

Practice Standard for Professional Engineers

Requirements for Professional Engineers registered under the Design and Building Practitioners Act 2020

2024



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Acronyms and definitions

Term / Acronym	Description
BCA	Building Code of Australia.
Body corporate	Has the same meaning as in the <i>Corporations Act 2001</i> of the Commonwealth, such as a company, or partnership.
Building element	Has the same meaning as section 6 of the DBP Act.
Building Regulator	Building Commission NSW.
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.
DBP Act	Design and Building Practitioners Act 2020.
DBP Regulation	Design and Building Practitioners Regulation 2021.
The Department	The Department of Customer Service.
Design Compliance Declaration	Has the same meaning as Section 8(1) of the DBP Act.
EP&A Act	Environmental Planning and Assessment Act 1979.
NCC	National Construction Code. The NCC includes the Building Code of Australia and the Plumbing Code of Australia.
Performance solution	Has the same meaning as in the NCC.

Term / Acronym	Description
Professional Engineer	A person who is registered under the Design and Building Practitioners Act 2020 to carry out professional engineering work in a prescribed area of engineering. Note: See Section 1.4 below for information on prescribed areas of engineering.
Professional engineering work	Has the same meaning as section 31 of the DBP Act. Note: See Section 1.3 below.
Regulated building	A building that is regulated under the DBP Act, 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.
Secretary	Secretary of the Department of Customer Service.
WHS Act	Work Health and Safety Act 2011.

1. Introduction and purpose

1.1 Purpose of the Practice Standard for Professional Engineers

The Practice Standard for Professional Engineers has been developed to prescribe the standard expected of a Professional Engineer by the Building Regulator in carrying out professional engineering work under the Design and Building Practitioners Act 2020 (the DBP Act).

Compliance with this Practice Standard is a condition of registration for all Professional **Engineers registered under the DBP Act.**

This Practice Standard prescribes:

- professional and legal expectations for a Professional Engineer carrying out professional engineering work; and
- a Professional Engineer's responsibilities to the community when carrying out professional engineering work.

This Practice Standard details how the Building Regulator will assess a Professional Engineer's compliance with the Practice Standard.

This Practice Standard should be understood in conjunction with other 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 <u>Design and Building Practitioners Regulation 2021</u> (the DBP Regulation);
- conditions of registration imposed on design practitioners, principal design practitioners or building practitioners, where the Professional Engineer is registered as one or more types of practitioner under the DBP Act; and the
- Building and Development Certifiers Act 2018, where the engineer is undertaking certification work.

1.2 Legal status

The Practice Standard for Professional Engineers is prepared by the Secretary of the Department of Customer Service, or their delegate, under section 50 of the DBP Act.

The requirements set by this Practice Standard are in addition to obligations imposed on Professional Engineers under the DBP Act, under other legislation and by contract.

Compliance with this Practice Standard is a condition of registration for all Professional Engineers registered under the DBP Act when carrying out 'professional engineering work'.

Failure to abide with requirements in this Practice Standard may be a breach of a practitioner's registration as a Professional Engineer under the DBP Act, which:

- constitutes an offence under the DBP Act; and
- is grounds for taking disciplinary action, including suspension or cancellation of registration.

This Practice Standard should not be used as a substitute for a Professional Engineer referring directly to the legislation that governs their practice.

Professional Engineers are encouraged to obtain independent legal advice where required.

Engineers who are not required to be registered under the DBP Act may use this Practice Standard as a guide for best practice.

Compliance with this Practice Standard does not form a condition of registration for a design practitioner, principal design practitioner or building practitioner under the DBP Act. Information on the obligations of a design practitioner, principal design practitioner or building practitioner under the DBP Act is available on the NSW Fair Trading website.

Where an obligation is imposed on a Professional Engineer under this Practice Standard, it only applies to the engineer for work which is professional engineering work requiring registration under the DBP Act.

1.3 What is professional engineering work?

An engineer must be registered as a Professional Engineer under the DBP Act to carry out professional engineering work on regulated buildings constructed within NSW.

The DBP legislation defines professional engineering work as work that:

- is engineering work in a prescribed area of engineering;¹
- requires or is based on the application of engineering principles and data;
- requires applying these principles and/or data to an engineering related design or engineering related construction, production, operation or maintenance activity;²
- is not carried out in accordance with a prescriptive standard;³ 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.⁴

Only work which meets all five elements of the definition is captured under the DBP Act.

It is acknowledged that there is other engineering work carried out to support the construction of a regulated building (i.e. a class 2, 3 or 9c building), such as the surrounding civil infrastructure. In line with the definition outlined above, this engineering work is not captured under the DBP Act.

The DBP Act allows an engineer who is not registered as a Professional Engineer to carry out professional engineering work if they are under the direct supervision of a registered Professional Engineer authorised to do that work. Section 5 of this Practice Standard outlines supervision requirements that must be complied with in these circumstances.

See Part 1.4 of this document, 'Areas of engineering that require registration'.

² Section 31(1) of the DBP Act.

Section 31(2) of the DBP Act.

⁴ Section 14 of the DBP Regulation.

The definition of professional engineering work is designed to be consistent with the definition of 'professional engineering service' used in Queensland and Victoria and their respective Professional Engineers registration schemes.

Note: For the avoidance of doubt, an engineer located interstate or internationally who is working on regulated buildings being constructed in NSW, must be:

- registered as a Professional Engineer under the DBP Act; or
- directly supervised by a Professional Engineer registered under the DBP Act.⁵

The Guidance on Professional Engineering Work document available on the NSW Fair Trading website provides further guidance on the elements of the professional engineering work definition and provides examples of what work is and is not captured as professional engineering work under the DBP Act.

1.4 Areas of engineering that require registration

The DBP Act and Regulation prescribe six areas of engineering which require registration under the Act.⁶ A Professional Engineer registered under the DBP Act is only authorised to do professional engineering work within their class(es) of registration.

