings) as being covered by the Act.

While the DBP Act has secured an uplift in capability from engineers subject to requirements as Design Practitioners, it is clear that there are still issues with the underlying work being carried out by engineers more broadly. Research commissioned by the Office of the Building Commissioner in 2021 found that 39 per cent of apartment buildings surveyed had a serious building defect in the common property.¹

The findings from audits and inspections carried out by the building regulator since 2021 support this research. NSW Fair Trading found structural defects in approximately 47 per cent of buildings

¹ NSW Government, Research report on serious defects in recently completed strata buildings across New South Wales, 2021. www.nsw.gov.au/sites/default/files/2021-10/Serious_defects_in_residential_apartments_research_report.pdf

audited under the DBP Act and the RAB Act in 2022, and fire safety defects in approximately 44 per cent of buildings audited.

Between January and June 2023, the building regulator issued 23 Building Work Rectification Orders seeking rectification of more than 140 serious defects. Of these, 39 per cent of defects were related to structural or fire safety defects. Structural defects tend to have higher rectification costs than non-structural defects. Claim data from the Victorian Managed Insurance Agency (VMIA) found that the average cost per claim for structural defects was \$51,024 and \$33,798 for non-structural defects.²

Self-regulation of the engineering profession in NSW has not been sufficient, evidenced by this prevalence of building defects in multi-storey residential buildings. These defects create risks to the people living and working in affected buildings and can also have impacts on the surrounding community.

The Department have prepared a Practice Standard for Professional Engineers to support the uplift in capability in engineers working in the building and construction industry and rebuild public trust in the profession and the construction industry broadly.

OBJECTIVE OF GOVERNMENT INTERVENTION

It is intended that the proposed Practice Standard will set the minimum standard for Professional Engineers working in the building and construction industry in NSW, improve design work on residential accommodation buildings in NSW, and rebuild public trust.

The Practice Standard will be a condition of registration for all Professional Engineers registered under the DBP Act. The proposed Practice Standard has been prepared under the Section 50 of the DBP Act, to strengthen the requirements in place for Professional Engineers registered in NSW and ensure that registered Professional Engineers are held to the standard expected by the community.

The requirements set out in the Practice Standard expand on the obligations imposed on Professional Engineers by the DBP Regulation, and other legislation. It has been developed to be read and understood in conjunction with existing requirements and conditions of registration imposed on Professional Engineers, including:

- the Code of Practice for Professional Engineers, set out in Division 2, Part 2, Schedule 4 of the DBP Regulation;
- the conditions of registration imposed on Design Practitioners, Principal Design Practitioners or Building Practitioners, where the engineer is registered as one or more types of practitioner under the DBP Act; and

² Essential Services Commission 2019, Victoria's domestic building insurance scheme: Performance report 2018-19, November 2019. www.esc.vic.gov.au/other-work/domestic-building-insurance/domestic-building-insurance-scheme-performance-reports

- the *Building and Development Certifiers Act 2018*, where the engineer is undertaking certification work or work on behalf of a registered certifier.

The Practice Standard has been prepared to prescribe:

- appropriate standards of professional conduct and practice for Professional Engineers,;
- a Professional Engineer's responsibilities to the community, including an obligation to promote public confidence in work undertaken;
- how the building regulator will assess a Professional Engineer's compliance with the Practice Standard.

The proposed Practice Standard has been drafted to support the current requirements and obligations of Professional Engineers in its current form. The Practice Standard will be reviewed following any legislative changes to the professional engineering scheme.

Discussion and Assessment of Options

APPLICATION OF THE PRACTICE STANDARD FOR PROFESSIONAL ENGINEERS

It is intended that the proposed Practice Standard will apply to a Professional Engineer registered under the DBP Act when undertaking professional engineering work in NSW within a prescribed area of engineering. The DBP Act covers work in the following areas of professional engineering:

- civil engineering,
- electrical engineering,
- fire safety engineering,
- geotechnical engineering,
- mechanical engineering, and
- structural engineering.³

Where work is classed as professional engineering work, a person may only carry out this work where they are registered as a Professional Engineer under the DBP Act or are doing the work under the direct supervision of a Professional Engineer registered in the appropriate class of engineering for that work. This also applies to engineers, located interstate or internationally who are working on buildings that will be constructed within NSW

Definition of professional engineering work

Professional engineering work is defined in section 31 of the DBP Act and clause 14 of the DBP Regulation. It is defined under the DBP Act as work that:

- is in a prescribed area of engineering;
- requires or is based on the application of engineering principles and data;
- requires applying these principles and/or data to engineering related design or engineering related construction, production, operation or maintenance activity;
- is not carried out in accordance with a prescriptive standard;⁴ and
- is carried out directly in relation to the design or construction of a class 2, 3, or 9c building in NSW, or building with a Class 2, 3, or 9c part in NSW.⁵

Engineering work is not specifically defined in the DBP legislation, but rather uses the ordinary meaning of the language. To be professional engineering work, the engineering work must require or be based on the application of specialist knowledge of applied science and mathematical principles and the interpretation of engineering data. The engineering activities captured under the

³ Section 32 of the DBP Act.

⁴ Section 31 of the DBP Act.

⁵ Section 14 of the DBP Regulation.

DBP legislation are further limited to engineering related design, or engineering related construction, production, operation, or maintenance activities. If any one of these activities are present, the work is professional engineering work for the purposes of the DBP legislation.

Professional engineering work is also defined as only work that is carried out *directly* in relation to the design or construction of a building prescribed in the DBP Regulation. From 3 July 2023, this includes the buildings that are class 2, 3, or 9c or mixed-use buildings if they include a class 2, 3 or 9c part.

The engineering work must be more than ancillary to the building design or construction to be captured. It is acknowledged that there is engineering work that is conducted to support the construction of a regulated building, such as the supporting and surrounding civil infrastructure. However, this engineering work is not captured by the scheme.

If work is carried out in accordance with a prescriptive standard, this is also excluded from the definition of professional engineering work. To satisfy this test, the work must meet the following criteria:

1. it must only be provided in accordance with a document,
2. the document must state the procedures or criteria for carrying out the work, and
3. these procedures or criteria must not require the application of scientifically based calculations.

The work of a Professional Engineer can be differentiated from the work of a Design Practitioner, Principal Design Practitioner or Building Practitioner under the DBP Act. However, it should be noted that an individual may hold multiple registrations under the DBP Act and may hold concurrent obligations with their obligations as a Professional Engineer.

Interaction with other existing obligations

In NSW, an engineer may be registered under multiple schemes depending on the work they are seeking to carry out. The DBP Act introduced the Professional Engineering Scheme and the Design Compliance Scheme. A Professional Engineer may hold registration under other schemes administered by Fair Trading such as the *Building and Development Certifiers Act 2018*. While an engineer may hold multiple registrations or licenses issued or regulated by Fair Trading, each scheme is distinct. Importantly, the proposed Practice Standard would only apply to a Professional Engineer's registration as a Professional Engineer under the DBP Act.

Example:

John Citizen is registered as a Professional Engineer and a Design Practitioner under the DBP Act. Each registration is distinct. The Practice Standard for Professional Engineers will apply to John's registration as a Professional Engineer.

A registered Professional Engineer is responsible for carrying out professional engineering work, while a registered Design Practitioner is responsible for preparing regulated designs and making design compliance declarations that the regulated designs comply with the BCA and other relevant standards.

A Professional Engineer can provide engineering advice on a regulated building, but they cannot make design compliance declarations, or lodge documents required under the DBP Act related to those buildings unless they are also a Design Practitioner in the relevant class. In circumstances where a Professional Engineer works for a body corporate which holds the relevant class of registration, the body corporate can make a design compliance declaration on behalf of the engineers doing the work provided an individual who is an employee of the body corporate holds the relevant class of Design Practitioner registration.

A registered Professional Engineer who also is a registered certifier has existing statutory obligations under the *Building and Development Certifiers Act 2018* and *Environmental Planning and Assessment Act 1979*. An individual who holds both registrations is expected to comply with all statutory obligations and functions when carrying out work under the respective registration.

