NCC

Evidence of suitability

Handbook

Australian Building Codes Board

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Handbook

The Australian Building Codes Board

The Australian Building Codes Board (ABCB) is a standards writing body responsible for the National Construction Code (NCC), WaterMark and CodeMark Certification Schemes.

The ABCB is a joint initiative of all levels of government in Australia, together with the building and plumbing industry. Its mission is to oversee issues relating to health, safety, amenity, accessibility and sustainability in building.

For more information visit the ABCB website.

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Preface

This handbook is one of a series by the ABCB. Handbooks expand on areas of existing regulation or relate to topics that are not regulated by the National Construction Code (NCC). They provide advice and guidance.

The Evidence of Suitability Handbook assists in understanding the evidence of suitability provisions in A5G2, A5G3 and A5G4 of NCC Volumes One, Two and Three.

It addresses issues in generic terms and is not a document that sets out specific compliance advice for developing solutions to comply with the requirements in the NCC. It is expected that this handbook guides readers to develop solutions relevant to specific situations in accordance with the generic principles and criteria contained herein.

Contents

Reminder

This handbook is not mandatory or regulatory in nature. Compliance with it will not necessarily discharge a user's legal obligations. The handbook should only be read and used subject to, and in conjunction with, the general disclaimer at page i.

The handbook also needs to be read in conjunction with the NCC and the relevant legislation of the appropriate state or territory. It is written in generic terms, and it is not intended that the content of the handbook counteract or conflict with the legislative requirements, any references in legal documents, any handbooks issued by the administration or any directives by the appropriate authority.

1 Introduction

The NCC is a performance-based code containing all Performance Requirements for the construction of buildings. To comply with the NCC, a solution must achieve compliance with the Governing Requirements and the Performance Requirements.

The Governing Requirements contain requirements about how the Performance Requirements must be met. A building, plumbing or drainage solution will comply with the NCC if it satisfies the Performance Requirements, which are the mandatory requirements of the NCC.

This Handbook was first published in 2018 and revised in 2019 and 2020. In 2019, editorial changes were made to align Volume One content with NCC 2019, and content was added to cover Volumes Two and Three. In 2020 and 2021, editorial corrections were included.

This handbook reflects the latest updates and modifications introduced in NCC 2022.

1.1 Scope

This Handbook has been developed to assist NCC users in understanding and applying the evidence of suitability provisions of the NCC. It will be of interest to all parties who are involved in selecting or assessing elements of buildings, plumbing systems or drainage systems that must comply with the NCC.

1.2 Objective of the handbook

This handbook explains the various forms of documentary evidence that can be used to support a claim that a material, product, form of construction or design meets a Performance Requirement or a Deemed-to-Satisfy (DTS) Provision.

The handbook introduces and promotes the use of a risk assessment framework to assist in deciding the most appropriate form of documentary evidence to use in a particular circumstance. A flow chart is provided to demonstrate how the types of documentary evidence can apply in different situations.

1.3 Using this document

1.3.1 Appendices

This document contains 3 appendices, which are as follows:

- Appendix A contains a list of abbreviations used in this document.

- Appendix B is a glossary of key terms used in this document.
- Appendix C provides general information about complying with the NCC and responsibilities for building and plumbing regulations.

1.3.2 Document styles

Different styles are used in this document. Examples of these styles are below.

NCC extracts[1]

Examples

Alerts or Reminders

[1] NCC extracts italicise defined terms as per the NCC. See Schedule 1 of the NCC for further information.

2 Documentary evidence to support NCC compliance

2.1 Documentation of design and construction

Part A5 of each Volume of the NCC contains the documentation of design and construction provisions. This part contains options that can be used as evidence to support that the use of materials, products, forms of construction or designs meet the requirements of the NCC.

Some examples of evidence to be prepared and retained are certificates, reports, calculations and any other documents or information.

Alert

Materials, products, forms of construction and designs are collectively referred to as "components" in this handbook.

Alert

The use of the general evidence of suitability options contained in A5G2, A5G3 and A5G4 is subject to specific requirements for:

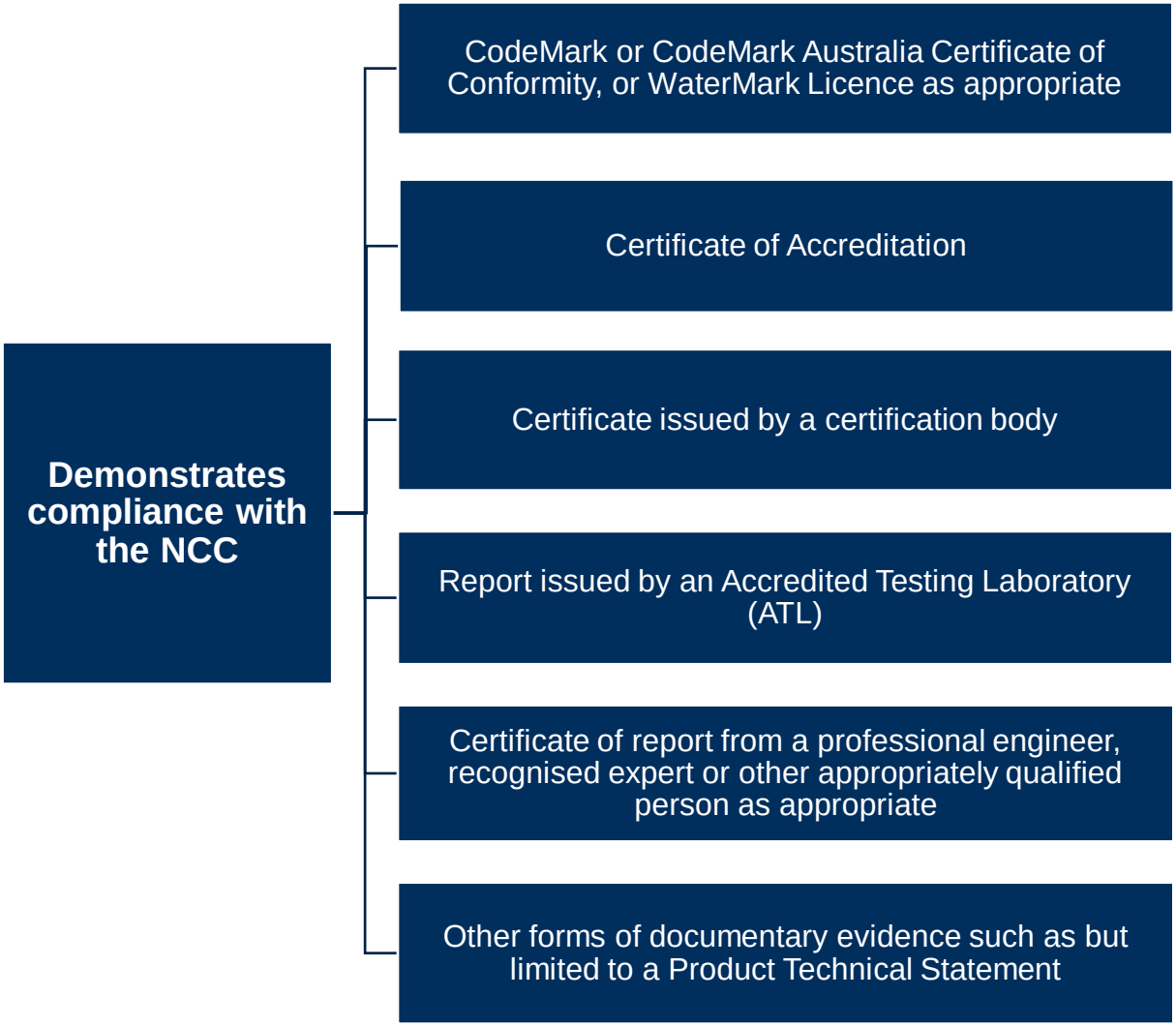
- certain plumbing and drainage products – in A5G4(1) to (5), and
- determination of fire resistance of building elements – in A5G5, and
- determination of fire hazard properties – in A5G6, and
- a ceiling having a resistance to the incipient spread of fire in A5G7, and
- house energy rating software evidence – in A5G9.