These six areas are defined in Schedule 1 of the DBP Regulation⁷ and are listed below:

Civil engineering

An area of engineering that involves the research, design, construction and maintenance of the built environment.

Electrical engineering

An area of engineering that involves equipment, devices, plant and systems that use electricity, electronics and electromagnetism.

Fire safety engineering

An area of engineering that involves the application of engineering principles and rules to the following:

- the fire performance of a material, structure or building; 0
- the selection of a fire system suitable for a particular building, including components of the systems,
- the safety and behaviour of a person in the event of a fire;
- the prevention, detection and suppression of fire.

See Part 5 of this document, 'Supervision Obligations'.

Section 32 of the DBP Act.

⁷ Schedule 1, Division 4 of the DBP Regulation.

Geotechnical engineering

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

Mechanical engineering

An area of engineering that involves work carried out in machines, structures, processes and systems involving mechanical elements.

Structural engineering

An area of engineering that involves the prediction and calculation of:

- the stability, strength and rigidity of built structures; and
- how structures and buildings resist and transfer natural and other forces. 0

While the areas of engineering have broad meanings, registration is required only where a person is carrying out professional engineering work in these six areas, and that work is carried out directly in relation to the design or construction of a regulated building under the DBP Act, as described in Part 1.3 of this Practice Standard.

For example, while the building of roads is within the scope of civil engineering, a person doing that engineering work is not required to be registered as that work is not carried out directly in relation to the design or construction of a regulated building (including mixed-use buildings). Professional engineering work in an area of engineering not included above, such as mining, chemical, environmental, biomedical, technology, and telecommunications, is not currently required to be registered in NSW under the DBP Act.

1.5 Interaction with other obligations under the DBP Act

A practitioner's registration as a Professional Engineer (i.e. registration to carry out professional engineering work) is distinct from registration they may hold as a design practitioner, principal design practitioner or building practitioner under the DBP Act (i.e. registration to make design or building compliance declarations).

Not all Professional Engineers are required to hold registration as a design practitioner, but a person who holds registration as a design practitioner in an engineering class is required to maintain registration in the related professional engineering class under the DBP Act. For example, a person registered as a Design Practitioner – Mechanical Engineering must additionally hold and maintain registration as a Professional Engineer – Mechanical. In this scenario, this Practice Standard only applies to the person's registration as a Professional Engineer, and not their registration as a design practitioner.

For design work on a regulated building a person who is registered under the DBP Act as a design practitioner, is responsible for the preparation, supervision, or coordination of regulated designs⁸ and providing a design compliance declaration for the regulated designs.

The design compliance declaration includes:

- whether the designs comply with the requirements of the Building Code of Australia (BCA);
- whether other standards, codes or requirements have been applied in preparing the
- that the regulated design, as far as is reasonably practicable, integrates:
 - other aspects of building work related to the design; and
 - other regulated designs for the building work, including designs prepared by other design practitioners.

'Integration' of designs means that the designs required to construct a building have been coordinated to ensure consistent and complete outcomes between designs, and that no further designs (or consequential variations) are necessary to immediately construct the building.

Professional Engineers 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 registered as a design practitioner in the relevant class.

The DBP Act allows for body corporates to hold registration as a design practitioner. This allows the body corporate to be responsible for the preparation of regulated designs and the making of design compliance declarations covering the work of the body corporate. It means that not everyone employed by the body corporate who is contributing to the preparation of the regulated designs needs to be separately registered as an individual design practitioner.

However, the body corporate is only authorised to prepare regulated designs or make design compliance declarations if they have at least one employee registered in the relevant class of registration and the designs and declarations relate to work which is in the scope of authority of the relevant class of registration. 9

Section 9 of the DBP Act.

Schedule 1, Section 7 of the DBP Regulation.

2. General duties of a Professional Engineer

2.1 Code of practice for Professional Engineers

Schedule 4, Division 2 of the DBP Regulation prescribes the mandatory Code of Practice for Professional Engineers. Compliance with the Code is a condition of registration for all Professional Engineers.

The Code sets out that a Professional Engineer has a duty to act in 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; and
- take all reasonable steps to protect the health and safety of the community when carrying out professional engineering work, including by doing the following:
 - identifying hazards;
 - assessing risks;
 - implementing appropriate strategies to manage risk; 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 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 and others in a 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 Professional Engineers to comply with the requirements placed on them by other Acts and laws in Australia.¹⁰

A failure to meet a requirement under the Code is an offence under section 56 of the DBP Act and is grounds for taking disciplinary action, including suspension or cancellation of registration and a maximum penalty of \$33,000 for individuals.

¹⁰ Schedule 4, Section 8 of the DBP Regulation.

2.2 Fit for purpose

In considering whether a Professional Engineer is complying with the Code of Practice for Professional Engineers, a Professional Engineer must ensure they carry out professional engineering work in compliance with the 'fit for purpose' requirements in the table below.

This obligation is enforceable by the Building Regulator as a condition of registration of the Professional Engineer in NSW. The Building Regulator will have regard to the following Criteria and Relevant Factors in determining whether a Professional Engineer is complying with the Code of Practice for Professional Engineers.

'Fit for Purpose' criteria

Criteria	Relevant Factors
The Professional Engineer must have a contract of engagement that incorporates a Design Brief. ¹¹	The contract of engagement ¹² must incorporate a Design Brief and should additionally specify: • engineering services to be provided, which may include: • technical requirements; • scope obligations; • design requirements; and • insurance requirements.
The professional engineering work carried out by the Professional Engineer must comply with all applicable legislative requirements.	Professional Engineers must comply with applicable obligations set out under the DBP Act, EP&A Act and any other relevant legislation.