Certifiers must comply with the relevant code of practice, avoid conflicts of interest and adhere to the Practice Standards for registered certifiers. Additional obligations include the requirement to hold professional indemnity insurance and complete annual continuing professional development.

Example:

John Citizen is registered as a Professional Engineer under the DBP legislation and a certifying engineer under the *Building and Development Certifiers Act 2018*. The Practice Standard for Professional Engineers will apply to him while performing professional engineering work.

When John is carrying out his functions and duties as a certifier under the *Building and Development Certifiers Act 2018*, the Practice Standards for Registered Certifiers will apply.

While the Practice Standard only applies as a condition of registration to Professional Engineers registered under the DBP legislation, it can be utilised as a guide to inform best practice more broadly.

Questions

- 1. Do you propose any changes to the definition of ‘professional engineering work’?**

GENERAL OBLIGATIONS FOR PROFESSIONAL ENGINEERS

Code of Practice for Professional Engineers

Professional engineers registered under the DBP Act are required to comply with a mandatory *Code of Practice for Professional Engineers*.⁶ The Code sets out the required professional and ethical standards expected of Professional Engineers by the community and the building regulator. The Practice Standard does not seek amend or expand the scope of the Code but rather reinforces and reiterates the existing standards which apply under the Code.

The Code sets out that Professional Engineers have a duty to act in a professional manner and abide by standards expected by community and must:

- act with honesty, and integrity,
- act and carry out the work, in good faith,
- not unreasonably discriminate against a person or organisation,
- not knowingly act or enter into conduct that could bring, or tend to bring, the profession of engineers into disrepute,
- take all reasonable steps to protect the health and safety of the community when carrying out professional engineering work, and
- take all reasonable steps to manage and avoid foreseeable adverse impacts of professional engineering work on the natural environment.

The Code further sets out that Professional Engineers have a duty to:

- act within their level of competence and expertise,
- maintain satisfactory level of competence,
- act in best interests of client, unless this is contrary to the public interest,
- deal and communicate with clients in professional manner,
- provide information to clients,
- avoid conflicts of interest,
- maintain confidentiality,
- not misinform or mislead,
- manage and resolve disputes, and
- appropriately supervise non-registered persons undertaking professional engineering work.

The Code does not supersede or affect the duty of registered Professional Engineers to comply with the requirements placed on them by other Acts and laws in Australia.

A Professional Engineer must comply with the Code in order to maintain their registration. Failure to comply with the Code is an offence under section 56 of the DBP Act, with a maximum penalty of

⁶ Schedule 4, Part 2, Division 2 of the DBP Regulation.

\$33,000 for individuals. Further, failure to comply with the Code is grounds for disciplinary action, which may result in suspension or cancellation of registration.

Duty of Care

The DBP Act established a statutory duty of care that a person who carries out construction work exercise reasonable care to avoid economic loss caused by defects. The duty is owed to the owners of the land (and each subsequent owner) on which the construction work is carried out. The duty of care cannot be contracted out of or delegated.

This duty applies to a Professional Engineer carrying out professional engineering work for the design or construction of a building and is not limited to design or building work which requires registration under the DBP Act. The duty is distinct from the registration framework for design and building practitioners and Professional Engineers under the DBP Act and has broad scope.

The duty of care is owed by any person who carries out construction work and is not limited to the practitioners registered under the Act. Under the DBP Act, construction work is defined broadly to cover building work, the preparation of designs for building work and the manufacture or supply of building products used for building work. It also extends to anyone who supervises, coordinates, project managers or otherwise has substantive control over any of the aforementioned work.

The application of the duty of care provisions contained in the DBP Act were affirmed recently in *Roberts v Goodwin Street Developments Pty Ltd*.⁷ The construction of the legislation was explored, particularly the contention between the definition of building work contained in section 4(1) of the Act and the definitions within section 36(1) which specifically apply to Part 4 of the Act. It was held that the definition of building work contained within section 36(1) of the Act is not an exhaustive definition and that the duty of care provisions applies to all classes of building, provided the definition of building contained within the *Environmental Planning and Assessment Act 1979* is satisfied.⁸ While different reasonings have been relied upon, the decision in *Roberts* reinforces that the duty of care provisions have broad application.

The proposed Practice Standard does not seek amend or expand the scope of the duty of care, but rather, reinforces and reiterates the existing duty. The inclusion of the duty of care as established in the DBP Act in the proposed Practice Standard has no regulatory impact on a Professional Engineer.

⁷ *Roberts v Goodwin Street Developments Pty Ltd* [2023] NSWCA 5.

⁸ It was found that “the general definition in s 4(1) does apply to the further definition of “building work” in s 36(1), but only as regards the first topic addressed in the general definition (identifying the type of work undertaken), with the second topic (identifying what type of buildings that work is undertaken on) instead being addressed by the definition of “building” in s 36(1). That is the construction which best gives effect to the text, context and purpose of the relevant provisions.” *Roberts v Goodwin Street Developments Pty Ltd* [2023] NSWCA 5.

Acting as Experts in Legal Proceedings

The proposed Practice Standard seeks to reinforce the existing obligations under the *Uniform Civil Procedure Rules 2005* for engineers acting as expert witnesses in legal proceedings. The Practice Standard does not seek to introduce new obligations in this space but rather sets out these existing obligations and clarifies the regulatory consequences of failing to comply with these obligations.

An engineer who seeks to act as an expert witness must comply with the Expert Witness Code of Conduct.⁹ The Expert Witness Code of Conduct explicitly sets out the requirements of an expert witness engaged or appointed to provide an expert report for use as evidence or to give opinion evidence. The Expert Witness Code of Conduct must be given to an expert witness as soon as practicable after they have been engaged or appointed, and they must acknowledge that they have read the Expert Witness Code of Conduct and agree to be bound by it.

The community would expect that a Professional Engineer who breaches the Expert Witness Code of Conduct would be investigated and sanctioned by the building regulator. While the obligation to comply with the Expert Witness Code of Conduct is an existing legislative obligation on all expert witnesses, its inclusion in the Practice Standard signifies its importance and ensures the building regulator can also respond to issues when they are identified. A Professional Engineer who fails to comply with the Expert Witness Code of Conduct may face disciplinary action from the building regulator under the DBP Act which could result in cancellation or suspension of their registration.

A Professional Engineer also has a duty to avoid conflicts of interest. This is a duty under the *Code of Practice for Professional Engineers*. Under the DBP Act, compliance with the Code of Practice is a condition of a Professional Engineers registration. If a Professional Engineer breaches the Code of Practice, this is grounds for disciplinary action that may result in cancellation of registration or a maximum penalty of \$33,000 for individuals.

The Code of Practice explicitly states that if acting in the best interests of a client would be inconsistent with requirements placed on a Professional Engineer by any Act or law, a Professional Engineer is not required to comply with their duty to act in the best interests of a client. For the avoidance of doubt, the obligations imposed on a Professional Engineer acting as an expert witness and the Code of Practice are not inconsistent or in conflict.

The Practice Standard also reinforces that a Professional Engineer cannot conduct work outside of their registration or expertise. A Professional Engineer when acting as an expert witness in legal proceedings is bound by this requirement and should not act outside of their area of expertise.

The obligations expressed in the Practice Standard are existing legislative requirements. The Practice Standard seeks to clarify and reinforce the importance of complying with these existing obligations. This means the regulatory impact on Professional Engineers as a result of the Practice Standard being introduced is minimal.

⁹ Schedule 7 of the Uniform Civil Procedure Rules 2005.

Supervising Unregistered Engineers

The DBP Act sets out that a person must not carry out professional engineering work in a prescribed area of engineering unless the person is registered or doing the work under the direct supervision of a registered Professional Engineer.

The *Code of Practice for Professional Engineers* specifically extends this duty within the DBP Regulation. Under the Code, a Professional Engineer also has a duty to ensure that an unregistered person under their supervision does not carry out professional engineering work unless:

- the work is within the Professional Engineer's competence and expertise,
- the work is carried out competently, and
- the work is carried out in accordance with the requirements prescribed by the DBP Act and Regulation and other relevant laws.

