

## Building Practice Note EE-03: New Residential Buildings

This Practice Note provides guidance on the energy efficiency requirements for new residential buildings and compliance with the Building Act 1993, the Building Regulations 2018, and the National Construction Code 2019.

The content below provides guidance on:

- Class 1 building compliance requirements
- Deemed-to-Satisfy provisions for Class 1 buildings
- Performance Solutions for Class 1 buildings
- Compliance requirements for Class 2 and Class 4 part of a building
- Nationwide House Energy Rating Scheme (NatHERS) compliance pathway
- Thermal Performance Assessors (TPAs)
- Domestic services
- Building permit application requirements
- Construction requirements
- Occupancy Permit



For information on the energy efficiency requirements for additions and alterations to existing Class 1 buildings, please refer to [Building Practice Note EE-04: Alterations to existing Class 1 buildings](#).

### Abbreviations & Definitions

The abbreviations and definitions set out below are for guidance only. They are not intended to vary those set out in the Building Act 1993 (Act), Building Regulations 2018 (Regulations) or the National Construction Code 2019 (NCC).

- **AAO** – Assessor Accrediting Organisation
- **ABCB** – Australian Building Codes Board
- **ABSA** – Australian Building Sustainability Association
- **Act** – Building Act 1993
- **BAB** – Building Appeals Board
- **BCA** – Building Code of Australia Volume One and Volume Two
- **DtS** – Deemed-to-Satisfy
- **GHG** – Greenhouse gas
- **HERA** – House Energy Rating Association
- **ICANZ** - Insulation Council of Australia and New Zealand
- **NatHERS** – Nationwide House Energy Rating Scheme
- **NCC** – National Construction Code 2019

- **RBS** – Relevant Building Surveyor
- **Regulations** – Building Regulations 2018
- **SOU** – Sole-Occupancy Unit
- **TPA** – Thermal Performance Assessor
- **VURB** – Verification Using a Reference Building

## Background

Energy efficiency requirements for new homes, home renovations, alterations and additions are set out in the NCC. The aim of the energy efficiency requirements is to reduce GHG emissions by ensuring that buildings facilitate the efficient use of energy for artificial heating, cooling, lighting and other domestic services without compromising the quality of life, productivity and health.

Using good design principles can reduce GHG emissions, save energy, water and money, while creating more enjoyable and comfortable homes.

## Class 1 building compliance requirements

Compliance with the NCC energy efficiency provisions for Class 1 buildings is achieved by satisfying the NCC Governing Requirements and each of the Performance Requirements through either:

- a DtS Solution,
- a Performance Solution, or
- a combination of Performance Solution and DtS Solution.

Both Performance Requirements, P2.6.1 and P2.6.2, need to be satisfied in order to achieve a compliant NCC outcome. It is not appropriate to combine both Performance Requirements into a single outcome. For example, using services (P2.6.2) to offset a building fabric (P2.6.1) requirement does not satisfy each performance requirement.

An overview of the compliance pathways for energy efficiency requirements is shown in Figure 1.

### Performance Requirement - P2.6.1 Building

P2.6.1 requires that the building has a level of thermal performance needed to facilitate the efficient use of energy for artificial heating and cooling. As such, the building should be built to reduce reliance on mechanical heating and cooling.