¹¹ See Part 3.1 of this document, 'Design Briefs'.

¹² This Practice Standard does not address any commercial aspects of a contract of engagement between a Professional Engineer and their client including, but not limited to, fees payable or any liability arising from the contract of engagement.

Criteria	Relevant Factors
The professional engineering work must be carried out by the Professional Engineer in accordance with applicable provisions of the National Construction Code (NCC). ¹³	A Professional Engineer must ensure that their professional engineering work complies with applicable requirements of the NCC before it is provided to another person to be relied on for building work. This includes requirements detailed in Part A5, Governing Requirements of the Building Code of Australia Volume One. This means that the professional engineering work carried out by the Professional Engineer must be free of defects, errors or omissions that would make the engineer's work non-compliant with the NCC.
The professional engineering work carried out by the Professional Engineer must be within the engineer's area of competency.	A Professional Engineer can only do professional engineering work within their area of engineering (listed on their registration). The Code of Practice for Professional Engineers sets out that a Professional Engineer must only carry out professional engineering work authorised by the engineer's registration and within their competence or expertise. Breaching this duty, the Professional Engineer will be liable under the DBP Act.
The Professional Engineer must take all reasonable steps to coordinate with other designers working on a project to deliver the project.	A Professional Engineer must work to provide compliant professional engineering work to a design practitioner or principal design practitioner, and work with other practitioners to ensure that the designs will enable a registered building practitioner to deliver compliant building work. The DBP Act requires that regulated designs integrate to ensure that designs for all building elements will deliver a compliant, safe and resilient building. Under the Act, design practitioners have an obligation to ensure their designs integrate with other relevant designs to deliver a compliant completed building, rather than the discrete parts of the building alone being compliant. ¹⁴

¹³ It is noted that a professional engineer may carry out work outside of Australia that is not required to comply with the NCC. This is not captured by the definition of 'professional engineering work' under the DBP Act. See Part 1.3 of this document, 'What is professional engineering work?'.

¹⁴ See Part 1.5 of this document, 'Interaction with other obligations under the Design and Building Practitioners Act'.

Criteria	Relevant Factors
The Professional Engineer should take all reasonable steps to provide guidance to the building practitioner, as appropriate, on how to implement the professional engineering work.	A Professional Engineer should take all reasonable steps to provide appropriate support to a building practitioner to implement the engineer's professional engineering work. The Professional Engineer should take all reasonable steps to proactively seek to provide this support, rather than waiting to be asked by the building practitioner, noting that the level of support required is likely to vary depending on the complexity and risk of the building project. Reasonable steps may include: • preparing a schedule for Quality Assurance submissions and review; • attending regular site meetings; and • carrying out on-site inspections during construction. 15

The obligation for the counterparty to accept the Professional Engineer's advice and for a contractor to construct strictly in accordance with that design rests with the counterparty and contractor, not the Professional Engineer. However, to the extent that it is reasonably practicable, and they are engaged to do so, it is expected that Professional Engineers play a proactive role in all relevant stages of the build process and will attend sites as necessary to see that work is being carried out in accordance with the designs prepared by the Professional Engineer.

Note: For the avoidance of doubt, this requirement sits separately to the duty of care owed under section 37 of the DBP Act and does not operate as an expansion of that duty. Part 2.3 of this document provides more detail on the duty of care requirements.

Duty of care 2.3

Part 4 of the DBP Act establishes that a person who carries out construction work has a statutory duty of care to exercise reasonable care to avoid economic loss caused by defects.

The duty of care is distinct from the registration framework for Professional Engineers under the DBP Act. The duty of care is owed by any person who carries out construction work and is not limited to the practitioners registered under the DBP Act.

The duty of care 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.

¹⁵See Part 4.2 of this document, 'Onsite inspections by a Professional Engineer'.

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 manages or otherwise has substantive control over any of that work.

2.4 Insurance

It is a requirement under the DBP Act that a Professional Engineer must not carry out professional engineering work if they are not adequately insured for that work and must be able to provide evidence to NSW Fair Trading that the engineer is insured upon request.¹⁶

The DBP Act and Regulation provide that a Professional Engineer can be covered by either an individual, partnership, or corporate policy. If a company or partnership is providing professional indemnity insurance for a Professional Engineer, the company's insurance policy must indemnify the Professional Engineer for liability incurred when the engineer was registered as an employee and was performing professional engineering work on behalf of the company or partnership.¹⁷

When determining if a policy provides an adequate level of indemnity, the Professional Engineer, or the company or partnership providing indemnity insurance for the Professional Engineer, must take into account the following matters:

- the nature and risks associated with the work typically carried out;
- the volume of the work typically carried out;
- the length of time that the Professional Engineer has been registered;
- a reasonable estimate of claims that could be brought against the Professional Engineer on the above:
- the financial capacity of the individual, company or partnership; and
- any limits, exceptions, exclusions, terms or conditions of the policy.¹⁸

Professional Engineers are encouraged to obtain independent financial advice and/or insurance advice as required.

¹⁶ Section 33 of the DBP Act.

¹⁷ Section 74 of the DBP Regulation.

¹⁸ Section 77 of the DBP Regulation.

3. Design phase obligations

3.1 Design brief

A design brief is a document that is intended to define and clarify the project requirements for the proposed project. A design brief should set out any key engineering elements considered essential or desirable by the client for the project.

A design brief may be prepared by the client, or by a Professional Engineer where requested by the client. In either circumstance, there is often a negotiation between the client and the Professional Engineer on the final scope of services.

In preparing or negotiating a design brief, a Professional Engineer must ensure that the brief covers:

- the range and quality of services required;
- the timeframe for the delivery of services;
- the relevant statutory requirements and appropriate design standards (including relevant provisions of the NCC);
- the documentation standards;
- software that will be used to assist with calculations;
- an interpretation of the requirements of the project; and
- a description of the engineer's responsibilities.