2.2 Evidence of suitability framework

The most appropriate form of evidence of suitability to be used will vary depending on the specific circumstance. The forms of evidence have been arranged in a framework to reflect a hierarchy of rigour, with the options listed higher providing stronger forms of evidence.

The evidence of suitability framework is shown in Figure 2.1.

Figure 2.1 NCC evidence of suitability framework



New or innovative components, as well as components where the consequences of failure have been assessed as high, typically require assessment using more rigorous options to prove compliance. Certification schemes, such as CodeMark, CodeMark Australia and WaterMark, provide users with a source of recognition for components that comply with the NCC. Such schemes aim to achieve conformity in certification practices and establish market confidence.

Components that require less extensive forms of assessment to prove NCC compliance may include elements of buildings that present little risk, have been used in Australia for many years and have a strong history of successful performance in the built environment, i.e., they have a low probability of failure. They may also include components where the consequences of failure, should it occur, have been assessed as low.

The options are not mutually exclusive. The selected option may include elements of other options, or more than one option may be required as evidence of compliance with the NCC. The suitability of the selected option/s will be subject to acceptance by the appropriate authority.

Alert

Other forms of documentary evidence, such as but not limited to a Product Technical Statement, could be based on test results from an in-house or independent body such as a testing laboratory.

2.3 Introduction to the evidence of suitability options – Volumes One and Two

For the NCC Volumes One and Two, the form of evidence that may be used, are explained in A5G3. A5G3 represents the minimum level of documentary evidence needed to show that a building component meets the relevant NCC requirements. The evidence can be required by:

- an appropriate authority
- a party to a construction contract
- a person certifying compliance with the NCC.

They are discussed in more details in the following section.

2.3.1 CodeMark or CodeMark Australia Certificate of Conformity

A5G3 Evidence of suitability- Volumes One and Two (BCA)

(1) Subject to A5G5, A5G6, A5G7 and A5G9, evidence to support that the use of a material, product, form of construction or design meets a *Performance Requirement* or a *Deemed-to-Satisfy Provision* may be in the form of any one, or any combination of the following:

(a) A current CodeMark Australia or CodeMark *Certificate of Conformity*.

(b) […]

(c) […]

(d) […]

(e) […]

(f) […]

A Certificate of Conformity, issued under the CodeMark or CodeMark Australia scheme by an accredited certification body, provides independent confirmation that a building product or system complies with the NCC. Information contained in or referenced on the Certificate of

Conformity should provide clear guidance about how to specify and install the building product or system to ensure it complies with the Performance Requirement or DTS Provision for which compliance is claimed. The Certificate of Conformity must outline any conditions or limitations on the use of the building product or system.

CodeMark and CodeMark Australia are voluntary third-party building product and system certification schemes owned by the Commonwealth of Australia, acting on behalf of the Commonwealth and all States and Territories. The schemes were designed to streamline and fast-track the building approval and inspection processes by avoiding repeated assessment of products and systems that have proven NCC compliance. The schemes also support the use of new or innovative building products and systems in specified circumstances by providing a nationally accepted process for demonstrating compliance with the requirements of the NCC.

Only certification bodies accredited by the Joint Accreditation System of Australia and New Zealand (JASANZ) can issue Certificates of Conformity. They are responsible for evaluating applications for Certificates of Conformity in accordance with the scheme rules and within their scope of accreditation.

A Certificate of Conformity may be the best route for a manufacturer or supplier to take where a product or system is highly innovative or novel and, as a consequence, does not comply with the DTS Provisions, or where there are significant consequences if the product or system was to fail.

Alert

On 1 August 2017, transition from the previous CodeMark scheme to the new CodeMark Australia scheme commenced. A Certificate of Conformity issued under the previous CodeMark scheme can still be used as supporting evidence while the certificate remains valid.

2.3.2 Certificate of Accreditation

A5G3 Evidence of suitability- Volumes One and Two (BCA)

(1) Subject to A5G5, A5G6, A5G7 and A5G9, evidence to support that […]

- (a) […]
- (b) A current *Certificate of Accreditation*.
- (c) […]
- (d) […]
- (e) […]
- (f) […]

A Certificate of Accreditation is issued by a state or territory accreditation authority under the applicable state or territory building legislation. A state or territory accreditation authority will assess a building component for compliance with the NCC.

The definition of a Certificate of Accreditation requires the certificate to state that the properties and performance of a building component fulfil specific requirements of the NCC. The certificate will also contain any conditions and limitations on the use of the building component and any other relevant information that is required to ensure compliance.

A Certificate of Accreditation issued by a state or territory accreditation authority may be used as evidence of suitability in another jurisdiction for the purpose of demonstrating compliance with the NCC, if the appropriate authority deems it appropriate to do so. The appropriate authority would need to be confident that the criteria used in the appraisal which the certificate is based upon is appropriate for the particular state or territory in which the building component is to be used.

Example: Certificate of Accreditation in Victoria

Victoria's Building Regulations Advisory Committee (BRAC) accredits building products, construction methods, designs, components, or systems connected with building work. Accreditation by BRAC does not apply to a building product that complies with the relevant DTS Provisions of the BCA. A Certificate of Accreditation issued by BRAC is evidence that the building product complies with the relevant Performance Requirement in the BCA.