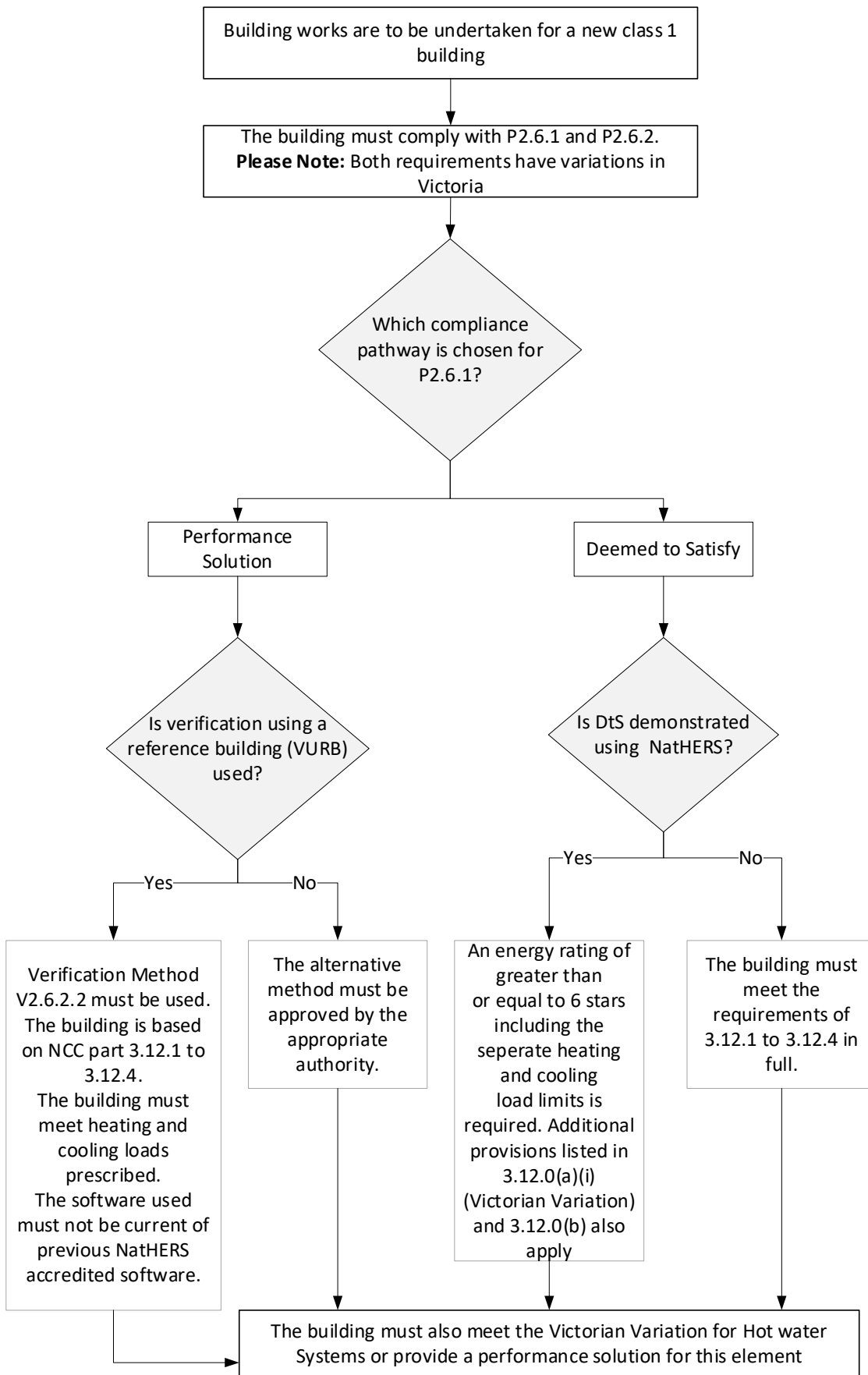
In Victoria, this requirement is extended to include the efficient use of available water resources, through the Victorian Variation to P2.6.1.

### Performance Requirement - P2.6.2 Services

P2.6.2 requires the building services and associated distribution systems and components to have features that facilitate the efficient use of energy. This includes the need to obtain heating energy from a source that has:

- greenhouse gas intensity that does not exceed 100 g CO<sub>2</sub>-e/MJ of thermal energy load,
- an on-site renewable energy source, or
- another process as reclaimed energy.

In Victoria, P2.6.2 excludes hot water systems as they are covered under P2.6.1 and the Plumbing Regulations.



