

Guidance Material: National Construction Code and BASIX

Understanding Energy Efficiency Requirements for Class 1 buildings, Class 2 buildings, and a Class 4 part of a building

Purpose

The Building Sustainability Index (BASIX) in NSW applies to all new residential buildings. It also applies to specified alterations and additions to residential dwellings with a cost of works of \$50,000 and over. BASIX specifies the minimum standards of water and energy efficiencies and thermal comfort performance that apply to the residential development.

The National Construction Code (NCC) also contains energy efficiency requirements that apply in NSW **in addition to** the provisions of BASIX.

The purpose of this document is to provide guidance on the NCC energy efficiency provisions applicable to Class 1 buildings (e.g., dwelling houses), Class 2 buildings (e.g., residential apartment buildings) and a Class 4 part of a building (e.g., caretakers residence) that are also subject to a BASIX Certificate.

National Construction Code

What is the NCC

The National Construction Code (NCC) is a uniform set of technical provisions for the design, construction and performance of buildings and plumbing and drainage systems throughout Australia.

The NCC is made up of the:

- Building Code of Australia (BCA), being Volumes One and Two (given effect through the Environmental Planning and Assessment Act 1979).
- Plumbing Code of Australia (PCA), being Volume Three (given effect through the Plumbing and Drainage Act 2011).

Compliance with NCC

Compliance with the NCC is achieved by meeting the Governing Requirements and the relevant Performance Requirements. This can be done by:

- complying with the prescriptive Deemed-to-Satisfy Provisions
- the development of a Performance Solution, or
- a combination of both.

Application of the NCC 2022 energy efficiency provisions

Enhanced BASIX Standards apply to all new residential buildings from 1 October 2023 and the NCC energy efficiency provisions as applied in NSW have been adjusted to reflect these new standards.

In summary, all new residential developments will need to comply with the NSW energy efficiency provisions of NCC 2022 where the BASIX Certificate (excluding amended certificates) was issued on or after 1 October 2023.

The NSW NCC energy efficiency provisions of NCC 2019 Amendment 1 will continue to apply to residential developments with a BASIX Certificate issued prior to 1 October 2023, or alterations and additions that requires a BASIX Certificate.

To provide clarity, the edition of the NCC that applies in relation to energy efficiency requirements for residential buildings is linked to the version of the BASIX Certificate that applies to the development.

The version number of a BASIX certificate can be found at the bottom of each page, as shown on the first page of a sample certificate below:



Building Sustainability Index www.basix.nsw.gov.au

Single Dwelling

Certificate number: BSX-6797S

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 10/09/2020 published by the Department. This document is available at www.basix.nsw.gov.au

Secretary
Date of issue: Wednesday, 12 April 2023
To be valid, this certificate must be lodged within 3 months of the date of issue.



Project summary		
Project name	BASIX 70 house	
Street address	25 Bangalee Street Oran Park 2570	
Local Government Area	Camden Council	
Plan type and plan number	Deposited Plan	
Lot No.	123123	
Section no.	-	
Project type	dwelling house (detached)	
No. of bedrooms	4	
Project score		
Water	✓ 42	Target 40
Thermal Performance	✓ Pass	Target Pass
Energy	✓ 72	Target 70
Materials	✓ -20	Target n/a

Certificate Prepared by	
Name / Company Name: Mr BASIX BVT	
ABN (if applicable):	

BASIX Department of Planning and Environment www.basix.nsw.gov.au
Version: 4.0 / UCALYPTUS_03_01_0
Certificate No.: BSX-6797S
Wednesday, 12 April 2023
page 1/9

Figure 1 First page of a sample BASIX certificate with version number at the bottom

Class 1 buildings (new buildings)

NCC 2022 Volume Two Energy Efficiency Provisions

NSW Part H6 Energy Efficiency contains the energy efficiency provisions that apply to new Class 1 buildings in NSW in addition to the requirements of BASIX.