Legislation in Victoria requires that a relevant building surveyor must not refuse to approve building work for an accredited product, design, component, or system on the ground that it is unsatisfactory, if it is accredited by BRAC and it complies with that accreditation.

2.3.3 Certificate issued by a certification body

A5G3 Evidence of suitability- Volumes One and Two (BCA)

(1) Subject to A5G5, A5G6, A5G7 and A5G9, evidence to support that […]

- (a) […]
- (b) […]
- (c) A current certificate, other than a certificate described in (a) and (b), issued by a *certification body* stating that the properties and performance of a material, product, form of construction or design fulfil specific requirements of the BCA.
- (d) […]
- (e) […]
- (f) […]

A certificate issued by a certification body provides independent confirmation that a building component complies with the NCC.

JASANZ can accredit certification bodies, commonly referred to as Conformity Assessment Bodies (CABs), under an industry-operated building product certification scheme. The certificate issued by a CAB under an industry-operated scheme is required by A5G3(1)(c) to state that the properties and performance of a building component fulfil specific requirements of the NCC. Key details such as the issue date of the certificate, how long it is valid for, a signature of the issuing body and other relevant information should be included on the certificate.

Industry-operated schemes that utilise a certification body are voluntary and can work well for families of products. Manufacturers who participate in such a scheme are responsible for ensuring their products comply with the requirements of the scheme.

Attributes of an effective scheme are:

- Publicly available rules that outline the framework of the scheme and the activities/functions of the scheme for the CAB to operate under.
- A regular schedule of independent audits of compliance.
- A governance framework that has a continuing role of ensuring the scheme's ongoing integrity.

2.3.4 Report issued by an Accredited Testing Laboratory (ATL)

A5G3 Evidence of suitability- Volumes One and Two (BCA)

(1) Subject to A5G5, A5G6, A5G7 and A5G9, evidence to support that […]

(a) […]

(b) […]

(c) […]

(d) A report issued by an *Accredited Testing Laboratory* that—

(i) demonstrates that a material, product or form of construction fulfils specific requirements of the BCA; and

(ii) sets out the tests the material, product or form of construction has been subjected to and the results of those tests and any other relevant information that has been relied upon to demonstrate it fulfils specific requirements of the BCA.

(e) […]

(f) […]

A report is issued by an Accredited Testing Laboratory (ATL) to show that a building component has been subjected to particular tests and sets out the results of those tests including any other relevant information that demonstrates its suitability for use in the building. An ATL can also

issue test certificates to certify that a particular product or system satisfies specified requirements.

An ATL is a testing laboratory accredited by the National Association of Testing Authorities (NATA), a laboratory accredited by an organisation that has a mutual recognition agreement with NATA, or an organisation recognised as being an ATL under legislation at the time the test was undertaken.

NATA is a not-for-profit organisation recognised by the Australian Government as the national authority for accreditation of laboratories performing tests, measurements, calibration and related services to standards of good laboratory practice. NATA, and those organisations with a mutual recognition agreement with NATA, accredit these laboratories to undertake relevant tests to specified standards.

The report issued by the ATL should list how the building component complies with the relevant requirements of the NCC and set out the tests it has been submitted to, the results of those tests and any other relevant information that has been relied upon to demonstrate suitability.

NATA maintains a register on its website of current accredited testing facilities and laboratories.

NATA and organisations that have a mutual recognition agreement with NATA

NATA is part of the International Laboratory Accreditation Co-operation Mutual Recognition Arrangement (ILAC MRA). Other accreditation bodies that are signatories to the ILAC MRA are responsible for maintaining a list of testing laboratories that they have accredited.

The ILAC MRA Signatory Search provides the contact details for all the accreditation bodies that are signatories to the ILAC MRA. Using the ILAC MRA Signatory Search can assist the appropriate authority in determining if a particular testing laboratory has a mutual recognition agreement with NATA.

2.3.5 A certificate or report from a professional engineer or other appropriately qualified person

A5G3 Evidence of suitability- Volumes One and Two (BCA)

(1) Subject to A5G5, A5G6, A5G7 and A5G9, evidence to support that […]

- (a) […]
- (b) […]
- (c) […]
- (d) […]
- (e) A certificate or report from a *professional engineer* or other *appropriately qualified person* that—

(i) certifies that a material, product, form of construction or design fulfils specific requirements of the BCA; and

(ii) sets out the basis on which it is given and the extent to which relevant standards, specifications, rules, codes of practice or other publications have been relied upon to demonstrate it fulfils specific requirements of the BCA.

(f) […]

A professional engineer or appropriately qualified person may issue a certificate or report verifying the suitability of a building component, form of construction or design so long as the certificate or report:

- provides 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.

A professional engineer is a person who is registered in that discipline if applicable legislation requires it. It is also required that the professional engineer has experience and competence relevant to the building component that is the subject of the report.

An appropriately qualified person is a person who through experience, qualification or both can verify the suitability of a building component for a given application. The person does not necessarily need to be licenced or registered by the state or territory authority unless applicable legislation requires it.

A professional engineer or appropriately qualified person is a person recognised by an appropriate authority to provide documentary evidence. When assessing the suitability of a certificate or report under this evidence option, an appropriate authority will need to verify that the report author has experience and competence commensurate with the subject of the report.

Alert

In some states or territories, applicable legislation may contain additional requirements to those found in the NCC for professional engineers or appropriately qualified persons who provide evidence of suitability.

2.3.6 Another form of documentary evidence

A5G3 Evidence of suitability- Volumes One and Two (BCA)

(1) Subject to A5G5, A5G6, A5G7 and A5G9, evidence to support that […]

(a) […]

(b) […]

(c) […]

(d) […]

(e) […]

(f) Another form of documentary evidence, such as but not limited to a *Product Technical Statement*, that—

(i) demonstrates that a material, product, form of construction or design fulfils specific requirements of the BCA; and

(ii) sets out the basis on which it is given and the extent to which relevant standards, specifications, rules, codes of practice or other publications have been relied upon to demonstrate it fulfils specific requirements of the BCA.

This evidence option is another form of technical documentation, other than a document already covered by A5G3(1)(a) to (e), which demonstrates compliance with the NCC.

This evidence option is included on the basis that the other options are not an exhaustive list and there may be other forms of documentary evidence that are appropriate for some circumstances. This may include, but is not limited to, information provided by a product manufacturer.