**Figure 1:** Overview of the compliance pathways for P2.6.1 energy efficiency requirement in class 1 buildings in Victoria

## Deemed-to-Satisfy Provisions for Class 1 buildings

### Compliance with Performance Requirement P2.6.1

There are two DtS options within BCA Volume Two for complying with P2.6.1, set out in the Victorian Variation of clause 3.12.0(a) and clause 3.12.0(b).

**Option 1** involves using house energy rating software accredited under the Nationwide House Energy Rating Scheme (NatHERS), to achieve:

- energy rating greater than or equal to 6 Stars, and
- meeting the separate heating and cooling load limits, which are specified in the ABCB Standard for NatHERS Heating and Cooling Load Limits, and
- meeting additional requirements listed in clause 3.12.0(a)(i).

**Option 2** is complying with the elemental provisions set out in Parts 3.12.1 to 3.12.4 in full.

The Victorian Variation applies to both options. It sets out that a new Class 1 building is required to have either:

- rainwater tank (minimum capacity of 2000 litres) connected to all sanitary flushing systems, or
- solar water heater system installed in accordance with the Plumbing Regulations 2018.

### Compliance with Performance Requirement P2.6.2

P2.6.2 can be satisfied through compliance with the DtS provisions under BCA Volume Two Part 3.12.5, which aim to minimise the amount of energy lost unnecessarily during the operation of:

- central heating water piping,
- heating and cooling ductwork,
- electric resistance space heating,
- artificial lighting,
- heated water supply, and
- pool and spa heating and pumping equipment.

## Performance Solutions for Class 1 Buildings

A Performance Solution may be achieved by demonstrating compliance with the Performance Requirement or shown to be at least equivalent to the DtS provisions. Where an alternative energy efficiency design is proposed as a Performance Solution, the design must also comply with the relevant Performance Requirements determined in accordance with A2.2(3) and A2.4(3).

The RBS may consider a Performance Solution to comply with P2.6.1 and/or P2.6.2. Suitable supporting evidence within a thoroughly documented report must be provided to the RBS when a Performance Solution is proposed to facilitate a decision on compliance.



For further information on Performance Solutions, refer to [Building Practice Note PS-01: Documentation and Assessment – Performance Solution](#).

It should be noted that any Performance Solution must address each performance requirement (P2.6.1 and P2.6.2) without combining the separate requirements. For example, services such as solar photovoltaic systems that align with P2.6.2 are not considered to be a suitable means of offsetting the thermal performance of the building fabric under P2.6.1.



For further information on Performance Solutions relative to the Victorian Variation, refer to [Plumbing Practice Note SH-01: Solar Heated Water](#).

It should be noted that the Victorian Variation DtS requirements (Solar Hot Water or Rainwater Tank) may be subject to a Performance Solution under P2.6.1, where appropriate.

#### **Example 1: Meeting both P2.6.1 and P2.6.2**

A builder wants to save money by reducing glazing requirements needed to meet the performance requirement P2.6.1. The builder suggests using solar PV to offset the additional GHG emissions that will be produced by the domestic services to heat and cool the building. The RBS rejects this suggestion as the requirements of P2.6.1 cannot be offset against P2.6.2.

#### **Example 2: Performance solution to part of P2.6.1**

A builder wants to install a grey water treatment system or dual water reticulation and water recycling system connected to the toilet flushing system in lieu of the rainwater tank to comply with the Victorian Variation. In addition, the design of the home meets a 6 star NatHERS rating. This is a combination of a performance solution for the rainwater tank and a DtS for the building fabric. The RBS approves as the requirements of P2.6.1 are met.

#### **Verification Method V2.6.2.2**

A VURB assessment, as set out in Verification Method V2.6.2.2, is a Performance Solution that can be used to achieve compliance with performance requirement P2.6.1.