NSW Part H6 includes a Note identifying that the edition of the NCC that applies in relation to energy efficiency requirements is linked to the version of the BASIX Certificate that applies to the development. Specifically, the note identifies that:

- NSW Addition NSW 2 Energy Efficiency of NCC 2019 Volume Two Amendment 1 applies to a building where the development consent or an application for a complying development certificate is subject to compliance with a BASIX Single Dwelling or Multi Dwelling Certificate issued under **Version 3.0 or earlier**.
- NSW Part H6 of NCC 2022 Volume One applies to a building where the development consent or an application for a complying development certificate is subject to compliance with a BASIX Single Dwelling or Multi Dwelling Certificate issued under **Version 4.0 or later**.

NCC energy efficiency provisions that apply in addition to BASIX commitments

New Class 1 building subject to BASIX Version 3 or earlier

Performance Requirements

The following NCC 2019 Amendment 1 Volume Two Performance Requirements must be complied with in addition to the BASIX commitments:

- NSW P2.6.1(a) Building fabric
- NSW P2.6.1(b) Building sealing
- NSW P2.6.2 Services

Deemed to Satisfy Provisions

NSW Part 3.12.1 Building fabric thermal insulation

Compliance with NSW P2.6.1(a) is achieved by complying with NSW 3.12.1.1. NSW 3.12.1.1 requires compliance with the following national provisions of NCC 2019 Amendment 1 Volume Two

- 3.12.1.1 Building fabric thermal insulation
- 3.12.1.2(c) Thermal breaks for a metal framed roof
- 3.12.1.4(d) Thermal breaks for a metal framed wall
- 3.12.1.2(e) Compensation for reduction in ceiling insulation
- Floors with an in-slab or in-screed heating or cooling system
 - 3.12.1.5(a)(ii), (iii) and (e) for a suspended floor
 - 3.12.1.5(c), (d) and (e) Concrete slab on ground

NSW Part 3.12.3 Building sealing

Compliance with NSW P2.6.1(b) is achieved by complying with NSW 3.12.3.1. NSW 3.12.3.1 requires compliance with the following national provisions of NCC 2019 Amendment 1 Volume Two

- 3.12.3.1 Chimneys and flues
- 3.12.3.2 Roof lights,
- 3.12.3.3 External windows and doors,
- 3.12.3.4 Exhaust fans
- 3.12.3.5 Construction of ceiling, walls and floors
- 3.12.3.6 Evaporative coolers

Note: Compliance with NSW P2.6.1(b) is also verified when the building envelope is sealed in accordance with Verification Method V2.6.2.3 of the national provisions of NCC 2019 Amendment 1 Volume Two.

NSW Part 3.12.5 Building fabric thermal insulation

Compliance with NSW P2.6.2 is achieved by complying with NSW 3.12.5.1. NSW 3.12.5.1 requires compliance with the following national provisions of NCC 2019 Amendment 1 Volume Two

- 3.12.5.0 Application
- 3.12.5.1 Insulation of services,
- 3.12.5.2 Central heating water piping
- 3.12.5.3 Heating and cooling ductwork

Note: The above provisions are generally subject to 'Application of Part' provisions. Refer to the relevant parts of the NSW Variations in Volume Two.

Note: No additional requirements are specified in NSW Part 3.12.2 or NSW Part 3.12.4 as these matters are regulated by BASIX.

New Class 1 dwelling subject to BASIX Version 4 or later

Performance Requirements

The following NCC 2022 Volume Two Performance Requirements must be complied with in addition to the BASIX commitments:

- NSW H6P1 Building fabric
- NSW H6P2 Building sealing
- NSW H6P3 Services

Deemed to Satisfy Provisions

- Compliance with the NSW H6P1 Building fabric is achieved by complying with Part 13.2 of the ABCB Housing Provisions Standard

- Compliance with the NSW H6P2 Building sealing is achieved by complying with Part 13.4 of the ABCB Housing Provisions Standard

Note: Compliance with NSW H6P2 Building sealing is also verified when the building envelope is sealed in accordance with Verification Method NSW H6V3.