The registered Professional Engineer is ultimately responsible for any work carried out by an engineer that they are required to directly supervise. Any resulting complaints, investigations or disciplinary action associated with the professional engineering work will be directed to the registered Professional Engineer.

The obligation to satisfy the requirements of 'direct supervision' rests with both the unregistered engineer who is being supervised, as well as the registered Professional Engineer who is supervising. Failure to satisfy these elements may result in significant consequences for both parties under the legislation.

The supervision obligations ensure that engineers who do not have the required qualifications or level of experience to be registered as Professional Engineer, can continue to work and gain experience as an engineer provided they work under the direct supervision of a registered Professional Engineer. This also ensures pathways towards registration are available to new engineers entering the market.

The supervising Professional Engineer is ultimately responsible for ensuring the quality of the work produced. The supervision requirements hold the supervising Professional Engineer responsible for ensuring that the work of the supervised engineer is carried out to a standard expected of a registered Professional Engineer at all times. This approach ensures that industry standards are being raised across the board, without compromising an engineer's ability to access a pathway towards registration. Additionally, stringent supervision requirements assist consumers to regain confidence in the broader building and construction industry.

The proposed Practice Standard reiterates these obligations set out in the legislation and provides instruction for how a practicing Professional Engineer should understand the term 'direct supervision' in practice. In accordance with the obligations in the legislation, the Practice Standard reiterates that:

- the supervision must be direct;
- the supervising engineer must be a registered Professional Engineer whose registration authorises them to carry out the professional engineering work and the work must be within their area of competence and experience;
- the supervising Professional Engineer must instruct, oversee and evaluate the supervised engineer in the carrying out of the work; and
- appropriate records must be maintained by the supervising registered professional engineer.

This section of the proposed Practice Standard does not alter the regulatory impact of the existing supervision requirements in place for Professional Engineers and is deemed policy neutral.

INSURANCE

A Professional Engineer must not carry out professional engineering work unless the engineer is adequately insured with respect to the work.¹⁰ If requested by the building regulator, a Professional Engineer must be able to provide information to demonstrate that they are adequately insured in accordance with the DBP Act. Professional Engineers have a continuing responsibility to ensure they are adequately insured.

To satisfy the insurance requirements set out in the DBP Act, a registered Professional Engineer must be indemnified under an individual policy, partnership policy, or a corporate policy. A partnership or corporate policy must indemnify the Professional Engineer for all liability incurred when the engineer was registered as an employee and was performing professional engineering work on behalf of the company or partnership.¹¹

Insurance requirements for Professional Engineers were previously consulted on as part of the initial implementation of the DBP Regulation in November 2020. The Regulatory Impact Statement at the time explained that the intention was for the practitioner to decide what insurance is 'adequate' in their circumstances. This was designed in recognition that different practitioners have very different business risks, which affects what cover is right for them. Requiring practitioners to be adequately insured reduces the risk that successful compensation claims by building owners cannot be met due to the practitioner's lack of available resources.

At the time the DBP Regulation was introduced, consideration was also given to requiring professional indemnity insurance and specifying the conditions of the policy (such as minimum cover levels and permitted exemptions). Such an approach would ensure that practitioners hold a minimum amount of cover. However, given the diverse range of business activity and work conducted by practitioners, quantifying an amount for minimum cover would be difficult and would not guarantee that the insurance cover would adequately resource a practitioner against a successful claim. This option also did not address volatility in insurance markets which may impact the availability of cover.

Further, it was considered that if prescriptive insurance requirements were too expensive, costs would either be passed on to consumers or may impact the kinds of services that would be offered in NSW. As such, after consultation it was decided that 'adequate insurance' was the preferred approach for mandatory insurance requirements of practitioners under the DBP Act and is currently incorporated in the DBP Act and DBP Regulation.

However, a number of key stakeholders have raised concerns regarding the existing insurance requirements and the ability of an individual engineer to determine "adequate" cover for their work without guidance.

¹⁰ Section 33 of the DBP Act.

¹¹ Section 74 of the DBP Regulation.

The Department remains committed to reviewing insurance requirements. This work is outside the ambit of the proposed Practice Standard, due to the broader range of practitioners impacted by professional indemnity insurance requires.

The feedback sought here will inform potential reforms relating to mandatory insurance requirements in the proposed Building Bill and related reforms.¹² This includes the application of decennial liability insurance (DLI) to provide homeowners, and building owners, protection from defects and their associated costs.

Decennial liability insurance is a strict liability, statutory guarantee protecting building owners from serious defects materialising over a period of ten years from when construction is completed. It operates as an insurance product of first resort and offers homeowners a consumer protection remedy even when the developer or builder becomes insolvent. Options such as decennial liability insurance present pathways towards reliable project-based insurance policies that may protect homeowners and building owners better than individual insurance policies.

The Department would also support providing dispensation from existing insurance requirements for members of professional standards schemes that operate capped insurance models. There are currently no professional standards schemes operating for engineers in NSW to offer this model.

Questions

- 2. Do you support the current insurance approach requiring ‘adequate cover’? Why or why not?**
- 3. Do you think mandatory insurance requirements should be prescribed? If so, what should be prescribed?**
- 4. What alternative approaches to ensuring Professional Engineers and other regulated practitioners under the DBP Act could be considered in providing confidence of an adequate remedy to non-compliant work by practitioners?**

¹² The draft proposed Building Bill and related regulatory impact statements are available at www.haveyoursay.nsw.gov.au/reforming-building-laws.

DESIGN MUST BE FIT FOR PURPOSE

The proposed Practice Standard requires that design work prepared by Professional Engineers be 'fit for purpose'. This obligation requires a Professional Engineer to ensure the professional engineering work they are undertaking is capable of being used for the purpose for which they were contracted or engaged.

Designs that are not fit for purpose pose a significant risk to the integrity of a build and often are a key contributor to poor building outcomes. Research was conducted on the South African building and construction industry in 2021 to evaluate factors that influence design quality and rank them on the basis of significance. Surveys found that 'fit for purpose' was ranked as the most important attribute to the quality of the design.¹³

Audits conducted by NSW Fair Trading from July 2022 to January 2023 found approximately 50 per cent of designs audited that related to load-bearing components had insufficient detail to demonstrate compliance with the NCC and Australian Standards and more than 30 per cent did not include sufficient design coordination and integration of related building designs. Almost 30 per cent of designs for building services, including mechanical and electrical services, included elements which departed from the NCC or relevant Australian Standards entirely. These ongoing issues during the design phase highlight the need for fit for purpose designs.

The introduction of a 'fit for purpose' obligation for Professional Engineers is proposed to ensure that the quality and standard of professional engineering work meets community expectations, and the building regulator is empowered to take disciplinary action against Professional Engineers who fail to meet these standards.

The fit for purpose obligation would be enforceable by the building regulator as a condition of registration. A breach of a condition of registration is grounds for disciplinary action that may result in a caution or reprimand for a minor breach, or in cancellation of registration or a maximum penalty of \$33,000 for individuals.

It is acknowledged that in most circumstances the responsibility to accept the engineer's advice and construct in accordance with the designs provided rests with the other contractual party and those responsible for carrying out the work. Therefore, importantly, the 'fit for purpose' requirement has been focused to address the suitability of a design and not the suitability of the built product in line with industry consultation.

The proposed Practice Standard does not place an obligation on the Professional Engineer to ensure that the construction or end product is fit for purpose. It is also not intended to create liability for the Professional Engineer over the end product. Rather this new obligation is intended to apply to work within the control of the Professional Engineer, such as their designs, engineering reports and reviews.

¹³ Peter Agbaxode et al, Design documentation quality influential variables in the construction sector, 2021. accessed at iopscience.iop.org/article/10.1088/1755-1315/654/1/012007/pdf

The fit for purpose obligation is also intended to sit separately from the duty of care established by the DBP Act and would not operate as an extension or expansion of that duty.