The VURB assessment requires the use of thermal software (other than NatHERS accredited software) that complies with ANSI/ASHRAE Standard 140. The verification method compares a DtS compliant reference building against the proposed building design. The reference building characteristics are those of a building modelled using the minimum DtS Provisions of Parts 3.12.1 to 3.12.4. Additional modelling criteria for the reference building are provided in Table V2.6.2.2 of the BCA Volume 2.

The method assesses the annual heating and cooling loads of the proposed building and compares it to the heating and cooling load of the reference building. When the proposed building meets the minimum target (i.e. heating and cooling loads) set by the reference building, it is deemed to comply with P2.6.1.



House energy rating software accredited or previously accredited under the NatHERS, including the additional functionality provided in non-regulatory mode, are not permitted to be used as the calculation method for Verification Method V2.6.2.2.



For further information on Verification Methods, refer to the ABCB Handbook Energy Efficiency NCC Volume Two, accessible from [www.abcb.gov.au](http://www.abcb.gov.au)

### **Compliance requirements for Class 2 and Class 4 part of a building**

The energy efficiency Performance Requirement in BCA Volume One is JP1. It requires that a building, including its services, must have features that facilitate the efficient use of energy taking various criteria into account.

DtS clause J0.2 in the BCA Volume One requires that, for reducing the heating or cooling loads, the SOUs of a Class 2 building must meet the ABCB standard heating and cooling load limits and use NatHERS accredited software to:

- collectively achieve an average energy rating of not less than 6 stars, and
- individually achieve an energy rating of not less than 5 stars.

A Class 4 part of a building must achieve a minimum 6 star rating using NatHERS software and meet the relevant ABCB standard NatHERS heating and cooling load limits.

In addition to the above, Section J provides further compliance requirements for the Class 2 SOUs and a Class 4 part of a building, including the following:

- J1.2 – Thermal construction,
- J0.4 and J0.5 – Thermal breaks,
- J1.6(b) and J1.6(c) – Floor edge insulation, and
- J3 – Building sealing.

The remainder of the building (common areas passageways, plant rooms etc.) and services provisions must comply with the relevant provisions of BCA Volume One - Section J.

### Nationwide House Energy Rating Scheme (NatHERS) Compliance Pathway

Energy rating software tools are used to assess the potential thermal efficiency of a dwelling envelope by determining the dwelling's star rating and the heating and cooling load limits. A separate rating must be completed for every new orientation or layout for each dwelling design, particularly when the same designs are used on multiple sites.

For Class 1 buildings, Class 2 (SOUs) and a Class 4 part of a building, this means using NatHERS accredited software. To comply, the modelled energy loads of a building must not exceed 3 separate limits:

- the total limit – as per star rating,
- the heating load limit, and
- the cooling load limit.



For information about the NatHERS and current accredited versions of the software, refer to [www.nathers.gov.au](http://www.nathers.gov.au). For the ABCB Standard for NatHERS Heating and Cooling Load Limits refer to the ABCB website [www.abcb.gov.au](http://www.abcb.gov.au).

### NatHERS Certificate

A NatHERS certificate issued by an energy assessor may be used when demonstrating compliance with BCA Volume Two clause 3.12.0(a)(i)(A) and Volume One clause J0.2(a). The NatHERS certificate provides evidence that the building meets the minimum required energy rating.

The proposed design documentation must have a NatHERS certificate stamp on each page of documents related to the assessment (i.e. all drawings, calculations and specifications).

As a minimum, the stamp on the documents must include:

- certification number and date,
- assessor's name and accreditation number,
- star rating achieved,
- property address, and
- QR code for accessing the certificate online.

An example of a complete NatHERS certificate and the information it needs to contain is shown on the NatHERS website. An example of the first page is shown in Figure 2.