Evidence submitted under this option should:

- suitably describe the subject of the document
- set out any conditions that the statement of verification relies upon
- describe limitations to the statement of verification where applicable
- contain or refer to construction or installation standards where necessary, and
- reference any standards, test reports, specifications, or other publications relied upon for verifying suitability.

In many instances, documentary evidence submitted under this option may need to be supported by other documentation such as an appraisal or opinion from a recognised industry body or qualified professional. The appropriate authority should consider if this form of evidence is suitable for determining compliance with the NCC.

As previously mentioned, this form of documentary evidence may be more appropriate for building components that have historically demonstrated successful performance in the built environment and where the consequences of failure have been assessed as low.

A Product Technical Statement is one type of other documentary evidence that is specifically mentioned in A5G3(1)(f). Further information on Product Technical Statements is provided in Section 3.

Alert

Documentary evidence of suitability must be current for the project it is applied to.

Documentary evidence of suitability ceases to be current if it is:

- expired, or
- attesting compliance with a superseded NCC requirement that does not apply to the project it is submitted for, or
- withdrawn.

Example: other documentary evidence

An appropriate authority receives an application for a building which contains a required stair that is not required to be within a fire-resisting shaft. This stair is to be constructed from timber as permitted by NCC Volume One provision D3D4. Plans indicate that the timber species is blackbutt, that the timber will not be glued, and that each member will have a finished thickness of at least 44 mm.

D3D4(c)(ii) requires that the timber must have an average density not less than 800 kg/m^3 at a moisture content of 12%. To verify that blackbutt meets this requirement, the appropriate authority is provided with a datasheet that quotes research which found that blackbutt typically achieves an average density of 930 kg/m^3. The appropriate authority accepts the datasheet as evidence that the timber elements of the stair meet the minimum density requirement of D3D4(c)(ii).

2.4 Introduction to the evidence of suitability options – Volume Three

For Volume Three, various evidence of suitability options apply depending on whether the evidence applies to:

- a product, in which case A5G4(1), (2), (3), (4) and/or (5) apply, or
- a design or system, in which case A5G4(6) apply.

Each of these requirements is discussed in further detail in following sections.

Alert

This handbook concerns the national provisions. State or territory variations may apply and are found in Schedules 4 to 11 of each Volume of the NCC.

2.4.1 Evidence of suitability – Products

A5G4 Evidence of suitability – Volume Three (PCA)

(1) Any *product* that is intended for use in contact with *drinking water* must comply with the relevant requirements of AS/NZS 4020, verified in the form of either—

(a) a test report provided by an *Accredited Testing Laboratory*, in accordance with AS/NZS 4020; or

(a) a *WaterMark Licence* issued in accordance with (3), if it includes compliance with AS/NZS 4020.

(2) Any *product that* contains copper alloy and is intended for use in contact with *drinking water* must have a *weighted average* lead content of not more than 0.25% verified in the form of either—

(a) a test report provided by an *Accredited Testing Laboratory*, in accordance with NSF/ANSI/CAN 372; or

(b) a *WaterMark Licence* issued in accordance with (3), if it includes compliance with NSF/ANSI/CAN 372.

(3) A *product* of a type listed on the *WaterMark Schedule of Products* is deemed to be fit for its intended purpose if it has a *WaterMark Licence* issued in accordance with the WaterMark Scheme Rules.

(4) A *product* of a type listed on the *Watermark Schedule of Excluded Products* requires evidence of suitability in the form of—

(a) a current certificate issued by a *certification body* stating that the properties and performance of a *product* can meet the requirements of the PCA; or

(b) a report issued by an *Accredited Testing Laboratory* that—

(i) demonstrates that the *product* complies with the relevant requirements of the PCA; and

(ii) sets out the tests the *product* has been submitted to and the results of those tests and any other relevant information that has been relied upon to demonstrate suitability for use in a *plumbing* or *drainage* installation.

(5) Any *product* that is not covered by (3) or (4) must be subjected to a risk assessment in accordance with the WaterMark Scheme Rules.

(6) […]

A5G4(1) requires a product intended for use in contact with drinking water must comply with AS/NZS 4020 Testing of products for use in contact with drinking water. Evidence of suitability to demonstrate this compliance is to be either:

- a test report issued by an ATL in accordance with AS/NZS 4020 (A5G4(1)(a)) – see 2.4.1.1 or
- a WaterMark Licence that attests compliance with AS/NZS 4020 (A5G4(1)(b)) - see 2.4.1.2.

Alert

Note that test reports based on the 2005 edition of AS/NZS 4020 will continue to be accepted until 1 May 2024. Test reports prepared after the NCC reference date for the 2018 edition of AS/NZS 4020 must be based on the 2018 edition.

A5G4(2) requires a product containing copper alloy intended for use in contact with drinking water must have weighted average lead content of no more than 0.25%. Weighted average lead is calculated across the wetted surface area of a pipe, pipe fitting or plumbing fixture. Evidence of suitability to demonstrate this compliance is to be either:

- a test report issued by ATL in accordance with NSF/ANSI/CAN 372 Drinking Water System Components - Lead Content (A5G4(2)(a)), or
- a WaterMark Licence that attests compliance with NSF/ANSI/CAN 372 (A5G4(1)(b)).

Alert

Note that A5G4(2) does not apply to the products used only for non-drinking purposes, like manufacturing, industrial processing, or irrigation, where water is not for human consumption.

Alert

From 1 May 2026, plumbing products that contain copper alloys with more than 0.25% lead content will no longer be authorised for installation in a plumbing system used to convey drinking water.

Under A5G4(3), a WaterMark Licence is the only form of evidence of suitability permitted for a product of a type included in the WaterMark Schedule of Products See 2.4.1.2.

For product types listed on the WaterMark Schedule of Excluded Products, evidence of suitability is to be either:

- a current certificate attesting compliance with the PCA issued by a certification body (A5G4(4)(a)) – see 2.4.1.3; or
- a report issued by an ATL (A5G4(4)(b)) – see 2.4.1.4.

If a new product of a type not listed in the WaterMark Schedule of Products or WaterMark Schedule of Excluded Products, A5G4(5) requires a risk assessment to be undertaken to determine which schedule the product type belongs in.

Alert

The WaterMark Schedule of Products and the WaterMark Schedule of Excluded Products, along with the Manual for the WaterMark Certification Scheme can be viewed on the ABCB website.

Not all products of a type in the WaterMark Schedule of Products have been issued a WaterMark Licence. This may be due to the product not satisfying the criteria of the WaterMark Certification Scheme. These products are not authorised for use in a plumbing or drainage installation.