Criteria of Fit for Purpose

The proposed Practice Standard outlines that the building regulator will have regard to the following when assessing whether a Professional Engineer's work is fit for purpose:

1. That the work must satisfy the requirements set out in the contract of engagement;
2. That the work must comply with all applicable legislative requirements;
3. That the work must be carried out in accordance with the National Construction Code.
4. That the final work must be complete and ready for use for the stated purpose;
5. That the work must be within the Professional Engineer's area of competency;
6. That the Professional Engineer must take reasonable steps to coordinate with other designers working on a project to deliver the intended outcome as per their contractual arrangement; and
7. That the Professional Engineer should provide guidance to the building practitioner, where appropriate, on how to implement the professional engineering work.

The first criteria sets out that the Professional Engineer must meet their obligations to the client under contract. Issues can arise due to the information asymmetry between the expertise of a Professional Engineer and lack of expertise of a client or potential client. This places the responsibility on the Professional Engineer to confirm that their work is meeting client requirements, rather than expecting the client to understand and interpret the professional engineering work independently.

Criteria 2 and 3 reiterate existing obligations of a registered Professional Engineer to comply with applicable legislative requirements and with the NCC when undertaking professional engineering work.

Criteria 4 sets out that the 'final work', where work is provided to another person to be used in professional engineering work or building work, is complete and ready for use. This allows the building regulator to take disciplinary action against Professional Engineers where defects and errors are found within their prepared designs. It is recognised that in the course of a project, a Professional Engineer may prepare draft designs or reports. This criterion is not intended to capture these drafts but instead pick up work that is handed over to another practitioner or the client for the purposes of commencing/carrying out building work.

Criteria 5 confirms that a Professional Engineer must work within their area of engineering and within their level of competency. This requirement emphasises the existing requirements of the Code of Practice for Professional Engineers.

Criteria 6 and 7 require that the Professional Engineer take reasonable steps to engage with and coordinate with other practitioners to deliver the intended outcomes of the project. Professional engineering work should not be conducted in a silo removed from other important aspects of the

build process. Professional Engineers regularly carry out work that must then be used by other Design Practitioners and Building Practitioners.

These criteria place the responsibility on Professional Engineer to take reasonable steps to support Design Practitioners to deliver compliant work, and to provide guidance to Building Practitioners on how to implement the professional engineering work. The Professional Engineer would be expected to use their professional judgement to determine the level of coordination or guidance required. These criteria allow that the level of support needed is likely to vary depending on the complexity and/or risk level of the building project.

Cost of implementation

It is expected that this requirement will increase operating costs for Professional Engineers, in particular, increasing costs of professional indemnity insurance.

Estimates received placed the expected increase at 10 per cent on premiums for professional indemnity insurance as a result of introducing a fit for purpose obligation for design work. As of 2021, the average premium for professional indemnity insurance for an engineer working in the construction industry was \$12,087 per year.¹⁴ It is understood however that the absence of sufficient claims data may create difficulty for insurers in pricing the increased underwriting risk of a fit for purpose obligation for design work.

Professional Engineers would need to pass these costs onto their clients, which can be expected to increase costs for development as a whole. However, it is considered that the increased costs of development will contribute to reduced costs related to rectification and rework.

A longitudinal study of 346 construction projects in Australia between 2009 to 2015 found that the projects required over 19,600 rework events. Costs associated with rework of the surveyed projects averaged 39 per cent of the contract value over the period.¹⁵ The ABCB commissioned an assessment in 2021 of the recommendations from the Building Confidence Report and their potential impact. The assessment report estimated that up to 60 per cent of defects would be preventable with better design.¹⁶

It is considered that the increased costs of implementation are justified and will be substantially offset by the reduction of defects and related rectification and rework costs. Improved designs that meet the requirements of 'fit for purpose' outlined in the proposed Practice Standard will contribute to better building outcomes in NSW.

¹⁴ APRA, National Claims and Policies Database Analysis - Review of claims trends and affordability of public liability and professional indemnity insurance in Australia, 10 May 2023. www.apra.gov.au/national-claims-and-policies-database-analysis-report

¹⁵ Love, Smith, Ackermann, Irani, and Teo, The costs of rework: insights from construction and opportunities for learning. Production Planning & Control, August 2018.

¹⁶ Australian Building Codes Board, Building Confidence Report a case for intervention, December 2021.

Questions

- 5. Do you support the introduction of the 'fit for purpose' obligation for Professional Engineers carrying out design work? Why or why not?**
- 6. Do you support the proposed criteria for 'fit for purpose'? If no, what changes would you propose (either adding, removing or enhancing criteria proposed)?**
- 7. What other measures could be utilised to ensure that designs prepared by Professional Engineers are fit for purpose?**

MINIMUM STANDARDS FOR DESIGN WORK

The proposed Practice Standard aims to set the minimum standard expected of a Professional Engineer during crucial design phase stages such as developing the design brief, performance solutions and workshop drawings.

The Building Confidence Report identified that, particularly for Design Practitioners including architects, designers, draftspersons and engineers, there was a systemic failure to expressly legislate “*that the duty of the designer is to prepare documentation that demonstrates the proposed building will comply with the National Construction Code.*”¹⁷ The introduction of the DBP Act and DBP Regulation sought to address this issue. However, it is evident that more can be done.

Occupation Certificate audits, which are a critical part of NSW Fair Trading compliance regime, occur approximately six months before completion of the building work, allowing time for defects in the design phase, or failures of the construction process to abide by mandatory requirements, to be identified before completion and rectified before occupation.

Recent data from audits conducted by NSW Fair Trading indicate ongoing issues with design integration, lack of performance solutions and insufficient detail to demonstrate compliance with the NCC and Australia Standards. For instance, the rates of non-compliance identified during audits conducted under the DBP legislation in relation to fire safety reveal that approximately 63 per cent of non-compliance identified related to either a lack of design coordination or integration and insufficient detail to demonstrate compliance with the NCC.

Similarly, audits conducted in relation to structural components reveal that approximately 84 per cent of non-compliance identified again related to a lack of design coordination or integration and insufficient detail to demonstrate compliance with the NCC. To ensure these issues are prevented by registered practitioners during the pre-construction phases of a project, the proposed Practice Standard seeks to impose stringent and clearer obligations on Professional Engineers at the design phase. It is intended that this will lead to better building outcomes and ultimately better outcomes for future building owners.

Additionally, when working on designs for building elements on regulated buildings, professional engineering work often feeds into work being conducted by other parties including Design Practitioners. Due to the interdependencies that exist between Professional Engineers and Design Practitioners, it is important to ensure both parties are subject to the same stringent requirements. The proposed Practice Standard aims to hold Professional Engineers to the same standard as Design Practitioners. It introduces a positive obligation on Professional Engineers to coordinate with Design Practitioners to integrate details of related building work and other regulated designs with their work, and to support registered Design Practitioners to achieve this integration for the overall building designs.

¹⁷ Shergold and Weir, Building Confidence: Improving the effectiveness of compliance and enforcement systems for the building and construction industry across Australia, February 2018.

Proposed standards at different stages of design

The proposed Practice Standard will impose obligations on Professional Engineers relating to:

- design briefs,
- workshop drawings,
- performance solutions,
- temporary works, and
- designs for existing structures.

The *design brief* section of the proposed Practice Standard applies only to Professional Engineers who are required to prepare a design brief. A design brief is a document that defines and clarifies the project requirements for the proposed building work. It is noted that this may be a task that the client seeks to complete themselves or may engage a separate party to prepare on their behalf.

The design brief is a stage in which the expertise of a Professional Engineer and lack of expertise of a client or potential client can lead to issues. Setting a minimum standard of what is expected to be included in a design brief will not only ensure consistency across the broader industry but also provide clients with greater information than they may currently have. It is not expected this obligation will impose a demonstrable regulatory cost.

Workshop drawings are detailed drawings which demonstrate all necessary details required in order to implement a design. It is well established the designs need to be well prepared and clear, and designs should comply with the NCC. The proposed Practice Standard reiterates that workshop drawings that are regulated designs under the DBP Act, must comply with the requirements of a regulated design. This obligation must already be carried out by the Professional Engineer serving as the relevant Design Practitioner.