- Compliance with the NSW H6P3 Services is achieved by complying with Part 13.7 of the ABCB Housing Provisions Standard

Note: The above provisions are generally subject to ‘Application of Part’ provisions. Refer to the relevant parts of the NSW Variations in Volume Two.

ABCB Housing Provisions Standard

Part 13 of the ABCB Housing Provisions Standard applies in NSW as follows

Part 13.2 Building Fabric

- 13.2.2 Building fabric thermal insulation
- NSW 13.2.3 Roofs and ceilings
- NSW 13.2.5 External walls
- NSW 13.2.6 Floors and subfloor walls

Part 13.4 Building Sealing

- 13.4.2 Chimneys and flues
- 13.4.3 Roof lights,
- 13.4.4 External windows and doors,
- 13.4.5 Exhaust fans,
- 13.4.6 Construction of ceilings, walls and floors
- 13.4.7 Evaporative coolers

Part 13.7 Services

- 13.7.2 Insulation of services
- 13.7.3 Central heating water piping
- 13.7.4 Heating and cooling ductwork

Note: The above provisions are generally subject to ‘Application of Part’ provisions. Refer to the relevant parts of the NSW Variations in Volume Two and the ABCB Housing Provisions Standard. The provisions must also be read in conjunction with Part 13.1.

Note: Parts 13.3, 13.5 and 13.6 of the ABCB Housing Provisions Standard do not apply in NSW as these matters are regulated by BASIX.

Class 2 building or Class 4 part of a building (new buildings)

NCC 2022 Volume One Energy Efficiency Provisions

Section J of Volume One of the NCC contains the energy efficiency provisions that apply to new Class 2 buildings and a new Class 4 part of a building in NSW in addition to the requirements of BASIX.

The various parts of Section J include a Note identifying that the edition of the NCC that applies in relation to energy efficiency requirements is linked to the version of the BASIX Certificate that applies to the development. Specifically, the note identifies that:

- NSW Section J of NCC 2019 Volume One Amendment 1 applies to a building where the development consent or an application for a complying development certificate is subject to compliance with a BASIX Single Dwelling or Multi Dwelling Certificate issued under **Version 3.0 or earlier**.
- Section J of NCC 2022 Volume One applies to a building where the development consent or an application for a complying development certificate is subject to compliance with a BASIX Single Dwelling or Multi Dwelling Certificate issued under **Version 4.0 or later**.

The note included in Section J also addresses the edition of the NCC that applies to Class 3 or Class 5 to 9 parts located in a building that is also subject to a BASIX Certificate (Class 2 building or Class 4 part of a building).

Specifically, the note identifies that for Class 3 or Class 5 to 9 parts of a building:

- NSW Section J of NCC 2019 Volume One Amendment 1 may apply instead of Section J of NCC 2022 Volume One from 1 May 2023 to 30 September 2023.
- Section J of NCC 2022 Volume One applies from 1 October 2023.

NCC energy efficiency provisions that apply in addition to BASIX commitments

Class 2 building or Class 4 part of a building subject to BASIX Version 3 or earlier

Performance Requirements

The following NCC 2019 Amendment 1 Volume One Performance Requirements must be complied with in addition to the BASIX commitments:

- NSW J(A)P1 Building fabric
- NSW J(A)P2 Building sealing
- NSW J(A)P3 Services

Deemed to Satisfy Provisions

NSW Part J(A)1 Building fabric

Compliance with NSW J(A)P1 Building fabric is achieved by complying with NSW J(A)1.2 for the sole-occupancy units of a Class 2 building and Class 4 part of a building. NSW J(A)1.2 requires compliance with the following national provisions of NCC 2019 Amendment 1 Volume One