The Professional Engineer should also ensure that the design brief prescribes the key engineering elements that are required to achieve the proposed delivery of the project, exercising reasonable care and skill. For example, a Professional Engineer must ensure the design brief accounts for the following to ensure the engineering work complies with the NCC and any other required standards:

- review of workshop drawings;
- review of samples;
- where the Professional Engineer has specified building products to be used, there is an assessment of the suitability of these products; and
- on site inspections required, including a schedule of critical stage inspections which includes the notice period that must be given to attend site.¹⁹

Once the design brief has been completed, it must be submitted as a return brief to the client, for confirmation by the client of the scope and intent of the design and any specific requirements to be included in the design.

¹⁹ These examples are illustrative only and are not exhaustive.

3.2 Performance solutions

Compliance with the NCC is achieved by complying with the Governing Requirements²⁰ and the relevant Performance Requirements²¹. There are three ways to comply with the NCC's Performance Requirements:

- using a performance solution; or
- using a deemed-to-satisfy (DTS) solution; or
- using a combination of performance solutions and DTS solutions.

A performance solution uses any method other than the DTS provisions to comply with the Performance Requirements. DTS solutions use the NCC's DTS provisions to comply with the Performance Requirements.

A person responsible for a building design may choose to utilise a performance solution as the NCC compliance method, rather than using a DTS solution. A performance solution provides a tailored solution to meeting the intended objective of the Performance Requirements, allowing flexibility in achieving design and compliance outcomes and encouraging innovative design and use of technology. A performance solution must demonstrate compliance with all applicable Performance Requirements of the NCC or be at least equivalent to the DTS provisions. While the bespoke nature of a performance solution enables flexibility and innovation, it also requires careful and detailed assessment so that the building solution can meet the performance requirements of the NCC.

Where a Professional Engineer prepares a performance solution report for a regulated building, the report must comply with the requirements prescribed in section 5 of the DBP Regulation and the NCC.

Note: If a performance solution is required on a new or existing regulated building, a design practitioner who is registered under the DBP Act must prepare, supervise or coordinate preparation of the regulated designs.

Professional Engineers can provide engineering advice on a regulated building but they cannot prepare regulated designs, make design compliance declarations, or lodge documents related to regulated buildings unless they are also registered as a design practitioner in the relevant class.

²⁰ The Government Requirements are a set of governing rules outlining how the NCC must be used and the process that must be followed.

²¹ The Performance Requirements prescribe the minimum necessary requirements for buildings, building elements, and plumbing and drainage systems. They must be met to demonstrate compliance with the NCC.

3.3 **Existing structures**

The following section only applies to a Professional Engineer carrying out professional engineering work relevant to alteration, rebuilding or remediation of an existing building that is subject to a development consent.

Before building work commences, a Professional Engineer should seek advice from the principal certifier on matters relevant to the development consent that are outside the engineer's area of expertise but necessary for the engineer's consideration of the relevant requirements for compliance with the NCC and referenced standards. Specifically, advice should be sought when undertaking alteration, rebuilding or remediation work where physical constraints, or heritage aspects are present and may affect the building works.

If the development consent for the alteration, rebuilding or remediation work requires partial or full upgrades of the existing building to comply with the current NCC and referenced standards, all works must be brought into compliance.

If the development consent does not require partial or full upgrades to comply with the NCC and referenced standards, the Professional Engineer must list specific areas of noncompliance that were identified during the building work project but were not rectified as part of the building work, with the latest codes and standards for consideration by the client.

This is for the Professional Engineer's future reference and also to enable the client the ability to manage any health and safety risks that may exist.

3.4 Workshop drawings

Where engaged to prepare workshop drawings, a Professional Engineer should take all reasonable steps so that the drawings align the contractor's proposals with the construction set of documents, as provided to the Professional Engineer, taking into account any required modifications specific to the systems being offered to the extent practicable.

Workshop drawings generally fulfill two primary functions:

- 1. To amalgamate or disseminate key design information to enhance readability for the contractor. The primary purpose is to ensure workers can readily interpret the design. An example of this would be the workshop drawing combining the measurements from a declared architectural drawing and the engineering specification from a declared structural drawing into one drawing.
- 2. A drawing where additional design information is included because the contractor has specialised knowledge or is using proprietary materials. An example of this would be a façade contractor using a specific type of fixings that is essential to the stability of the building (or an element of the building) and this information is not available in the structural drawings.

Where a workshop drawing is only intended to fulfill the first function, there is no necessity to declare the workshop drawing as part of the Construction Issued Regulated Design as the

information contained within the workshop drawing is already present and declared in other documents. Despite the workshop drawings not needing to be declared, a Professional Engineer has an obligation to review the drawings to ensure it meets the design intent and ensure the drawings accords with the declared regulated designs.

Where a workshop drawing has elements of the second function, i.e. it includes additional design information, such drawings need to be prepared by a registered design practitioner. Additionally, where workshop drawings constitute a regulated design under the DBP Act, the drawings must be subject to a design compliance declaration by a registered design practitioner.

Workshop drawings should include:

- measurements and specifications for the architect/design practitioner;
- notes that identify changes from the original designs;
- information necessary to fabricate the product so that it complies with the NCC and any referenced standards; and
- information necessary to install the product/system so that it complies with the NCC and any referenced standards.

A Professional Engineer preparing workshop drawings must take all reasonable steps to identify any areas of final coordination required before the design practitioner can make a design compliance declaration on the professional engineering work. It is the responsibility of the design practitioner to ensure that the regulated design, as far as is reasonably practicable, integrates with other aspects of building work related to the design, and other regulated designs for the building work, including designs prepared by other design practitioners.