Performance solutions are a pathway to compliance with the NCC. While performance solutions enable flexibility and innovation, it also requires careful and detailed assessment so that the building solution can meet the performance requirements of the NCC. It is crucial to ensure performance solutions are documented and are a reliable method of compliance.

The proposed Practice Standard sets out that a performance solution report must comply with the requirements prescribed in Part 2 of the DBP Regulation and NCC, including the requirement that the design include a copy of the brief on which the justification of the performance solution is based.

These requirements align the minimum standards for Professional Engineers with those in place for Design Practitioners under the DBP Act. This also supports the implementation of the Building Confidence Report recommendation that each state and territory set requirements for the minimum information required to be included in performance solutions (recommendation 14).

These obligations must already be carried out by the Professional Engineer serving as the relevant Design Practitioner. It is not expected that these obligations will impose significant additional time or costs to Professional Engineers or developments but are likely to enhance the quality of work (and reduce rectification works and other associated costs over time).

Temporary works are considered professional engineering work under the DBP Act when installed in relation to regulated buildings. Temporary works may require regulated designs under the DBP Act (e.g. shoring and ground anchors). However, where works do not relate to a building element or performance solution, such as the installation of cranes or scaffolding, a Professional Engineer may prepare the related designs without needing a design compliance declaration from a registered Design Practitioner.

The proposed Practice Standard requires that a Professional Engineer preparing designs for temporary works must ensure the designs are clearly documented and communicated in a manner tailored to the needs and knowledge of the person working off them, to ensure that other parties can implement the designs for safe and compliant temporary works. The section also reiterates that professional engineering work on temporary works must comply with the relevant legislation and codes, including the duties required within the *Work Health and Safety Act 2011*.

When working on *design for existing buildings*, the proposed Practice Standard requires where necessary, the Professional Engineer seek advice from the relevant certifier regarding the specific compliance requirements required for the project. For example, if heritage aspects are present, they may affect any proposed building works and pathways to compliance.

Where non-compliance with current codes and standards is permitted under the applicable development approval, the Professional Engineer is required to provide a list of any building work which is not compliant with the current codes and standards to the client for their consideration. These requirements have been prescribed due to the complexities involved in working on existing structures, where aspects of the building may have been built in compliance with different versions of the NCC, and ensures the client is aware of any ongoing risks in their building in relation to non-compliant work.

It is likely that the proposed design obligations will result in minimal increases in costs to work otherwise not already captured by the DBP Act.

It is widely accepted that the earlier a defect or potential defect is identified it is likely the costs associated with remediation will be significantly less. The Australian Building Codes Board (ABCB) commissioned an assessment in 2021 of the recommendations from the Building Confidence Report and their potential impact. The report highlighted that a study of building defects of buildings in Singapore found that 60 per cent of defects were preventable with better design.¹⁸

The report also estimated that if more defects were picked up in the design phase, additional construction cost to rectify these defects during construction phase would be much lower, resulting in around \$1.15 billion higher net benefit across Australia.¹⁹

Analysis released by Allianz insurance in 2021 “shows that design defects and poor workmanship are one of the leading causes of construction and engineering claims, accounting for around 20% of

¹⁸ Australian Building Codes Board, Building Confidence Report a case for intervention, December 2021. www.abcb.gov.au/sites/default/files/resources/2022/Building-confidence-report-case-intervention.pdf

¹⁹ Australian Building Codes Board, Building Confidence Report a case for intervention, December 2021.

the value of engineering insurance losses over the past five years.”²⁰ This supports the need for stricter design requirements during the construction process.

It is intended that the design phase obligations of the proposed Practice Standard will lead to more detailed designs being produced. Ultimately, this will lead to an improvement in standards across the industry and better consumer outcomes.

Questions

- 8. Do you support the introduction of design obligations on Professional Engineers? Why or why not?**
- 9. Do you think additional obligations are required in the design phase to ensure higher quality of designs? If so, what?**
- 10. Do you think additional requirements are necessary to ensure consumers receive the information they need from Professional Engineers undertaking work on their behalf?**

²⁰ Allianz, Managing the new age of construction risk: 10 trends to watch as the sector builds back better (2021). www.agcs.allianz.com/news-and-insights/reports/10-trends-construction-risks.html

INDEPENDENT THIRD-PARTY REVIEW

Changing when independent third party review is necessary

As part of this consultation, feedback is sought on changing the obligations on Professional Engineers and other building industry players by establishing a mandatory minimum requirements when a third party review of engineering designs are required.

It is proposed that to support implementation of the Building Confidence Report recommendation for independent third party review of complex projects, the Government will introduce an obligation on the developer to cause for a third party review when their project is deemed high risk or complex, based on established criteria. This process would be informed by input from the relevant Professional Engineer and the certifier on the project.

This proposed amendment would be progressed separately from the Practice Standard, with the Practice Standard prescribing obligations on Professional Engineers when third party review is required.

In NSW, there is currently no mandatory obligation for independent third party review of any component of design, however, independent third-party review often plays a crucial role in the certification process. Building certifiers are required to have a suitable level of knowledge and understanding of all relevant aspects of the planning system and building construction, but they are not expected to hold expertise in all areas of building design. Where they the certifier forms the view that it is necessary, the certifier is permitted to rely on the expertise of engineers and other experts that building works comply with the NCC and other relevant standards.

It is currently at the discretion of the building certifier whether they require the design to be independently reviewed by another qualified practitioner before issuing the relevant construction certificate or complying development certificate. In many cases, certification by the original designer is accepted, which means that large parts of the design may not be substantively reviewed by another qualified practitioner.

Multiple reviews have considered the use of independent third party review more regularly in the design and construction process. The Opal Tower Investigation Final Report prepared by Mark Hoffman, John Carter, and Stephen Foster recommended that designs for identified critical elements of the construction should be checked and certified by a third party registered Engineer, fully independent from the original designer.²¹

The Building Confidence Report also included a recommendation that each state and territory set requirements for genuine independent third party review of specific design components and/or certain types of building depending on the level of risk (recommendation 17).

²¹ Hoffman, Carter and Foster, Opal Tower Investigation Final Report, February 2019.

Catching defective designs or errors at the design stage prior to construction can mean that rectification costs incurred are significantly reduced or even negligible compared to the costs incurred during the construction or occupation stages of a building.

The ABCB commissioned an assessment in 2021 of the recommendations from the Building Confidence Report and their potential impact, including recommendation 17. In its cost-benefit analysis, the report found that catching defects in the design phase and the subsequent reduction in rectification costs during construction phase could result in around \$1.15 billion higher net benefit across Australia.²²

It is proposed that any mandatory requirements for independent third party review of designs would be limited to high-risk construction projects and professional engineering work. This would ensure a balanced approach focused on managing the risk level of these projects without increasing the regulatory burden on smaller and simpler projects.

A metric that could be used as a baseline to identify high-risk projects is 'building complexity', as put forward in the ABCB's Model guidance on the Building Codes Report Recommendation 17.²³ The ABCB introduced a definition for building complexity criteria in the 2022 edition of the NCC which ranks buildings from 'low' to 'very high' based on the following:

- *Attributes* — the building is designed or constructed with any of the following sub-criteria:
 - An effective height of more than 25 m.
 - One or more Performance Solutions are used to demonstrate compliance with the Performance Requirements relating to material and systems for structural safety.
 - One or more Performance Solutions are used to demonstrate compliance with the Performance Requirements relating to material and systems for fire safety.
 - Is located in an area prone to natural disaster or adverse environmental conditions.
- *Class 2* — all or part of the building is Class 2 of three or more storeys.
- *Occupant numbers* — the building is to be occupied by more than 100 people.
- *Occupant characteristics* — the building is to be occupied by more than 10 people who will require assistance to evacuate the building in an emergency.
- *Importance Level* — the building is determined to be Importance Level 4 or 5.²⁴

Under the NCC's definition, a building which meets three of the listed criteria is classed as having a 'high' complexity level. Buildings which meet more than three criteria or which are determined to have a high importance level are classed as having a 'very high' complexity level.