- J0.4 Thermal breaks for a metal framed roof
- J0.5 Thermal breaks for a metal framed wall
- J1.2 Thermal construction – general
- J1.6(b) and (c) floor edge insulation

NSW Part J(A)2 Building sealing

Compliance with NSW J(A)P2 Building sealing is achieved by complying with NSW J(A)2.2. NSW J(A)2.2 requires compliance with the following national provisions of NCC 2019 Amendment 1 Volume One

- J3.2 Chimneys and flues
- J3.3 Roof lights
- J3.4(a) to (d) Windows and doors,
- J3.5 Exhaust fans,
- J3.6 Construction of ceilings, walls and floors
- J3.7 Evaporative coolers

Note: Compliance with NSW J(A)P2 Building sealing is also verified when the building envelope is sealed in accordance with Verification Method JV4 of the national provisions.

NSW Part J(A)3 Air-conditioning and ventilation systems

Compliance with NSW J(A)P3 Services is achieved by complying with NSW J(A)3.2. NSW J(A)3.2 requires compliance with the following national provisions of NCC 2019 Amendment 1 Volume One

- J5.2 for air conditioning system control,
- J5.3 for mechanical ventilation system control,
- J5.4 for fan systems,
- J5.5 for ductwork insulation,
- J5.6 for ductwork sealing,
- J5.7 for pump systems,
- J5.8 for pipework insulation,
- J5.10 for refrigerant chillers,
- J5.11 for unitary air-conditioning equipment
- J5.12 for heat rejection equipment

NSW Part J(A)4 Heated water supply

Compliance with NSW J(A)P3 Services is achieved by complying with NSW J(A)4.2. NSW J(A)4.2 requires compliance with the following national provisions of NCC 2019 Amendment 1 Volume One

- J7.2 Heated water supply

NSW Part J(A)5 Facilities

Compliance with NSW J(A)P3 Services is achieved by complying with NSW J(A)5.2. NSW J(A)5.2 requires compliance with the following national provisions of NCC 2019 Amendment 1 Volume One

- J8.3 Facilities for energy monitoring

Note: The above provisions are generally subject to ‘Application of Part’ provisions. Refer to the relevant parts of the NSW Variations in Volume One.

New SOU in a Class 2 building or Class 4 part of a building subject to BASIX Version 4 or later

Performance Requirements

The following NCC 2022 Volume One Performance Requirements must be complied with in addition to the BASIX Commitments:

- NSW J1P4 Renewable energy and electric vehicle charging
- NSW J1P5 Building fabric – Class 2 building and Class 4 parts of building
- NSW J1P6 Building sealing – Class 2 building and Class 4 parts of building
- NSW J1P7 Services – Class 2 building and Class 4 parts of building

Deemed to Satisfy Provisions

Building Fabric

As specified in NSW J2D2(2), for a sole-occupancy unit of a Class 2 building or a Class 4 part of a building, Performance Requirement NSW J1P5 is satisfied by complying with

- J3D5 Roof thermal breaks of a sole-occupancy unit of a Class 2 building or Class 4 part of a building
- J3D6 Wall thermal breaks of a sole-occupancy unit of a Class 2 building or Class 4 part of a building
- J3D10(3), J3D10(5) and J3D10(6) floor edge insulation
- NSW J4D3 Thermal construction – general

Building Sealing

As specified in NSW J2D2(3), for a Class 2 building or a Class 4 part of a building, Performance Requirement NSW J1P6 is satisfied by complying with

- J5D3 Chimneys and flues
- J5D4, Roof lights
- NSW J5D5 windows and doors,
- J5D6 Exhaust fans,

- J5D7 Construction of ceilings, walls and floors
- J5D8 Evaporative coolers

Note: Compliance with NSW J1P6 for building envelope sealing is also verified when the building envelope is sealed in accordance with Verification Method NSW J1V4.