**Figure 2:** Example of the first page of the NatHERS certificate (Source: NatHERS)

The design must also indicate whether downlights and other ceiling penetrations are included in the dwelling. It should clearly indicate the number and location of downlights and any other ceiling penetrations, such as exhaust fans. The set of stamped drawings must include at a minimum:

- site plan,
- floor plans,
- elevations,
- sections,
- electrical or lighting layout (including location and number of downlights and ceiling penetrations),
- window schedule or information detailing window performance, size, glazing and frame type or opening style.

The documentation must also include details of construction materials, including insulation R-values. These details must be consistent with the NatHERS modelling.

Energy ratings for individual SOUs of Class 2 buildings must be shown on the working drawings. This includes the star rating and the heating and cooling loads of each SOU. These rating results should be displayed on the specifications page. Design changes may trigger the need to review the NatHERS rating.

## Thermal Performance Assessors (TPAs)

### NatHERS accredited assessors

A NatHERS accredited assessor is a recognised TPA who conducts energy rating assessments using the NatHERS accredited software. They are accredited by an AAO such as ABSA, Design Matters National and HERA.



NatHERS Certificate which includes the NatHERS rating logo and stamp can only be issued by a NatHERS accredited assessor. This provides a level of assurance that the assessor has the required level of competency to complete the energy rating assessment.

### Non-accredited assessors

Where an assessment is provided by a non-accredited assessor, the RBS should be satisfied the person has:

- suitable qualifications and experience in the use of the NatHERS software, and
- not been subject to disciplinary action resulting in removal of their accreditation, and
- used the current approved software to perform the energy rating.

Non-accredited assessors can only produce a black and white NatHERS non-accredited certificate. This certificate does not feature the NatHERS logo.

## Domestic Services

Performance Requirements for Domestic Services in Class 1 buildings are set out in P2.6.2 of the BCA Volume Two.

In Victoria, there is a variation to the requirement in relation to heated water services. Performance Requirement P2.6.2 excludes hot water supply systems in Victoria, as their design and installation is regulated by the Plumbing Regulations 2018.

Domestic Services in Class 1 buildings are required to:

- have features that facilitate the efficient use of energy,
- obtain heating energy from:
  - a source that has a greenhouse gas intensity that does not exceed 100 g CO<sub>2</sub>-e/MJ of thermal energy load, or
  - an on-site renewable energy source, or
  - another process such as reclaimed energy.

Section 3.12.5.1 – 3.12.5.8 of the BCA Volume Two sets out the DtS requirements for services.

### Artificial lighting requirements

The energy efficiency requirements for artificial lighting in the BCA Volume Two clause 3.12.5.5 provide limits for the efficiency or power consumption rate of artificial lighting installations. The lamp power density or illumination power density of artificial lighting, excluding heaters that emit light, must not exceed the allowance of:

- 5 W/m<sup>2</sup> in a Class 1 building, and
- 4 W/m<sup>2</sup> on a verandah, balcony or the like attached to a Class 1 building, and
- 3 W/m<sup>2</sup> in a Class 10a building associated with a Class 1 building.

Trading between these allowances is not permitted.

These requirements are to be read in conjunction with the artificial lighting requirements in clause 3.8.4.3.

Artificial lighting requirements for Class 2 SOUs and Class 4 parts of a building are listed in the BCA Volume One Part J6.2. The lamp power density or illumination power density of artificial lighting must not exceed the allowance of:

- 5 W/m<sup>2</sup> within an SOU, and
- 4 W/m<sup>2</sup> on a verandah, balcony or the like attached to an SOU, and
- when designing the lamp power density or illumination power density, the power of the proposed installation must be used rather than nominal allowances for exposed batten holders or luminaires.



It is important to remember that when using a NatHERS rating tool for compliance purposes, the provisions of BCA Volume Two clause 3.12.5.5 and Volume One Part J6.2 must also be addressed, as lighting performance is not assessed by the energy rating software.

### Calculating the lamp or illumination power density (for Class 1 buildings)

The design lamp power density in clause 3.12.5.5 is calculated by adding the maximum power ratings of all permanently wired lamps in a space and dividing this sum by the area of the space.