²² Australian Building Codes Board, Building Confidence Report a case for intervention, December 2021.

²³ Australian Building Codes Board, Independent Third Party Review, Model guidance on BCR recommendation 17, December 2021. www.abcb.gov.au/sites/default/files/resources/2022/BCR-rec17-Independent-third-party-review.pdf

²⁴ Glossary, NCC 2022. ncc.abcb.gov.au/editions/ncc-2022/adopted/volume-one/1-definitions/glossary

Mandatory third party review has been introduced in other jurisdictions in Australia, using these metrics or similar criteria for identifying high-risk and complex buildings such as the Northern Territory.

Mandatory third party reviews would lead to increased costs for construction projects that would need to be passed onto the consumer. However, studies conducted by the Government of Western Australia found that undertaking third party review on high-risk projects was estimated to increase the cost of construction by only 0.5 per cent on average. Large projects valued at over \$20 million, which are more likely to meet the criteria for high-risk, would face an even smaller increase of 0.35%.²⁵

Questions

- 11. Do you support introducing mandatory independent third party review for engineering designs on high risk or complex building projects?**
- 12. Do you support making the developer responsible for seeking third party review when required? If no, who do you think should be held responsible?**
- 13. Do you support the use of the 'building complexity' definition in the NCC as a baseline to identify high-risk or complex buildings? Why or why not?**
- 14. How could we better define what 'high-risk' work is to complement the use of 'building complexity' as a measure to ensure independent third party review is proportionate to the risk of the work?**
- 15. Do you think performance solutions should be subject to independent third party reviews? Why or why not?**
- 16. This proposal is currently limited to introducing mandatory third party review of engineering designs. Do you think there is a need for expert review of other types of design work?**

Requirements when undertaking third party review

Independent third party review is recognised as a powerful tool in maintaining and enhancing the quality of design work. It is a valuable check to ensure appropriate processes, assumptions and decisions are made through the design process, and to improve the overall compliance of the building design.

Third party review of a regulated building is considered professional engineering work under the DBP Act that must be carried out by a registered Professional Engineer in the relevant class.

²⁵ Government of Western Australia, Consultation Regulatory Impact Statement: Reforms to the approval process for commercial buildings in Western Australia, December 2019. www.commerce.wa.gov.au/sites/default/files/atoms/files/cris_-_commercial_building_approval_reform_0.pdf

Where an independent third party review is currently required, the level of review required is currently at the discretion of the relevant certifier and the Professional Engineer. The proposed Practice Standard sets out mandatory minimum requirements for a Professional Engineer tasked to undertake third party review at the request of a certifier and notes that the requirements for third party review may be used as a best practice guide for other circumstances when an independent third-party review is to be undertaken.

Consistent with the requirements in place for a certifier, the proposed Practice Standard sets out that the Professional Engineer must be competent to perform the review, must exercise independent judgement, must declare any real or potential conflicts of interest that could impact their ability to be impartial, and must otherwise act in the interest of their client and the public. These obligations align with the *Code of Practice for Professional Engineers* set out in the DBP Regulation.

To comply with the Standard, a Professional Engineer undertaking an independent third party review would also be required to:

- review the calculations which inform engineering work and designs, at minimum checking a reasonable sample of calculations;
- identify and prioritise critical issues, whether or not they have previously been identified; and
- review relevant designs, reports, calculations, and documentation and assess whether they meet the requirements of the NCC.

Where on-site inspections are undertaken as part of the third party review, a Professional Engineer undertaking an on-site inspection must:

- detect observable non-compliance issues;
- determine whether the building work is built in accordance with the relevant approvals, plans and specifications of the design, and the NCC and relevant standards; and
- provide advice to the certifier, where appropriate, that a written direction notice is required.

Additional requirements have also been set for independent third party review of certain engineering works in the “Additional Obligations” section of the proposed Practice Standard. This section outlines obligations for Professional Engineers working within specific classes or working on specific parts of a building, such as the façade or basements. For example, where tasked to carry out third party review, a professional engineer–structural would be required to cover the following in their report, as relevant to the project under review:

- a punching shear check,
- corbels,
- the seismic resistance of the system,
- the transferred load paths,
- earth retaining systems,
- anticipated crack and deflection performance, and
- perimeter basement walls performance (e.g. water seepage).

The Professional Engineer must not issue a certificate or report of suitability for the designs they have reviewed until they are satisfied that the relevant design complies with the Design Brief, relevant Australian Standards, the NCC and all other relevant codes and standards.

A Professional Engineer undertaking a third-party review will be held liable for their conduct by the building regulator. While a Professional Engineer is not responsible for the original designs and engineering work undertaken, they are responsible for the professional engineering work they undertake. The standards expected of Professional Engineers would be targeted by the building regulator as part of its ongoing proactive auditing regime.

Questions

- 17. Do you support the proposed obligations for Professional Engineers when undertaking independent third party review, as set out in the draft Practice Standard?**
- 18. What additional obligations or guidance could be created for other practitioners to ensure that the work of a Professional Engineer undertaking independent third party review enhances the compliance, safety and resilience of the relevant building (for example, changes to the Certifier Practice Standard)?**

CARRYING OUT ON-SITE INSPECTIONS

Requiring on-site inspections

The proposed Practice Standard sets out that a Professional Engineer will play a proactive role in all stages of the build process. This includes a requirement that Professional Engineers will undertake on-site inspections during the construction process as necessary to check that work is being carried out in accordance with the relevant engineering designs.

On-site inspections are often an area where the builder and developer want to cut costs. However, catching defects or errors earlier can mean that rectification costs incurred are significantly reduced compared to the costs incurred during later stages of a building. Studies prepared by the Government of Western Australia estimated that the cost of fixing potential defects identified through inspections during the construction phase is between 10-46 per cent (40 per cent on average) of the rectification cost post-construction.²⁶

The Opal Tower Investigation Final Report prepared by Mark Hoffman, John Carter, and Stephen Foster in 2019 recommended that a registered engineer should be required to carry out on-site checking and certification that construction is as per the design for all major construction projects.²⁷ The report identified that several occasions where construction differed from the designs prepared. It is likely that if on-site inspections had been carried out the variations and deviations from the designs could have been identified during the construction stage.

The report also identified at least two areas of the as-built structure which in the author's opinion do not meet all requirements of the NCC. Much of the observed damage remained hidden until an internal wall was removed. The report found that if the recommendations had been in place, they would have significantly reduced the likelihood of the damage to Opal Tower.

This recommendation was further reinforced by the findings of the Building Confidence Report that in some cases, inspections were being carried out by builders or unqualified council officers who would then send photos of works to the building certifier for review. The Building Confidence Report concluded that increased requirements for on-site inspections were necessary across all states and territories and that all on-site inspections must be carried out by, or be under the supervision of, suitably qualified person such as registered surveyors or inspectors or by registered engineers for prescribed types of work.

The proposed Practice Standard sets out that Professional Engineers will be required to ensure that engagement documentation provides for sufficient on-site inspections by a Professional Engineer, including where and when work should not progress without first carrying out an on-site inspection by a Professional Engineer.

²⁶ Government of Western Australia, Reforms to the approval process for commercial buildings in Western Australia, December 2019.

²⁷ Hoffman, Carter and Foster, Opal Tower Investigation Final Report, February 2019.

The Professional Engineer is considered best placed to determine the inspection points as they will have the most knowledge and understanding of the design complexity. It is expected that the site inspections will be appropriate for the scope of works that the Professional Engineer has designed, to check that the building work will comply with the Professional Engineer's designs and/or report.

In recognition of the wide range of works that Professional Engineers may undertake on a project, the proposed Practice Standard does not prescribe specific inspection stages in this section. Rather, the Practice Standard allows that a Professional Engineer can use their experience and expertise to determine sufficient inspections for a project, proportionate to the risk level of the project. This process should happen before the contract of engagement is finalised to ensure that the Professional Engineer and their client is aware of the costs associated with this mandatory process.