2.4.1.1 Test report issued by a certification body or ATL

A test report issued by a certification body or ATL provides independent evidence by way of testing under AS/NZS 4020 that a plumbing or drainage product complies with the relevant provisions of that standard. The issuer of the test report need not be a WaterMark Conformity Assessment Body (WMCAB).

2.4.1.2 WaterMark Licence

Where a product must comply with AS/NZS 4020 under the relevant product standard or WaterMark Specification, that product's WaterMark Licence is suitable evidence to indicate compliance with AS/NZS 4020. A WaterMark Licence is required for all product types listed on the WaterMark Schedule of Products and must be issued by a WMCAB.

2.4.1.3 A current certificate issued by a certification body

A current certificate issued by a certification body is one type of evidence of suitability that can be used for product types listed on the WaterMark Schedule of Excluded Products. The certificate is to state that the properties and performance of the product meet those required by the PCA.

2.4.1.4 A report issued by an ATL

An ATL may issue a report as evidence of suitability for a product of type listed on the WaterMark Schedule of Excluded Products. The report must demonstrate that the product complies with the relevant requirements of the PCA, set out the tests that the product has undergone, provide the results of those tests, and include other relevant information relied upon to demonstrate the product's suitability.

Alert

An ATL is a testing laboratory accredited by NATA, a laboratory accredited by an organisation that has a mutual recognition agreement with NATA, or an organisation recognised as being an ATL under legislation at the time the test was undertaken.

NATA is a not-for-profit organisation recognised by the Australian Government as the national authority for accreditation of laboratories performing tests, measurements, calibration and related services to standards of good laboratory practice. NATA, and those organisations with a mutual recognition agreement with NATA, accredit these laboratories to undertake relevant tests to specified standards. NATA maintains a register on its website of current accredited testing facilities and laboratories.

NATA and organisations that have a mutual recognition agreement with NATA:

NATA is part of the ILAC MRA. Other accreditation bodies that are signatories to the ILAC MRA are responsible for maintaining a list of testing laboratories that they have accredited.

The ILAC MRA Signatory Search provides the contact details for all the accreditation bodies that are signatories to the ILAC MRA. Using the ILAC MRA Signatory Search can assist an appropriate authority in determining if a particular testing laboratory has a mutual recognition agreement with NATA.

2.4.2 Evidence of suitability – Designs and systems

A5G4 Evidence of suitability – Volume Three (PCA)

(1) […]

(2) […]

(3) […]

(4) […]

(5) […]

(6) Evidence to support that a design or system meets the relevant PCA *Performance Requirements* must be in the form of any one or any combination of the following:

(a) The design or system complies with a *Deemed-to-Satisfy Provision*.

(b) The design or system is a *Performance Solution* from a *professional engineer* or a *recognised expert* that—

(i) certifies that the design or system complies with the relevant requirements of the PCA; and

(ii) sets out the basis on which it is given and the extent to which relevant standards, specifications, rules, codes of practice or other publications have been relied upon.

(c) Any other form of documentary evidence that—

(i) demonstrates that a design or system complies with the relevant requirements of the PCA; and

(ii) sets out the basis on which it is given and the extent to which relevant standards, specifications, rules, codes of practice or other publications have been relied upon.

For plumbing designs or systems, compliance with the relevant DTS Provisions of the PCA may be all that is necessary to demonstrate that the design or system is fit to achieve the requirements of the NCC. However, other documentary evidence may also be necessary, and can take the form of one or a combination of the following:

- For a Performance Solution, documentation by a professional engineer or recognised expert that certifies the relevant requirements have been met – see 2.4.2.1.
- Any other form of documentary evidence that indicates compliance with the relevant requirements – see.2.4.2.2.
- Each form of documentary evidence is to set out the basis on which it is given and detail information, such as specifications or other publications that have been relied upon.

Alert

Plumbing and drainage products are subject to the mandatory or DTS requirements of the WaterMark Certification Scheme, with some listed exclusions.

A Performance Solution cannot be used for demonstrating the suitability of products that require WaterMark certification, although the installation of these products can use a performance pathway.

2.4.2.1 Certification from a professional engineer or recognised expert

A professional engineer or recognised expert may issue a certificate or report verifying the suitability of a design or system so long as the certificate or report:

- provides 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.

A professional engineer is a person who is registered in that discipline if applicable legislation requires it. It is also required that the professional engineer has experience and competence relevant to the subject of the report.

A recognised expert is a person who, through experience and qualification in plumbing or drainage, is recognised by the authority having jurisdiction. Generally, a recognised expert is a hydraulic consultant or engineer with appropriate experience and competence.

Alert

In some states or territories, applicable legislation may contain additional requirements to those found in the NCC for professional engineers or recognised experts who provide evidence of suitability.

Example: Determining suitability of a hydraulic consultant

A hydraulic consultant has provided an appropriate authority with their professional resume. The resume shows that the consultant is experienced in the design and construction of sewerage infrastructure, with no experience in the design and installation of heated water services. Based upon the degree of experience, the approval authority may not consider the consultant to have the appropriate and relevant experience to design a Performance Solution for a heated water service.

2.4.2.2 Another form of documentary evidence

This evidence option is another form of technical documentation, other than a document already covered by A5G4(6), which demonstrates compliance with the PCA.

This evidence option is included on the basis that the other option is not the only option and there may be other forms of documentary evidence that are appropriate for some circumstances. This may include, but is not limited to, information provided by a product manufacturer.

Evidence submitted under this option is to:

- suitably describe the subject of the document
- set out any conditions that the statement of verification relies upon
- describe limitations to the statement of verification where applicable
- contain or refer to construction or installation standards where necessary
- reference any standards, test reports, specifications, or other publications relied upon for verifying suitability.

In many instances documentary evidence submitted under this option may need to be supported by other documentation such as an appraisal or opinion from a recognised industry body or

qualified professional. The appropriate authority should consider if this form of evidence is suitable for determining compliance with the PCA.

Alert

Documentary evidence of suitability must be current for the project it is applied to.

Documentary evidence of suitability ceases to be current if it is:

- expired, or
- attesting compliance with a superseded NCC requirement that does not apply to the project it is submitted for, or
- withdrawn.

3 Product Technical Statements

The inclusion of Product Technical Statements as an example of another form of documentary evidence under A5G3(1)(f) is intended to promote the provision of consistent and comprehensive technical information in a format that is easy to read and understand. A Product Technical Statement differs from advertising brochures and other marketing material, including product warranties, as it focuses on technical detail.

A Product Technical Statement summarises key details about a building component. It is a statement from the manufacturer or supplier who declares compliance with the NCC. Using a Product Technical Statement will assist practitioners involved in the building process to select, specify and accept a building component.