The design illumination power density in clause 3.12.5.5 is calculated by adding the illumination power load for each space and dividing this sum by the area of the space.

The area of the space is measured to the internal wall dimension.



The ABCB has developed lighting calculators that can be used to assessing artificial lighting compliance with BCA Volume Two 3.12.5.5 and BCA Volume One Part J6. Lighting calculators are available on the ABCB website [www.abcb.gov.au](http://www.abcb.gov.au)

### Other considerations

Compliance with the NCC requires a holistic approach, therefore other factors need to be considered as part of the overall compliance picture. The NCC performance requirements are not mutually exclusive, and each needs to be compliant. Matters to consider may include:

- structural requirements for additional actions, such as the weight of insulation, photovoltaic cells, etc,
- fire resistance of products included within a system, such as insulation contained within a building element required to have an FRL,
- condensation- some reflective insulation materials are not vapour permeable. These cannot be used in wall structures in climate zones 6, 7 and 8 in accordance with the BCA Volume Two Part 3.8.7.2 and Volume One Part F6, which require buildings to have a vapour permeable membrane in the external wall.

BCA Volume Two Part 3.8.7 and Volume One Part F6 provide additional requirements to assist in the mitigation of condensation within a building including the allowance for adequate ventilation.

### Building permit application requirements

#### Documentation required

Regulation 25 of the Regulations details the minimum information the applicant needs to provide to the RBS when applying for a building permit.

It is the applicant's responsibility to provide the RBS with evidence that the proposed building design meets the Performance Requirements of the NCC. This includes providing detailed plans and specifications showing how the energy efficiency construction requirements are incorporated in the design. Examples of these include:

- window schedules, which show specific details including glass type, frame type, U-values, SHGC values, orientation sector, and, if used, a copy of glazing calculator results,
- insulation details, including R values,
- orientation and layout of the home,
- NatHERS rating or documentation to demonstrate compliance with the Performance Requirements of the NCC,
- details of any rainwater tank or solar hot water system - details should include the size and location of rainwater tank and the type and size of solar hot water system to be installed,

- lighting and details of other electrical services.

Detailed documentation must be provided to enable the RBS to assess compliance and to ensure the builder has sufficient information to construct the building in accordance with the approved building permit documentation.

The applicant should limit the use of general notes. A note such as “The builder is to ensure compliance with BCA Volume Two Part 3.12 or Volume One Section J” is not appropriate. The design and specifications must clearly demonstrate full compliance.

### The role of the RBS in assessing the application

The RBS has a responsibility to ensure the building permit application contains enough information to determine compliance with the Act and the Regulations. Where the RBS is not satisfied with the information provided, they must not issue the building permit.

Schedule 2 of the Act allows the RBS to require the applicant to provide further information as it is not appropriate for the RBS to ‘mark-up’ plans or accept notes on plans that are too general.

The RBS should limit the use of conditions on the building permit. Reliance on general conditions is a failure of the RBS to ensure that compliance with the Act and the Regulations has been achieved prior to issuing the building permit.

## Construction requirements

Building work must be carried out in accordance with the approved building permit documentation, including plans approved as part of the energy efficiency rating. Any departures from the approved documents can result in non-compliance. Non-compliance can also be caused by undocumented changes to the approved building permit, including changes to the floor plan, glazing or material substitution during construction.

The RBS may choose to carry out additional inspections during construction to ensure the specified energy efficiency features have been installed. This may include checking that:

- the insulation was installed correctly in the walls and in the roof space,
- the appropriate glazing has been installed, and
- the number of downlights and other ceiling penetrations is consistent with the approved building permit documentation.

If the ‘as constructed’ number of penetrations differs from the building permit documentation, the RBS must ensure that compliance has been achieved. This may require requesting a revised energy rating with the ‘as constructed’ downlights and penetrations or a BAB modification if the energy report or verification method requirements have already been constructed and compliance with the NCC has not been met.