The proposed Practice Standard allows that the Professional Engineer carrying out inspections of the project may be the original Professional Engineer engaged to prepare the designs or may be a different Professional Engineer. On-site inspections may also be undertaken by an engineer operating under the direct supervision of a registered Professional Engineer. This aligns with existing industry practices where separate Professional Engineers may be engaged at the design stage and the construction stage, or where many engineers are working on a project.

Professional Engineers would be expected to record evidence and prepare an inspection report when any on-site inspection is conducted. The inspection report would be required to include:

- the address of the property at which the inspection was carried out;
- the identity of the inspecting Professional Engineer;
- when the inspection occurred;
- the designs and/or engineering report against which the inspection was undertaken;
- a declaration that the inspected building work(s) complies with the relevant professional engineering work design or report; and
- the findings from the inspection.

The Practice Standard does not impose the obligation on the Professional Engineer to ensure that all building work is compliant. This would remain the responsibility of the building practitioner, with this work then inspected by a certifier.

However, when undertaking on-site inspections, the Practice Standard prescribes that where a Professional Engineer has concerns regarding the compliance of work or safety of a project or considers it necessary to ensure the project is compliant and safe, the Professional Engineer should provide a recommendation to the certifier that additional inspections by the certifier are necessary beyond the minimum mandatory inspections required. It will be at the certifier's discretion whether to accept the Professional Engineer's recommendation.

Cost of on-site inspections

It is expected that increasing on-site inspections will increase costs of a project.

The cost benefit analysis prepared by the WA Government further found that inspecting construction work was estimated to increase the cost of construction for class 2-9 buildings by an average of 0.292 per cent, with variation depending on the project value. Projects valued under \$1 million would face the highest cost increase at an estimated 0.499 per cent, while projects valued over \$20 million would face only an increase of 0.149 per cent.²⁸

A recent case study published by the Office of the Building Commissioner on the Otto 2 building in Sydney considered how improved inspections could have significantly reduced the number of defects eventually found in the apartment building.²⁹ The Otto 2 building was constructed in 2013 to 2015 and valued at \$41 million. Inspections undertaken in 2018 by a structural engineer found a range of structural defects, including some balustrades that were not structurally sound. Subsequent inspections by the Building Commissioner found additional defects to the waterproofing, fire safety systems, and building structure. Reports from consultants and experts included in the case study found that a range of the defects found in the building could have been identified during the construction stage.

Using the estimated costs above, additional inspections of this project would have cost approximately \$61,090. Instead, the owners of the Otto 2 building have been seeking rectification of the building since 2017 and the legal fees across all parties involved have reached approximately \$2.5 million. The full value of the alleged defects is still unknown and the required remediation works were still not complete as of February 2023.

It is expected that the number of recommended or intended on-site inspections would be included into any arrangement a Professional Engineer and/or their employer enters into which relates to preparing designs or reports that will be used in building work. Overtime, it is expected that necessary inspections will form part of relevant contractual arrangements in line with community expectations.

Alternatives considered to requiring on-site inspections

It was considered that additional inspections could be required by building certifiers throughout the building process, rather than introducing a positive obligation on professional engineers to carry out on-site inspections.

In line with the comments regarding independent third party review above, building certifiers are required to have a suitable level of knowledge and understanding of all relevant aspects of the planning system and building construction, but they are not expected to hold expertise in all areas of building design. This can mean that building certifiers are not necessarily qualified to inspect

²⁸ Government of Western Australia, Reforms to the approval process for commercial buildings in Western Australia, December 2019.

²⁹ NSW Government, Broken Promises, Blame Games and Balconies Interim Report, June 2023. www.nsw.gov.au/sites/default/files/2023-06/35452_Broken%20Promises%20Blame%20Game%20%26%20Balconies.pdf

engineering construction or other highly technical elements of construction, and defects may be faster identified by Professional Engineers carrying out the same on-site inspections.

The Otto 2 building, covered by the case study noted above, provides an example where subsequent inspections by qualified engineers identified a number of structural defects in the building that had been missed in previous inspections by the building certifier.

It is considered that combining the knowledge of professional engineers and the building certifier will achieve the best outcome and more compliant buildings, by maximising the opportunities for defects and incorrect construction to be identified before construction is complete.

Questions

- 19. Do you support the introduction of a positive obligation on Professional Engineers to carry out on-site inspections? Why or why not?**
- 20. The proposed Practice Standard allows that a Professional Engineer is permitted to use their experience and expertise to determine sufficient inspections for a project. Do you support this approach?**
- 21. What guidance would support Professional Engineers to make informed decisions regarding the number of inspections for a project?**
- 22. If the proposed Practice Standard were to include mandatory inspection schedules for Professional Engineers instead, would you support this approach? If yes, what criteria would you suggest for when an inspection should take place?**

ADDITIONAL OBLIGATIONS FOR SPECIFIC REGISTRATIONS AND SPECIFIC ENGINEERING WORK

The proposed Practice Standard sets out specific additional obligations for specific classes of Professional Engineers registered under the DBP legislation. As specific types of engineering have their own complexities, it was necessary to tailor additional obligations for certain classes and activities.

The classes with additional obligations set out in the proposed Practice Standard are:

- Professional Engineer–Electrical
- Professional Engineer–Fire Safety
- Professional Engineering–Geotechnical
- Professional Engineer–Mechanical
- Professional Engineer–Structural

Professional Engineer–Civil does not have specific additional obligations set in the proposed Practice Standard.

These sections provide specific instruction and/or guidance for Professional Engineers in certain classes about how to apply other sections of the proposed Practice Standard, such as additional criteria to be met when undertaking third party review, or on-site inspections. They also include specific responsibilities that a Professional Engineer should comply with when undertaking specific tasks during stages of construction (e.g. design, construction, commission, or handover).

The proposed sections also reiterate requirements in place under legislation for specific tasks or activities that a Professional Engineer in a certain class may be required to carry out, such as the requirements in place in the DBP Act for the design of shoring and ground anchors, and the requirements of the *Environment Planning and Assessment Act 1979* regarding the consultation and approval process for performance solutions related to fire safety requirements.

The proposed additional requirements have been developed to uplift the performance of Professional Engineers beyond the minimum standards set by in NSW legislation, the NCC and relevant standards.

The proposed Practice Standard also sets out additional obligations for professional engineering work on specific building parts, specifically engineering work carried out on:

- Basements
- Facade
- Vertical Transportation

Design and construction of these building parts also often require input and collaboration from a number of Design Practitioners and Professional Engineers, rather than falling into the speciality of a single professional engineering class. Work on these specific building parts has been included in

the proposed Practice Standard as audits carried out by the building regulator have found ongoing poor quality of design and construction work in these elements.

In March 2023, the building regulator issued two Building Work Rectification Orders for different sites found to have inadequate drainage to support wet walls within the basement levels of the building. The impact of the inadequate drainage was determined to contribute to unhealthy or dangerous conditions, loss of amenity for occupants, and undue dampness or deterioration of building elements. The proposed section in the Practice Standard sets out obligations for a Professional Engineer designing basement levels with wet walls to work with other relevant practitioners to ensure that appropriate drainage is incorporated into designs from the outset.

The building regulator has issued a further five Building Work Rectification Orders in 2023 with defects related to or involving vertical transportation within the building. Defects found included a lack of adequate ventilation, unprotected penetrations through lift shaft walls, and lifts not meeting fire safety requirements such as a lack of adequate smoke detectors, sprinklers, and emergency access doors. The proposed Practice Standard would require that a Professional Engineer working on vertical transportation check and verify any interfaces and connections between the vertical transport and elements covered by other Design Practitioners, such as the building structure, fire ratings and openings, mechanical ventilation, and power supplies.

The next section explains the some of the additional obligations included for Professional Engineers within the proposed Practice Standard, however, feedback on all sections and obligations is welcome, and not just those described below.

Additional obligations for fire safety engineers

A Professional Fire Safety Engineer is required to carry out a range of specific roles under legislation and under the NCC throughout the construction, commission and approval stages of a building project.