Services

As specified in NSW J2D2(4), for a Class 2 building or a Class 4 part of a building, Performance Requirement NSW J1P7 is satisfied by complying with

- J6D3 Air-conditioning system control
- J6D4 Mechanical ventilation system control
- J6D5 Fans and duct systems
- J6D6 Ductwork insulation
- J6D7 Ductwork sealing,
- J6D8 Pump systems,
- J6D9 Pipework insulation
- J6D11 Refrigerant chillers,
- J6D12 Unitary air-conditioning equipment
- J6D13 Heat rejection equipment
- J8D2 Heated water supply
- J9D3 Facilities for energy monitoring

Renewable energy and electric vehicle charging

As specified in NSW J2D2(5), for a Class 2 building or a Class 4 part of a building, Performance Requirement NSW J1P4 is satisfied by complying with

- J9D4 Facilities for electric vehicle charging equipment
- J9D5 Facilities for solar photovoltaic and battery systems

Note: The above provisions are generally subject to 'Application of Part' provisions. Refer to the relevant parts of the NSW Variations in Volume One.

Class 1 building, Class 2 building, or Class 4 part of a building (alterations and additions)

NCC 2022 Volume One and Volume Two Energy Efficiency Provisions

Section J of NCC 2022 Volume One and NSW Part H6 of NCC 2022 Volume Two contains the energy efficiency provisions that apply to alterations and additions to a Class 2 building or a Class 4 part of a building, and a Class 1 building, respectively. In NSW, these provisions apply in addition to the requirements of BASIX

The various Parts of Section J and NSW Part H6 include a 'Note' identifying that the energy efficiency requirements contained in **NCC 2019 Amendment 1** apply to developments, where the development consent or an application for a complying development certificate is subject to compliance with a **BASIX Alterations and Additions Certificate**.

In addition, the note included in Section J also addresses the edition of the NCC that applies to Class 3 or Class 5 to 9 parts located in a building that is also subject to a BASIX Certificate (Class 2 building or Class 4 part of a building).

Specifically, the note identifies that for Class 3 or Class 5 to 9 parts of a building:

- NSW Section J of NCC 2019 Volume One Amendment 1 may apply instead of Section J of NCC 2022 Volume One from 1 May 2023 to 30 September 2023.
- Section J of NCC 2022 Volume One applies from 1 October 2023.

NCC energy efficiency provisions that apply in addition to BASIX commitments

Class 2 building or Class 4 part of a building – Alterations and Additions

Performance Requirements

The following NCC 2019 Amendment 1 Volume One Performance Requirements must be complied with in addition to the BASIX commitments:

- NSW J(A)P1 Building fabric
- NSW J(A)P2 Building sealing
- NSW J(A)P3 Services

Deemed to Satisfy Provisions

NSW Part J(A)1 Building fabric

Compliance with NSW J(A)P1 Building fabric is achieved by complying with NSW J(A)1.2. NSW J(A) 1.2 requires compliance with the following national provisions of NCC 2019 Amendment 1 Volume One

- J0.4 Thermal breaks for a metal framed roof
- J0.5 Thermal breaks for a metal framed wall
- J1.2 Thermal construction – general

- J1.6(b) and (c) floor edge insulation

NSW Part J(A)2 Building sealing

Compliance with NSW J(A)P2 Building sealing is achieved by complying with NSW J(A)2.2. NSW J(A)2.2 requires compliance with the following national provisions of NCC 2019 Amendment 1 Volume One

- J3.2 Chimneys and flues
- J3.3 Roof lights
- J3.4(a) to (d) Windows and doors,
- J3.5 Exhaust fans,
- J3.6 Construction of ceilings, walls and floors
- J3.7 Evaporative coolers

Note: Compliance with NSW J(A)P2 Building sealing is also verified when the building envelope is sealed in accordance with Verification Method JV4 of the national provisions.