The RBS may request that the builder provides a written declaration to confirm that each building element has been installed in accordance with the approved building permit documentation and that compliance with energy efficiency requirements and sustainability provisions of the BCA is achieved.

### Insulation

BCA Volume Two Part 3.12.1 and Volume One J1.2 provide the DtS compliance requirements for insulation installation in a Class 1, a Class 10a building attached to a Class 1 building, a Class 10a building with a conditioned space, a Class 2 building and a Class 4 part of a building.

Builders and insulation installers must ensure correct installation to maintain the effectiveness of the insulation products and to avoid degradation of their thermal performance through poor installation and damage caused during construction.

The installation requirements for bulk insulation are provided in BCA Volume Two clause 3.12.1.1(a) and (c), and Volume One J1.2(a) and (c).

These requirements are listed below as a checklist. Site inspections conducted by the VBA have shown that some of these requirements are missed during installation. It is not unusual for trades other than insulation installers to remove insulation and fail to reinstate it. It is important to ensure that once the work is completed, the insulation:

- forms a consistent and continuous thermal barrier other than at supporting members - this is important as any gaps in the barrier are likely to reduce the thermal performance of the building,
- has the correct R-value, as a lower R-value will reduce the thermal performance of the building and result in non-compliance,
- is not compressed - fitting a wide batt in a small space will reduce the R-value of the product,
- is safely placed near lamps, luminaires and associated transformers - this should be in accordance with manufacturer's specifications and AS3000 – 2018: Wiring rules,
- does not consist of more than three pieces of insulation within a section of a building element such as a space between studs and noggings,
- is installed in gaps between window and door jambs, heads and sills, and the adjoining wall framing to form a continuous barrier, unless a gap is otherwise required - this may need to be compressible to allow for movement between members,
- complies with AS/NZS4859.1 Thermal insulation materials for buildings.

The thermal performance of reflective insulation is achieved by its ability to reflect heat at one surface and not transmit it at another. The reflective part of the foil needs to face an air space in order to achieve the design R-value.

BCA Volume Two clause 3.12.1(b) and Volume One J1.2(b) set out the following requirements for installation of reflective insulation:

- the insulation must face the necessary airspace to achieve the required R-Value between a reflective side of the reflective insulation and a building lining or cladding,
- the reflective insulation must be closely fitted against any penetration, door or window opening,
- if installed in the walls, the reflective insulation used must be vapour permeable,
- the reflective insulation must be adequately supported by framing members, and
- each adjoining sheet of roll membrane must be overlapped not less than 50mm (Volume One), not less than 150 mm (Volume Two) or taped together - where reflective insulation also acts as a waterproof barrier or sarking, both the minimum overlap and taping may be necessary.

It should be noted that some reflective insulation products are not vapour permeable and, if installed in walls, may lead to condensation problems. Please refer to clause 3.8.7.2 of the NCC Volume Two for more information on condensation provisions.



For further information and guidance regarding insulation installation, refer to the Insulation Council of Australia and New Zealand (ICANZ) website, [www.icanz.org.au](http://www.icanz.org.au).

### Building sealing requirements

BCA Volume Two V2.6.2.3 (Class 1 buildings) and BCA Volume One JV4 (Class 2 or Class 4 part of a building) require the envelope of the building to have an air permeability of not more than 10 m<sup>3</sup>/hr.m<sup>2</sup> at 50 Pa reference pressure when tested in accordance with AS/NZS ISO 9972 Method 1. Testing is not required by the NCC for either of these buildings.

The requirement is met by compliance with the DtS provisions in BCA Volume Two Part 3.12.3 and Volume One Part J3. Proper building sealing reduces the pathways for unseen and unintended leakage of air that has been heated or cooled for the comfort of occupants, which in turn reduces the energy required for artificial heating and cooling in buildings.