The proposed Practice Standard sets out that a Professional Fire Safety Engineer must refer to the Australian Fire Safety Engineering Guidelines for best practice guidelines when undertaking fire safety engineering work in NSW. The Guidelines were published by the ABCB in 2021 to supersede the International Fire Engineering Guidelines and provide guidance material to the NCC. The Guidelines have been highly endorsed by industry, including the National Council for Fire and Emergency Services (AFAC), and the Institute of Fire Engineers.

The proposed section also requires that a Professional Fire Safety Engineer take reasonable steps to support building owners to comply with their respective obligations under the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021.³⁰ Where a performance solution for a fire safety requirement is designed, the building owner is responsible for

³⁰ Section 26 of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021 (commencing 1 August 2023).

ensuring that comment is requested from the Fire Commissioner on the performance-based design brief for the performance solution during its development.

Additional obligations for geotechnical engineers

The proposed Practice Standard reiterates the existing legislative responsibilities for Professional Geotechnical Engineers when carrying out work on shoring and ground anchors.

The *Conveyancing Act 1919* establishes a duty of care that a person undertaking an excavation must ensure the support of a neighbouring land is not reduced. This legislative requirement is reinforced in the proposed Practice Standard with additional clarification include to clarify how a Professional Geotechnical Engineer should meet this requirement by ensuring designs for shoring systems do not cause damage neighbouring structures.

The DBP Regulation also sets out specific obligations for the installation of encroaching ground anchors.³¹ It requires that before a ground anchor is installed, the relevant building practitioner must provide the building regulator with the 'ground anchor installation right' document, demonstrating that permission has been received to install the anchor on neighbouring land. The Professional Geotechnical Engineer is required to support the building practitioner to comply with these requirements.

The proposed section also reinforces that a Professional Geotechnical Engineer is required to comply with the *Design and Building Practitioners – Particular for Regulated Designs Order 2022* which sets out specific elements to be included in regulated designs for shoring and ground anchors.

Additional obligations for structural engineers

The proposed Practice Standard requires that a Professional Structural Engineer must consider potential interfaces between their designs and reports and designs prepared by other engineers and designers on a project. This would include that where applicable in a project, the Professional Structural Engineer must review the following:

- geotechnical design parameter verification records (will have been reviewed prior to construction of relevant element);
- concrete test results such as cylinder test results (additional early age concrete test approvals required in post tensioning slabs);
- post installed anchor test results where required;
- certificate for fire rated paint system if utilised;
- certificates for any modular/offsite elements that have been certified by other designers or engineers; and

³¹ Division 3A of the DBP Regulation.

- pile design parameter verification (including torque (where relevant), depth and testing results as required by design).

Structural engineering documents are required to reflect the scale and scope of a project. As such a Professional Structural Engineer is required to ensure that their designs are highly integrated with other designs for the project and must work in close collaboration with other practitioners on a project. These requirements are intended to ensure that this collaboration takes place, and structural engineers take proactive steps to review designs, records and results from other practitioners that may impact their work or designs on a project.

Questions

23. Are there any further obligations that should be introduced for specific classes of Professional Engineer? If so, what are they and why?

Please be specific on what further obligations you consider necessary, the desired outcome sought and your views on how it could be prescribed.

24. Are there any further obligations that should be introduced for engineering work on specific building parts? If so, what are they and why?

Please be specific on what further obligations you consider necessary, the desired outcome sought and your views on how it could be prescribed.

25. Should any of the proposed additional obligations set out in Chapter 8 of the proposed Practice Standard that should be removed? If so, what are they and why?

Future State

The Department is developing a plain English Building Act which will consolidate and modernise the existing pieces of legislation. It is proposed that the registration scheme for Professional Engineers would be moved from the DBP Act into the new consolidated legislation. The primary purpose of the Building Bill is to outline the licencing requirements for persons involved in the building and construction industry, making the Bill a more natural fit for the engineering registration scheme. A draft of the proposed Building Bill went out to public consultation in 2022.³²

There will be no regulatory implications related to the transfer of the Professional Engineers registration scheme from the DBP legislation to the Bill. There will be no changes to the scheme and it will continue to operate as it does currently.

It was further proposed that the Professional Engineer scheme would no longer be restricted to the classes of building governed by the DBP legislation but would be expanded in a staggered approach to additional building classes.

It was proposed in the draft Bill from the commencement of the Bill, the engineering registration scheme would be expanded to capture work on Class 1, 2, 3, and 9c buildings as professional engineering work, and require engineers working on those projects to be registered under the scheme in NSW. Additional building classes would then be included over a longer period. This staggered approach to the commencement was proposed to ensure industry would have adequate time to adapt to the new registration requirements.

The proposal for the licencing of engineers working across all building work in NSW would bring the scheme closer to national uniformity with Victoria and Queensland. Engineering registration schemes are also currently being established in the Australian Capital Territory and are under consideration in Western Australia.

The proposed Building Bill also includes provisions which will require all licence holders and practitioners registered under the Bill to maintain adequate insurance. A shift towards adequate insurance requirements supports end-to-end accountability in the building and construction industry. The Department is committed to engaging in further public consultation on the suite of proposed reforms.

The proposed Practice Standard has been drafted to support the current requirements and obligations of Professional Engineers in its current form. The Practice Standard will be reviewed following any legislative changes to the professional engineering scheme.

³²The draft Building Bill and related regulatory impact statements are available at www.haveyoursay.nsw.gov.au/reforming-building-laws.

Appendix – Collated Questions

Application of the Practice Standard for Professional Engineers

1. Do you propose any changes to the definition of 'professional engineering work'?

Insurance

2. Do you support the current insurance approach requiring 'adequate cover'? Why or why not?
3. Do you think mandatory insurance requirements should be prescribed? If so, what should be prescribed?
4. What alternative approaches to ensuring Professional Engineers and other regulated practitioners under the DBP Act could be considered in providing confidence of an adequate remedy to non-compliant work by practitioners?

Design must be Fit for Purpose

5. Do you support the introduction of the 'fit for purpose' obligation for Professional Engineers carrying out design work? Why or why not?
6. Do you support the proposed criteria for 'fit for purpose'? If no, what changes would you propose (either adding, removing or enhancing criteria proposed)?
7. What other measures could be utilised to ensure that designs prepared by Professional Engineers are fit for purpose?

Minimum Standards for Design Work

8. Do you support the introduction of design obligations on Professional Engineers? Why or why not?
9. Do you think additional obligations are required in the design phase to ensure higher quality of designs? If so, what?
10. Do you think additional requirements are necessary to ensure consumers receive the information they need from Professional Engineers undertaking work on their behalf?

Independent Third-Party Review

11. Do you support introducing mandatory independent third party review for engineering designs on high risk or complex building projects?
12. Do you support making the developer responsible for seeking third party review when required? If no, who do you think should be held responsible?

13. Do you support the use of the 'building complexity' definition in the NCC as a baseline to identify high-risk or complex buildings? Why or why not?
14. How could we better define what 'high-risk' work is to complement the use of 'building complexity' as a measure to ensure independent third party review is proportionate to the risk of the work?
15. Do you think performance solutions should be subject to independent third party reviews? Why or why not?
16. This proposal is currently limited to introducing mandatory third party review of engineering designs. Do you think there is a need for expert review of other types of design work?
17. Do you support the proposed obligations for Professional Engineers when undertaking independent third party review, as set out in the draft Practice Standard?
18. What additional obligations or guidance could be created for other practitioners to ensure that the work of a Professional Engineer undertaking independent third party review enhances the compliance, safety and resilience of the relevant building (for example, changes to the Certifier Practice Standard)?

Carrying out On-Site Inspections

19. Do you support the introduction of a positive obligation on Professional Engineers to carry out on-site inspections? Why or why not?
20. The proposed Practice Standard allows that a Professional Engineer is permitted to use their experience and expertise to determine sufficient inspections for a project. Do you support this approach?
21. What guidance would support Professional Engineers to make informed decisions regarding the number of inspections for a project?
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