Note: Under the DBP Act, building work *cannot* commence on *any* building element covered by the DBP Act before the relevant designs have been declared by the design practitioner (and are therefore issued 'for construction' designs), even where the relevant workshop drawings have been completed.

3.5 Working with design practitioners

Under the DBP Act, regulated designs must, as far as is reasonably practicable, integrate with other related designs and other aspects of the building work.²² The integration of designs is essential for better designed buildings.

A Professional Engineer, engaged to prepare designs, has a positive obligation to take all reasonable steps 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.

²² Section 8 of the DBP Regulation.

For example, a design prepared by a structural engineer would require integration with designs prepared by, but not limited to, the 'architectural' or 'building design' design practitioner, and the fire safety engineer.

This obligation exists both if a Professional Engineer is providing specialist advice to a design practitioner or if they are also registered as a design practitioner and preparing regulated designs themselves.

3.6 Independent third party review of designs

This section of the Practice Standard sets out obligations for Professional Engineers engaged to carry out independent third party review of building designs where a review has been requested or is required to be carried out.

Independent third party review of building designs is considered best practice on complex or high risk buildings and engineering work, as they can allow design issues to be identified and rectified earlier in the process.

It is intended that a future version of this Practice Standard will impose mandatory obligations for independent third party review of certain building designs for certain building types.

Duties when undertaking independent third party review

A Professional Engineer who undertakes an independent third party review of designs for a regulated building is carrying out professional engineering work and therefore must be registered under the DBP Act or working under the direct supervision of a registered Professional Engineer.

Before a Professional Engineer agrees to be engaged to undertake an independent third party review, they must take all reasonable steps to ensure they:

- are registered under the DBP Act and their registration authorises them to undertake the independent third party review (i.e. the review must relate to the area of engineering the Professional Engineer is authorised to carry out professional engineering work in);
- are competent and have the expertise to undertake the independent third party review (having regard to the features of the design, building complexity and any performance solutions used);
- manage and disclose potential or actual conflicts of interest to the person who is engaging the Professional Engineer (for example, relationship to the person whose work is to be reviewed) and avoid actual conflicts of interest (i.e. the Professional Engineer must not have been involved in the designs or work and, where practicable, must avoid reviewing designs or work of a project involving a builder/developer the Professional Engineer is currently working with on other projects);
- ensure there is agreement over the scope of work to be undertaken as part of the independent third party review and timing of the resultant report to be produced, with all exclusions expressly stated in the final engagement documentation; and
- have all designs and reports relevant to the independent third party review, and request additional documentation as required to ensure the Professional Engineer can produce the resultant report.

In undertaking an independent third party review, the Professional Engineer must:

- act with honesty, integrity and in a professional manner;
- carry out the work in good faith;
- be impartial and exercise independent judgement;
- maintain confidentiality in accordance with the Code of Practice for Professional Engineers; and
- take all reasonable steps to act in the best interests of their client, unless this would be inconsistent with requirements imposed on them by law or contrary to the public interest.

A Professional Engineer undertaking an independent third party review of building designs does not take responsibility for the designs being reviewed, however, the Professional Engineer will be liable for their own conduct in carrying out the review as they are undertaking professional engineering work.

For the avoidance of doubt, a Professional Engineer is subject to all professional engineering requirements including those specified under the DBP Act and in this Practice Standard.

It is expected that a Professional Engineer undertaking an independent third party review of building designs will:

- review relevant designs, reports and documentation made available and assess whether they meet the requirements of the NCC,
- review and validate the calculations, assumptions and engineering judgement which inform the designs/reports. It is expected that a reasonable sample of calculations will be checked at a minimum to determine the quality of the analysis; and
- identify and prioritise critical issues, whether or not they have previously been identified.

Written report of independent third party review

A Professional Engineer undertaking an independent third party review must produce a written report that clearly:

- defines the purpose and scope of the review, including date(s) of review, who conducted the review, and identifying any assumptions or exclusions;
- declares any conflicts of interest;
- identifies any assumptions, calculations or verification work undertaken to assess compliance (e.g. with NCC and referenced standards), including test results if applicable;
- identifies and lists all information the professional engineer relied on in undertaking the review;
- lists the design documentation reviewed;
- details inspections undertaken;
- outcomes of the review, including determinations, recommendations and issues or matters requiring further investigation; and
- a log of queries raised and responses given, if applicable.

A Professional Engineer undertaking an independent third party review may also produce a certificate or report that the design is compliant with the NCC and other relevant standards (i.e. a structural engineer for structural designs).

This can be through the form of a compliance certificate issued under the EP&A Act or through evidence of suitability within the meaning of A5G3 of the NCC. The certifier can rely on a 'design' compliance certificate issued by a certifier, holding the relevant class of 'certifier' or 'engineer'²³ under the EP&A Act in determining an application for a construction certificate.

A Professional Engineer must not issue a certificate to be relied on in accordance with Part A5G3 of the NCC until they are satisfied that the relevant design complies with the requirements of the BCA.

Obligations on professional engineer whose work has undergone third party review

Where a professional engineer's work has gone through the third party review process, the professional engineer must consider any findings and recommendations made by the third party review in finalising their professional engineering work.

A professional engineer must ensure that they provide responses to the third party review recommendations as part of the provision of the professional engineering work to a registered design practitioner as part of the design declaration process under the DBP Act or directly to the certifier where a design declaration is not required. In all other circumstances, the professional engineer should provide a copy of their response to the recommendations from the third party review directly to the client.

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²³ Section 2 of Schedule 1 of the Building and Development Certifiers Regulation 2020.

4. Construction phase obligations

4.1 Review of constructed work

As part of the certification process, because the role of a registered building certifier is generalist in nature and given the complexity of modern buildings, they are permitted to rely upon specialists for relevant matters and disciplines, such as structural engineering.