A Product Technical Statement should include the following:

- **Statement of NCC compliance**: a clear statement demonstrating that the building component complies with specific requirements of the NCC.
- **Basis of statement**: an outline of the basis on which the statement of compliance is made, including the extent to which other documents are relied upon.
- **Description of application**: a statement of the application and intended use of the building component.
- **Limitations**: all limitations and conditions of use as far as they relate to compliance with the NCC.

A Product Technical Statement should be accompanied by technical information and cross-reference any other documents that provide evidence to support:

- compliance claims, such as test reports or technical opinions/appraisals
- the use of the building component, such as installation or maintenance manuals.

A Product Technical Statement and any supporting documents should be uniquely identifiable by date or version number.

A suggested layout of a Product Technical Statement is shown in Figure 3.1.

Figure 3.1 Product Technical Statement suggested layout

PRODUCT TECHNICAL STATEMENT for NAME OF MATERIAL, PRODUCT OR FORM OF CONTRUCTION
PRODUCT DESCRIPTION: A brief description of the material, product or form of construction.
APPLICATION AND INTENDED USE: A statement of how and where the material, product or form of construction can be used within a building.
COMPLIANCE WITH THE NATIONAL CONSTRUCTION CODE: A statement of the Performance Requirements and/or Deemed-to-Satisfy Provisions (including the NCC edition) which the Product Technical statements asserts compliance with. A summary of how the use of the material, product or form of construction complies with the Performance Requirements and/or Deemed-to-Satisfy Provisions listed above. Details of evidence to support the compliance claims, such as test reports, technical opinions or other supporting information.
LIMITATIONS OF USE: Details of any limitations on the use of the material, product or form of construction relevant to its compliance claims, which may include the following: • Building classification • Building height or size • Type of construction • Environmental limitations, such as permissible wind regions • Maximum structural loads
CONDITION OF USE: Details of any conditions on the use of the material, product or form of construction relevant to its compliance claims. Details of any conditions on the use of the Product Technical Statement, such as expiry provisions.
INSTRUCTIONS FOR DESIGN, CONSTRUCTION OR INSTALLATION: Details of any instructions for design, construction or installation of the material, product or form of construction.
MAINTENANCE INSTRUCTIONS: Where applicable, instructions for maintenance
SUPPORT: Full contact details, including website links, for the manufacturer, supplier and technical support service.

4 Choosing the best documentary evidence option

4.1 Understanding the NCC

Every building is composed of thousands of products. Even supposedly simple buildings can be highly complex. This highlights the importance of understanding how and where a particular component will be used in a building.

It is important to be familiar with the NCC to help identify the requirements that are relevant to a particular component. It is also important to understand whether it forms part of a Performance Solution, a DTS Solution, or a combination of the two.

4.2 Demonstrating compliance

4.2.1 Selecting an appropriate form of evidence

A5G2(1) requires that the form of evidence selected must be appropriate to the use of the component to which it relates. The process described in this Handbook provides guidance on selecting appropriate forms of evidence using a risk-based approach.

4.2.2 Decision flow chart

To systematically work through the process of demonstrating compliance against the NCC there are several matters that need to be considered. The flow chart in Figure 4.1 outlines key matters for consideration and shows pathways for determining the appropriate documentary evidence options for demonstrating compliance with the NCC.

4.2.3 Determining compliance with the NCC

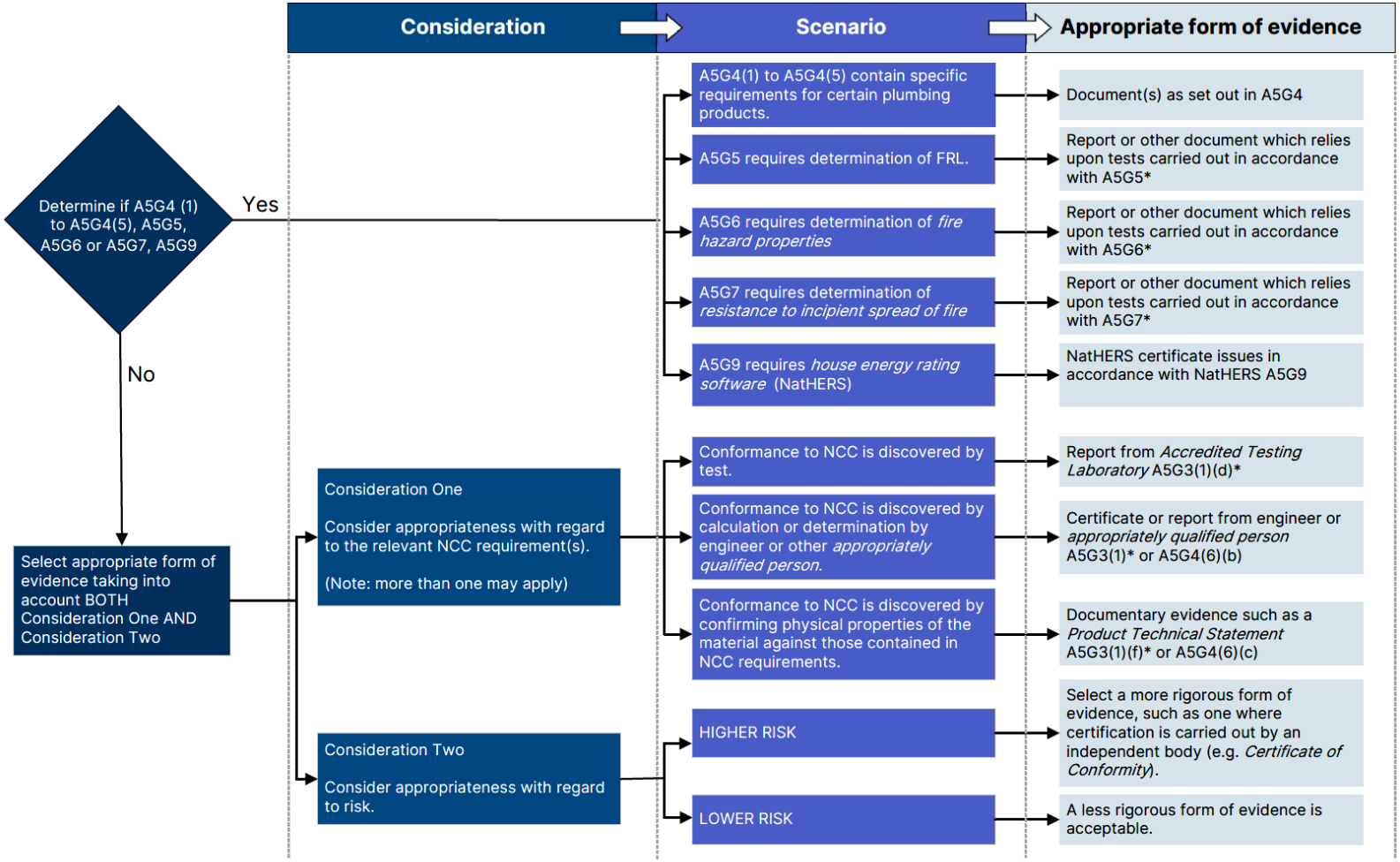
The first and most important step is to identify whether the particular component needs to comply with the NCC. To determine this, you need to go through the NCC and work out which Performance Requirements and associated DTS Provisions apply to the component.