NSW Part J(A)3 Air-conditioning and ventilation systems

Compliance with NSW J(A)P3 Services is achieved by complying with NSW J(A)3.2. NSW J(A)3.2 requires compliance with the following national provisions of NCC 2019 Amendment 1 Volume One

- J5.2 for air conditioning system control,
- J5.3 for mechanical ventilation system control,
- J5.4 for fan systems,
- J5.5 for ductwork insulation,
- J5.6 for ductwork sealing,
- J5.7 for pump systems,
- J5.8 for pipework insulation,
- J5.10 for refrigerant chillers,
- J5.11 for unitary air-conditioning equipment
- J5.12 for heat rejection equipment

NSW Part J(A)4 Heated water supply

Compliance with NSW J(A)P3 Services is achieved by complying with NSW J(A)4.2. NSW J(A)4.2 requires compliance with the following national provisions of NCC 2019 Amendment 1 Volume One

- J7.2 Heated water supply

NSW Part J(A)5 Facilities

Compliance with NSW J(A)P3 Services is achieved by complying with NSW J(A)5.2. NSW J(A)5.2 requires compliance with the following national provisions of NCC 2019 Amendment 1 Volume One

- J8.3 Facilities for energy monitoring

Note: The above provisions are generally subject to ‘Application of Part’ provisions. Refer to the relevant parts of the NSW Variations in Volume One.

Class 1 buildings – Alterations and Additions

Performance Requirements

The following NCC 2019 Amendment 1 Volume Two Performance Requirements must be complied with in addition to the BASIX commitments:

- NSW P2.6.1(a) Building fabric
- NSW P2.6.1(b) Building sealing
- NSW P2.6.2 Services

Deemed to Satisfy Provisions

NSW Part 3.12.1 Building fabric thermal insulation

Compliance with NSW P2.6.1(a) is achieved by complying with NSW 3.12.1.1. NSW 3.12.1.1 requires compliance with the following national provisions of NCC 2019 Amendment 1 Volume Two

- 3.12.1.1 Building fabric thermal insulation
- 3.12.1.2(c) Thermal breaks for a metal framed roof
- 3.12.1.4(d) Thermal breaks for a metal framed wall
- 3.12.1.2(e) Compensation for reduction in ceiling insulation
- Floors with an in-slab or in-screed heating or cooling system
 - 3.12.1.5(a)(ii), (iii) and (e) for a suspended floor
 - 3.12.1.5(c), (d) and (e) Concrete slab on ground

NSW Part 3.12.3 Building sealing

Compliance with NSW P2.6.1(b) is achieved by complying with NSW 3.12.3.1. NSW 3.12.3.1 requires compliance with the following national provisions of NCC 2019 Amendment 1 Volume Two

- 3.12.3.1 Chimneys and flues
- 3.12.3.2 Roof lights,
- 3.12.3.3 External windows and doors,
- 3.12.3.4 Exhaust fans
- 3.12.3.5 Construction of ceiling, walls and floors
- 3.12.3.6 Evaporative coolers

Note: Compliance with NSW P2.6.1(b) is also verified when the building envelope is sealed in accordance with Verification Method V2.6.2.3 of the national provisions of NCC 2019 Amendment 1 Volume Two.

NSW Part 3.12.5 Building fabric thermal insulation

Compliance with NSW P2.6.2 is achieved by complying with NSW 3.12.5.1. NSW 3.12.5.1 requires compliance with the following national provisions of NCC 2019 Amendment 1 Volume Two

- 3.12.5.0 Application
- 3.12.5.1 Insulation of services,
- 3.12.5.2 Central heating water piping
- 3.12.5.3 Heating and cooling ductwork

Note: The above provisions are generally subject to 'Application of Part' provisions. Refer to the relevant parts of the NSW Variations in Volume Two.

Note: No additional requirements are specified in NSW Part 3.12.2 or NSW Part 3.12.4 as these matters are regulated by BASIX.