Where the registered building certifier requires expert advice, they may require or request that their client engage an appropriate practitioner to test and review constructed work and provide a certificate or report that the work is compliant with the NCC and other relevant standards (i.e. a structural engineer for structural works).

This can be through the form of a compliance certificate issued under the EP&A Act or through evidence of suitability within the meaning of A5.2 of the BCA. The certifier can rely on a compliance certificate issued by a certifier, holding the relevant class of 'certifier' or 'engineer',²⁴ under the EP&A Act in determining an application for an occupation certificate.

Where the registered building certifier requests a review of constructed work related to a regulated building that is 'professional engineering work' as defined in the DBP legislation,²⁵ then the work must be reviewed by a Professional Engineer.

Evidence of suitability

Before a Professional Engineer agrees to be engaged to issue a certificate or report that constructed work demonstrates compliance with the NCC, they must take all reasonable steps to ensure they:

- are registered under the DBP Act and their registration authorises them to undertake the review relevant to the building component that is the subject of the review (i.e. the review must relate to the area of engineering the Professional Engineer is authorised to carry out professional engineering work in); and
- are competent and have the expertise to undertake the review relevant to the building component that is the subject of the review (having regard to the features of the design, building complexity and any performance solutions used).

A professional Engineer can only issue a certificate or report verifying the suitability of a building component, form or construction if the certificate or report complies with A5G3 of the NCC by:

- providing the basis on which verification of suitability has been made in a form that can be subjected to scrutiny; and
- references any standards, specifications, software or other publications or documents relied upon in verifying suitability.

²⁴ Section 2 of Schedule 1 of the Building and Development Certifiers Regulation 2020.

²⁵ See Part 1.3 of this document, 'What is professional engineering work?'.

4.2 On site inspections by a Professional Engineer

Inspections of professional engineering work must be carried out by a Professional Engineer or an engineer under the direct supervision of a Professional Engineer. Part 5 of this document outlines supervision obligations. A Professional Engineer must undertake on site inspections in accordance with the inspection schedule set out in the design brief and/or engagement agreement.

Where a Professional Engineer is preparing designs or reports that will be used in building work, the Professional Engineer must make recommendations concerning the final work. The recommendations should provide an indication of the appropriate number of on site inspections by a Professional Engineer, including critical points where and when work should not progress without first carrying out an on site inspection by a Professional Engineer.

A Professional Engineer undertaking an on site inspection of professional engineering work must, to the extent that it is within their area of expertise:

- detect observable non-compliance issues;
- determine whether the building work is built in accordance with the NCC and relevant standards and the plans and specifications of the engineering design;
- provide a recommendation to the certifier, where appropriate, of any observed compliance issues; and
- abide by all site work, health and safety requirements when undertaking the inspection.

For example - it is expected that a Professional Engineer – structural, when attending site would check that the size and position of visible columns are in accordance with the approved plans. Failure to do so would amount to breach of the Professional Engineer's obligations under the Practice Standard.

A Professional Engineer must take all reasonable steps so as to not:

- perform poor quality inspections or inspections that are not on site (i.e. cannot be done virtually); or
- inspect only a portion of building work covered by the designs under review.

For example - a Professional Engineer who conducts a site inspection via a video call would be in breach of their obligations under the Practice Standard.

The Professional Engineer must take all reasonable steps to ensure they seek to be aware of any additional and relevant inspection requirements that the certifier or consent authority has imposed on the project.

If the Professional Engineer considers that reinspection is required, they should notify the certifier. The certifier will then document and communicate the unsatisfactory inspections to the building approval applicant.

All findings from an inspection should be retained as evidence of the inspection, including photo and/or video records of the inspection. At the completion of an on site inspection, the Professional Engineer should complete an inspection report, including:

- the address of the property at which the inspection was carried out;
- the identity of the inspecting Professional Engineer;
- when the inspection occurred;
- if the inspection was a critical stage inspection (as required by the certifier and/or under the engineer's engagement agreement;
- any designs and/or engineering report which it was possible to undertake an inspection against;
- any relevant photographs taken during the inspection; and
- the findings from the inspection(s), including a declaration that the building work is built in accordance with the relevant engineering design, if applicable.

Any limitations from the inspection undertaken should be explicitly included. This might include items such as any areas/items that were not accessible and testing that was not able to be undertaken.

The inspection report should be made available to relevant parties to support practitioners to deliver compliant building work. The inspection report should be provided in a reasonable time. If a delay in producing the report is expected the Professional Engineer should provide written notice to the relevant building practitioner of the findings of the inspection and clearly state if further work is permitted, while the report is being prepared.

If a scheduled on site inspection is missed, the Professional Engineer must keep a written record of what was missed and attend site as soon as practicable. The Professional Engineer must provide written instructions to the relevant building practitioner on what is required to satisfy the Professional Engineer. This may include:

- reviewing photographs;
- undertaking non-destructive investigations; and
- undertaking destructive investigations.

The level of investigation required should be proportionate to the risk, but should satisfy the Professional Engineer that the work is compliant. If 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:

- take all reasonable steps to notify the relevant building practitioner responsible for the building site;
- notify SafeWork if the concern relates to the potential for a serious injury, illness, death or dangerous incident; and
- provide a recommendation to the certifier that additional inspections by the certifier are necessary beyond the minimum mandatory inspections required. In providing this recommendation, the Professional Engineer should consider the scope of their professional engineering work and the complexity of the building.

If a Professional Engineer becomes aware that they will no longer continue on a project, including where their registration is suspended, they must provide to the client (and the Professional Engineer taking over if known):

- an updated schedule of inspections, including which inspections have been completed, missed and planned;
- all records of inspections, including copies of all inspection reports; and
- a handover document on the status of the design and any outstanding issues.

If a Professional Engineer takes over a project from another engineer, they should receive the above documents and conduct a thorough review prior to accepting the role. If necessary, the Professional Engineer should amend the schedule of inspections.