Alert

Components that are not required to comply with the NCC may still be subject to other relevant legislation. Designers and manufacturers need to be aware of other legislation that may be in force and be applicable such as Australian Consumer legislation and Workplace Health and Safety legislation.

Examples of components that would not be covered by the NCC include kitchen cupboards, door hinges and architraves.

Figure 4.1 Decision flow chart



4.3 Risk assessment

The steps described in the flow chart at Figure 4.1 include, for some pathways, consideration of the risk associated with the component. The following risk assessment framework describes how risk assessment could be undertaken.

The framework looks at the likelihood of a component failing (Table 4.1), and what the consequences might be if it did fail (Table 4.2). For this purpose, failure is defined as failure to meet the relevant requirements of the NCC. The combination of these two factors will give an indication of the level of risk. In turn, this will indicate what level of rigour is likely to be required to demonstrate compliance with the NCC.

Where the outcome of the risk assessment is towards high, a more rigorous form of documentary evidence would be warranted, such as via a certification scheme. Conversely, where the outcome of the risk assessment is lower, documentation such as a Product Technical Statement may suffice.

Table 4.1 Likelihood of failure

Likelihood of failure	Description
Rare	Only in very exceptional circumstances
Unlikely	Would not be expected to happen in durability lifetime of product
Possible	May happen at end of durability lifetime of product
Likely	Might happen in durability lifetime of product

Table 4.2 Consequence of failure

Consequence of failure	Description
Insignificant	No risk of harm to building users Failure does not impact on any other components (e.g. insulation fails to meet specified R-Value)
Minor	Might cause harm to building users Failure is visible, quickly apparent and isolated (e.g. minor element falls on account of faulty masonry anchor)

Consequence of failure	Description
Significant	Causes injury or illness (e.g. injury from broken glass) Causes gradual/hidden failure of another component (e.g. failed under-slab membrane causes moisture ingress and results in damage)
Major	Potential loss of life (e.g. fire-isolated exit does not achieve required fire resistance level (FRL) and is compromised prematurely) Causes catastrophic failure of another component (e.g. movement of concrete slab causing structural collapse)

The likelihood (rare to likely) and the consequence (insignificant to major) assessment for a component is then used in applying the risk assessment framework shown in Figure 4.2.

Figure 4.2 Risk assessment framework

Likelihood	Consequence			
	Insignificant	Minor	Significant	Major
Rare	Low	Low	Medium	High
Unlikely	Low	Low	Medium	High
Possible	Low	Medium	High	High
Likely	Medium	Medium	High	High

Alert

Assessing risk requires informed judgement to be exercised – this sample framework is only a guide which may assist in the decision-making process.

4.4 Achieving compliance with the NCC

Determining the appropriate form of documentary evidence to be used, and obtaining that evidence, is only part of achieving a building that complies with the NCC. Having appropriate documentary evidence for a specific component is of no relevance if a different, non-conforming component is procured and installed. All parties that have a role in the product supply chain should ensure that their obligations or duties to check and assure that the right products are used, and are used correctly, are met.

Further information on non-conforming building products (NCBP) can be found from the NCBP website

Appendices

Appendix A Abbreviations

The following table, Table A.1 contains abbreviations used in this document.

Table A.1 Abbreviations

Abbreviation	Meaning
ABCB	Australian Building Codes Board
AS	Australian Standard
ATL	Accredited Testing Laboratory
BCA	Building Code of Australia
BRAC	Building Regulations Advisory Committee (Victoria)
CAB	Conformity Assessment Body
DTS	Deemed-to-Satisfy
FRL	Fire-resistance level
ILAC MRA	International Laboratory Accreditation Co-operation Mutual Recognition Agreement
JASANZ	Joint Accreditation System of Australia and New Zealand
NATA	National Association of Testing Authorities
NatHERS	Nationwide House Energy Rating Scheme
NCBP	Non-conforming building products
NCC	National Construction Code
NZS	New Zealand Standard
PCA	Plumbing Code of Australia
$SMOGRA_{RC}$	Smoke growth rate index
VBA	Victorian Building Authority
WMCAB	WaterMark Conformity Assessment Body

Appendix B Glossary

This appendix contains a glossary of key terms used in this document with links to further information where relevant. The glossary includes NCC extracts of defined terms. These are identified by the following document style below.

NCC extracts[2]

Accredited Testing Laboratory: One of the following:

a) An organisation accredited by the National Association of Testing Authorities Australia (NATA) to undertake the relevant tests.

b) An organisation outside Australia accredited to undertake the relevant tests by an authority recognised by NATA through a mutual recognition agreement.

c) An organisation recognised as being an Accredited Testing Laboratory under legislation at the time the test was undertaken.

Appropriate authority: The relevant authority with the statutory responsibility to determine the particular matter.

Appropriately qualified person: A person recognised by the appropriate authority as having qualifications and/or experience in the relevant discipline in question.

Assessment Method: A method that can be used for determining that a Performance Solution or Deemed-to-Satisfy Solution complies with the Performance Requirements.

Certificate of Accreditation: A certificate issued by a State or Territory accreditation authority stating that the properties and performance of a building material or method of construction or design fulfil specific requirements of the NCC.

Certificate of Conformity: A certificate issued under the ABCB scheme for products and systems certification stating that the properties and performance of a building material or method of construction or design fulfil specific requirements of the NCC.

Certification body: A person or organisation operating in the field of material, product, form of construction or design certification that has been accredited by the Joint Accreditation System of Australia and New Zealand (JASANZ), and is accredited for a purpose other than as part of the CodeMark Australia Certification Scheme or WaterMark Certification Scheme.

[2] NCC extracts italicise defined terms as per the NCC. See Schedule 1 of the NCC for further information.