Under the DtS provisions, as set out in Part J0 of Volume One and clause 3.12.0 of BCA Volume Two, sealing in accordance with Part J3 of Volume One and/or Part 3.12.3 of Volume Two (as applicable) must be provided to:

- chimneys and flues of an open solid-fuel burning appliance by providing a damper or flap that can be closed to seal the chimney or flue,
- roof lights serving a conditioned space or a habitable room, by providing an imperforate ceiling diffuser or the like, a weatherproof seal or a shutter system,
- doors, openable windows or the like, as set out in J3.4 of BCA Volume One and 3.12.3 and 3.12.3.3 of BCA Volume Two, by providing seals to restrict air infiltration - these seals must be a draft protection device to the bottom edge of a door and may be a foam, rubber compression strip, fibrous seal or the like to the other edges of a door or the edges of an openable window,
- exhaust fans serving a conditioned space or a habitable room, by fitting a sealing device such as a self-closing damper, filter or the like,
- evaporative coolers serving a heated space, by a self-closing damper or the like,
- the external fabric of a conditioned space or a habitable room of a building, ceilings, walls, floors and any opening such as a window frame, door frame, roof light frame or the like must be constructed to minimise air leakage at the junctions of each element and around openings, such as between a window or door frame and a wall lining - this can be achieved by ensuring external fabric is enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions or sealed at junctions, and
- penetrations (windows, doors, roof lights, flues, exhaust fans, ductwork, etc.) with either a close-fitting architrave, skirting or cornice; or expanding foam, rubber compressive strip, caulking or the like. Where architraves, skirtings or cornices are not being used, it is necessary to seal any gaps with caulking or other flexible sealant, such as expanded foam or other gap filling material.

## Occupancy Permit

Where an application for an occupancy permit has been submitted and the only outstanding non-complying matters relate to energy efficiency, the RBS may:

- issue a direction to fix the building work,
- refuse to issue an occupancy permit,
- issue an occupancy permit with conditions, or
- issue an occupancy permit concurrently with a building notice or building order if it is clear that a direction to fix will not be complied with or it is not possible or not appropriate to issue a direction to fix.

In addition, where a rainwater tank or a solar water heater system is installed, the RBS must sight a copy of the Certificate of Compliance for plumbing work issued under section 221ZH of the Act.

## Related Documents

- Building Act 1993
- Building Regulations 2018
- Plumbing Regulations 2018
- National Construction Code 2019
- Building Practice Note EE-04: Alterations to existing Class 1 buildings
- AS 3999 Bulk thermal insulation – Installation
- AS/NZS 4859.1 Thermal insulation materials for buildings
- ABCB Handbook: Condensation in Buildings
- ABCB Handbook: Energy Efficiency NCC Volume Two
- ABCB Handbook: Energy Efficiency NCC Volume One

## Contact Us

If you have a technical enquiry, please email [technicalenquiry@vba.vic.gov.au](mailto:technicalenquiry@vba.vic.gov.au) or call 1300 815 127.

### **Victorian Building Authority**

Goods Shed North  
733 Bourke Street  
Docklands VIC 3008

[www.vba.vic.gov.au](http://www.vba.vic.gov.au)

## Version History

- Version 3.0, published 10 March 2022, supersedes Practice Note EE-03: New residential buildings (version 2.0 – published 28 June 2021).

## Copyright

© March 2022 Victorian Building Authority (VBA).

This Practice Note has been prepared and published by the VBA for general educational and information purposes only. This publication must not be copied, reproduced, published, adapted, or communicated by any person without the VBA's prior written consent or as permitted by the Copyright Act 1968 (Cth). The VBA makes no warranties or representations whatsoever about the accuracy, reliability, suitability, completeness or authenticity of any information or material contained in this resource. Any use or reliance on such information is at a person's own risk. The VBA accepts no liability whatsoever for any direct, indirect, or consequential loss or damage any person may suffer arising out of or in connection with the access or use of this resource (including any third-party material included in this resource).