4.3 **Temporary works**

Temporary works includes any temporary building work necessary to allow the permanent works to be carried out on a regulated building, such as scaffolding, formwork, falsework, shoring systems and other temporary structural support elements. Where this work involves professional engineering work, it must be carried out by a Professional Engineer or an engineer under the direct supervision of a Professional Engineer. Part 5 of this document outlines supervision obligations.

A Professional Engineer must take all reasonable steps to ensure that this work is documented and communicated clearly and in a manner that a reasonable person required to rely on it could follow the designs/reports to produce safe and compliant temporary works.

Where this work does not relate to a building element or performance solution, for example installation of cranes or scaffolding, a Professional Engineer can prepare the designs/reports without a registered design practitioner making a design compliance declaration.

Where the work relates to a building element, for example temporary shoring and ground anchors, this work must be declared by a registered design practitioner.

All professional engineering work in relation to temporary works must comply with relevant legislation and codes, including the duties required by the Work Health and Safety Act 2011 (WHS Act), and should comply with all relevant standards.

5. Supervision obligations

5.1 Providing direct supervision of unregistered persons

If a person is carrying out professional engineering work, they must be a Professional Engineer or carrying out the work under the direct supervision of a Professional Engineer. This requirement is set in section 32 of the DBP Act.

The Code of Practice for Professional Engineers specifically extends this duty. 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 under the DBP Act and other relevant laws.26

This ensures that the 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 at the Professional Engineer.

The obligation to satisfy the requirements of 'direct supervision' (outlined in section 5.2 below) rests with both the unregistered engineer who is being supervised, as well as the Professional Engineer who is supervising. Failure to satisfy these elements could result in significant consequences for both parties.

For failing to meet the direct supervision requirements, the unregistered engineer could face a penalty of up to \$55,000 or an on-the-spot fine of \$5,500, and the supervising Professional Engineer risks disciplinary action, including possible cancellation of their registration.

5.2 Requirements for providing direct supervision

To satisfy the requirements of direct supervision under the DBP Act, the Building Regulator considers that each of the following four elements must be met:

The supervision must be direct.

The supervising Professional Engineer and the unregistered engineer must have direct contact with each other. Direct contact can be via in person interaction or via remote instruction if working from different locations. Supervision cannot be provided through a third person. Direct contact may include:

- face to face meetings;
- video conferencing;
- email and telephone calls; and

²⁶ Schedule 4, Section 19 of the DBP Regulation.

direct supervision and approval of draft designs.

The level of direct supervision required will vary depending on the context of the work. However, even if an unregistered engineer demonstrates high levels of expertise, direct supervision must be maintained at all times.

2. The supervising engineer must be a Professional Engineer whose registration authorises them to carry out the professional engineering work and the work must be within their competence and expertise.

Before agreeing to directly supervise an unregistered engineer, a Professional Engineer should ensure they fully understand the work required and that the work falls within the scope of work authorised by their class of registration and is within their competence and expertise.

A Professional Engineer must also ensure that they have capacity to adequately supervise the unregistered engineer.

3. The supervising Professional Engineer must instruct, oversee and evaluate the unregistered engineer in the carrying out of the work.

The Professional Engineer must be involved and supervising in all stages of the professional engineering work. The Professional Engineer must ensure that the professional engineering work carried out by the supervised engineer is carried out to a standard expected of a Professional Engineer at all times.

The Professional Engineer must have sufficient control over the work conducted by the unregistered engineer, and should be satisfied that, at all times, the unregistered engineer is exercising appropriate knowledge, skill, judgement and care.

The Professional Engineer must ensure the work is carried out in accordance with the requirements under the DBP Act, including the Code of Practice, or another Act or law. They must take responsibility for the professional engineering work being delivered.

4. Appropriate records must be maintained by the supervising registered Professional Engineer.

A Professional Engineer should keep records that would demonstrate to the Building Regulator that they have satisfied the requirements of direct supervision under the DBP Act. The records should clearly provide evidence of the direct supervision over all types of professional engineering work including the approval of draft designs. Records may be electronic or hard copy and may include:

- records demonstrating reviews and comments;
- emails:
- checklists;
- relevant photographs;
- records of face to face meetings and video conferencing, including file notes and meeting minutes;
- records of telephone calls; and

any other documents indicating instructions of review of work.

Consistent with existing record keeping requirements under the DBP Act, it is recommended that records are retained for the period of at least 10 years from the date on which completion of building work to which the professional engineering work relates occurs, unless it is not reasonable to do so.

The <u>Guidance on Professional Engineering Work</u> document available on the NSW Fair Trading website provides further guidance to help Professional Engineers understand their obligations regarding direct supervision.

6. Obligations for engineers acting as an expert witness in legal proceedings

Professional Engineers may be engaged or appointed as an expert witness to provide an expert's report for use as evidence in legal proceedings or to give opinion evidence in such proceedings.

The purpose of an expert report or expert opinion is for the court to receive the benefit of the objective and impartial assessment of an issue from a witness with specialised knowledge. For example, providing advice about the cause of a defect in construction.

A Professional Engineer who provides false and misleading information as an expert witness may be subject to an offence (section 307B Crimes Act 1900). This is a serious offence with a maximum penalty of imprisonment for 2 years, or a fine of \$22,000, or both.

A Professional Engineer engaged or appointed as an expert witness must comply with the Expert Witness Code of Conduct, set out in Schedule 7 of the Uniform Civil Procedure Rules 2005 (the Expert Witness Code) for proceedings in NSW.

A registered Professional Engineer is also required to comply with the Code of Practice for Professional Engineers, set out in Division 2, Part 2, Schedule 4 of the Design and Building Practitioners Regulation 2021. This does not affect the duty of a registered Professional Engineer to comply with requirements placed on the Professional Engineer under other Acts or laws.²⁷ This includes the requirement to comply with the Expert Witness Code.