Deemed-to-Satisfy Provisions: Provisions which are deemed to satisfy the *Performance Requirements.*

The DTS Provisions are prescriptive (i.e. like a recipe book, they tell you how, what and in which location things must be done). They include materials, components, design factors, and construction methods that, if used, are deemed to meet the Performance Requirements, hence the term 'Deemed-to-Satisfy'.

Deemed-to-Satisfy Solution: A method of satisfying the *Deemed-to-Satisfy Provisions*.

A DTS Solution is achieved by following all appropriate DTS Provisions in the NCC.

Drinking water: Water intended primarily for human consumption but which has other domestic uses.

Expert Judgement: The judgement of an expert who has the qualifications and experience to determine whether a *Performance Solution* or *Deemed-to-Satisfy Solution* complies with the *Performance Requirements*.

Contemporary and relevant qualifications and/or experience are necessary to determine whether a Performance Solution complies with the Performance Requirements. The level of qualification and/or experience may differ depending on the complexity of the proposal and the requirements of the regulatory authority.

Practitioners should seek advice from the authority having jurisdiction or appropriate authority for clarification as to what will be accepted.

Fire hazard properties: The following properties of a material or assembly that indicate how they behave under specific fire test conditions:

a) Average specific extinction area, critical radiant flux and Flammability Index, determined as defined in Schedule 1.

b) Smoke-Developed Index, smoke development rate and Spread-of-Flame Index, determined in accordance with Specification 3.

c) Group number and smoke growth rate index ($SMOGRA_{RC}$), determined in accordance with Specification 7.

Fire-resistance level (FRL): The grading periods in minutes determined in accordance with Specifications 1 and 2, for the following criteria—

a) structural adequacy; and

b) integrity; and

c) insulation,

and expressed in that order.

Governing Requirements: These are the mandatory rules and instructions for using and complying with the NCC. They are in Section A of NCC Volumes One, Two and Three.

The Governing Requirements explain important concepts on how the NCC must be interpreted and applied. There are certain conventions and approaches that need to be considered when using the NCC, such as interpreting specific language and terms. This is critical to understanding the intended technical and legal meaning of the NCC.

The Governing Requirements also explain the difference between the mandatory parts of the NCC and the parts that are only explanatory or guidance in nature.

JASANZ: The Joint Accreditation System of Australia and New Zealand.

Nationwide House Energy Rating Scheme (NatHERS): A scheme administered by the Commonwealth on behalf of all states and territories that facilitates consistent energy ratings from NatHERS accredited tools for new[3] Australian homes. More information is available from NatHERS.

Performance Requirement: A requirement which states the level of performance which a *Performance Solution* or *Deemed-to-Satisfy Solution* must meet.

Performance Solution: A method of complying with the *Performance Requirements* other than by a *Deemed-to-Satisfy Solution.*

Product: Plumbing and drainage items within the scope of Volume Three including but not limited to—

a) materials, fixtures and components used in a *plumbing or drainage* installation; and

b) appliances and equipment connected to a *plumbing or drainage* system.

Product Technical Statement: A form of documentary evidence stating that the properties and performance of a building material, product or form of construction fulfil specific requirements of the NCC, and describes—

a) the application and intended use of the building material, product or form of construction; and

b) how the use of the building material, product or form of construction complies with the requirements of the NCC Volume One and Volume Two; and

[3] 'New' includes proposed new homes and apartments and proposed 'new building work' to existing homes and apartments. What constitutes 'new building work' is determined by each jurisdiction.

c) any limitations and conditions of the use of the building material, product or form of construction relevant to (b).

Professional engineer: A person who is—

a) if legislation is applicable — a registered professional engineer in the relevant discipline who has appropriate experience and competence in the relevant field; or

b) if legislation is not applicable—

i) registered in the relevant discipline on the National Engineering Register (NER) of the Institution of Engineers Australia (which trades as 'Engineers Australia'); or

ii) eligible to become registered on the Institution of Engineers Australia's NER and has appropriate experience and competence in the relevant field.

Verification Method: A test, inspection, calculation or other method that determines whether a Performance Solution complies with the relevant Performance Requirements.

WaterMark Certification Scheme: The ABCB scheme for certifying and authorising plumbing and drainage products.

WaterMark Conformity Assessment Body (WMCAB): A conformity assessment body registered with and accredited by the JASANZ to conduct evaluations leading to product certification and contracted with the administering body to issue the WaterMark Licence.

WaterMark Licence: A licence issued by a *WaterMark Conformity Assessment Body*.

WaterMark Schedule of Excluded Products: The list maintained by the *administering body* of *products* excluded from the *WaterMark Certification Scheme*.

WaterMark Schedule of Products: The list maintained by the *administering body* of *products* included in the *WaterMark Certification Scheme*, and the specifications to which the products can be certified.

Appendix C Compliance with the NCC

C.1 Responsibilities for regulation of building and plumbing in Australia

State and territory governments are responsible for regulation of building, plumbing and development/planning in their respective state or territory.

The NCC is a joint initiative of the Commonwealth and State and Territory Governments in Australia and is produced and maintained by the ABCB on behalf of the Australian Government and each state and territory government. The NCC provides a uniform set of technical provisions for the design and construction of buildings and other structures, and plumbing and drainage systems throughout Australia. It allows for variations in climate and geological or geographic conditions.

The NCC is given legal effect by building and plumbing regulatory legislation in each state and territory. This legislation consists of an Act of Parliament and subordinate legislation (e.g. Building Regulations) which empowers the regulation of certain aspects of buildings and structures, and contains the administrative provisions necessary to give effect to the legislation.

Each state's and territory's legislation adopts the NCC subject to the variation or deletion of some of its provisions, or the addition of extra provisions. These variations, deletions and additions are generally signposted within the relevant section of the NCC, and located within appendices to the NCC. Notwithstanding this, any provision of the NCC may be overridden by, or subject to, state or territory legislation. The NCC must therefore be read in conjunction with that legislation.

C.2 Demonstrating compliance with the NCC

Compliance with the NCC is achieved by complying with the NCC Governing Requirements and relevant Performance Requirements.

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

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.

There are 3 options available to demonstrate compliance with the Performance Requirements. These are:

- a Performance Solution
- a Deemed-to-Satisfy Solution, or

- a combination of a Performance Solution and a Deemed-to-Satisfy Solution.

All compliance options must be assessed using one or a combination of Assessment Methods, as appropriate. These include:

- Evidence of Suitability
- Expert Judgement
- Verification Methods
- Comparison with DTS Provisions.

A figure showing hierarchy of the NCC and its compliance options is provided in Figure C.1. It should be read in conjunction with the NCC.

To access the NCC or for further general information regarding demonstrating compliance with the NCC visit the ABCB website.

Figure C.1 Demonstrating compliance with the NCC