A Professional Engineer must take all reasonable steps to avoid actual conflicts of interest if practicable when providing expert evidence. Failure to do so would breach the Code of Practice.²⁸ A failure to meet a requirement under the Code is an offence under section 56 of the DBP Act and is grounds for taking disciplinary action, including suspension or cancellation of registration and a maximum penalty of \$33,000 for individuals.

6.1 Duty of Professional Engineer prior to being engaged or appointed as expert witness

Before a Professional Engineer agrees to be engaged or appointed as an expert witness, the Professional Engineer is encouraged to get independent legal advice on their obligations and read and understand the Expert Witness Code, and any relevant court produced guidance material.

Before a Professional Engineer agrees to be engaged or appointed as an expert witness, the Professional Engineer must take all reasonable steps to understand the scope of issues they will be required to provide an expert opinion on. This will ensure the Professional Engineer can satisfy themselves that as the expert witness they will not be carrying out professional

²⁷ Schedule 4, Section 8 of the DBP Regulation.

²⁸ Schedule 4, Section 15 of the DBP Regulation.

engineering work that is not authorised by the Professional Engineer's registration, or beyond the Professional Engineer's competence or expertise (in accordance with their duty under the Code of Practice).

As part of the obligation to take all reasonable steps, the Professional Engineer should read the legal brief or letter of instruction thoroughly and seek more detailed instructions from the client if the Professional Engineer needs more clarity to understand the scope of issues they will be required to provide an expert opinion on.

In taking all reasonable steps, the Professional Engineer should ensure that the legal brief or letter of instruction provides the Professional Engineer with relevant detail about the following (but not be limited to):

- the client and the identification of all relevant parties (to enable the Professional Engineer to manage and avoid conflicts of interests);
- the list of facts and assumptions the Professional Engineer is being asked to rely as an expert witness (including where relevant, but not limited to, the location of the building and/or its identifying name, a history of the problems with the building and the general facts about the construction of the building, whether an insurance claim has been lodged and/or proceedings commenced in respect of the defects affecting the building);
- what the Professional Engineer is required to do (i.e. what are they being instructed to provide an opinion on, what questions are to be answered in their opinion, what issues must be considered);
- copies of all relevant documents that cover the background information and all relevant issues that may have a significant bearing on the opinions formed by the Professional Engineer (including where relevant, but not limited to, the strata plan, any other reports obtained by the client, surveys completed by residents of the building); and
- a copy of the relevant Expert Witness Code (to enable the Professional Engineer to read and familiarise themselves with the Code which they will be bound by).

If the legal brief or letter of instruction instructs the Professional Engineer to undertake work outside of their registration, competence or expertise, the Professional Engineer must inform the client of this fact. The Professional Engineer must not provide an opinion on those matters that fall outside of the engineer's registration, competence or expertise.

6.2 Duty of Professional Engineer for providing an expert's report

A Professional Engineer engaged or appointed as an expert witness to provide an expert's report must comply with clause 3 of the Expert Witness Code which sets out the requirements for the content of a report prepared by an expert witness for use in court.

Under the Code, every report must clearly state the opinion or opinions of the expert and must state, specify or provide:

- the name, address and qualifications of the expert;
- an acknowledgement the expert has read the Code and agrees to be bound by it;
- assumptions and material facts on which each opinion is based (letter of instructions may be annexed);

- reasons for and any literature or other materials used in support of each opinion;
- (if applicable) that a particular question, issue or matter falls outside the expert's field of expertise:
- any examinations, tests or other investigations on which the expert has relied, identifying the person who carried them out and that person's qualifications;
- the extent to which any opinion expressed involves the acceptance of another person's opinion, the identification of that other person and the opinion expressed by that other person;
- a declaration that the expert has made all the inquiries which the expert believes are desirable and appropriate (save for any matters identified explicitly in the report), and that no matters of significant which the expert regards as relevant have, to the knowledge of the expert, been withheld from the court;
- any qualification of an opinion expressed in the report without which the report is or may be incomplete or inaccurate;
- whether any opinion expressed in the report is not a concluded opinion because of insufficient research or insufficient data or for any other reason; and
- where the report is lengthy or complex, a brief summary of the report at the beginning of the report.

Consistent with the role of an expert witness as recognised under the common law, any opinion expressed by the Professional Engineer in the report must be independent and impartial (i.e. the Professional Engineer should not become an advocate for the cause of the party that has retained them).

A Professional Engineer must take all reasonable steps to ensure that the report is written in plain English so it is accessible for readers who do not have a background in professional engineering work, avoiding unnecessary jargon where possible. If technical terms are used, the Professional Engineer should include a glossary of those terms in the report.

Where literature or other materials are referenced in the report, the Professional Engineer must take all reasonable steps to ensure that relevant extracts of those materials are attached and copies in full available to the client upon request.

Where the Professional Engineer has provided a report to a party for use in legal proceedings, and the Professional Engineer subsequently changes their opinion on a material matter, the Professional Engineer must advise the party immediately and provide a supplementary report, at the earliest opportunity, the content of which must also comply with the Expert Witness Code.

7. Additional obligations for specific classes of registration and specific professional engineering work

It is intended that a future version of this Practice Standard will include additional obligations for Professional Engineers registered under specific classes and/or carrying out professional engineering work in specific areas, including:

- Additional obligations: electrical Professional Engineers
- Additional obligations: fire safety Professional Engineers
- Additional obligations: geotechnical Professional Engineers
- Additional obligations: mechanical Professional Engineers
- Additional obligations: structural Professional Engineers
- Additional obligations: professional engineering work on a basement
- Additional obligations: professional engineering work on a façade
- Additional obligations: professional engineering work on vertical transportation