

DIPL Sustainability Minimum Design Standard (MDS)

The Sustainability MDS Guidelines provide further information on how these requirements can be met.

Document title	DIPL Sustainability Minimum Design Standard (MDS)
Approved by	DIPL General Manager Infrastructure, Investment and Contracts
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Version	Date	Author	Changes made
1.0	23 March 2021	J. Kieboom	
1.1	5 July 2021	J. Kieboom	Various improvements to Sections 2 and 4
2.0	1 December 2021	J. Kieboom	NCC2016 Sect. J replaced with NC2019 Sect. J; min. wall R-Values reduced; & shaded uninsulated wall exemption removed
3.0	15 March 2022	J. Kieboom	Sect. J Compliance Threshold to only apply to envelopes; Removal of exemption from separate lighting and appliance metering

Acronyms	Full form
ABCB	Australian Building Codes Board
DIPL	Department of Infrastructure, Planning and Logistics (NT Government)
NCC	National Construction Code
MDS	DIPL Minimum Design Standard
SA	Solar Absorptance
SHGC	Solar Heat Gain Coefficient

1.0 Scope

1.1 This standard currently applies to non-residential (NCC Class 3 – 9) NT Government owned building:

- Envelope designs of new or extended conditioned spaces; and
- New or extended conditioned envelopes and related mechanical, electrical and hydraulics building services designs where National Construction Code (NCC) Section J compliance is required.

The building envelope is made up of parts of a building's fabric that separate artificially heated or cooled spaces from:

- The exterior of the building; or
- Other spaces that are not artificially heated or cooled.

2.0 Building Works Requiring NCC Section J Compliance

2.2.1 All building services in new or extended building envelopes shall comply with NCC2019 Sections J5-J8 including the J7 referral to section Part B2 of NCC Volume Three – Plumbing Code of Australia.

2.1.2 The NCC Section J Compliance Threshold applies to new building envelopes:

- Where the project total value is at or over \$3 million; or
- For buildings required to air conditioned 24/7; or
- With new conditioned floor area over 750 m².

2.2 Projects that meet the NCC Section J Compliance Threshold shall comply with:

- Sections J1-J4 of the 2019 NCC; and
- Clauses 4.1 (Orientation), 4.5 (24/7 Blockwork Walls) and 4.7 (Glazing Shading) of this Sustainability Minimum Design Standard.

Have compliance with Section J verified at each design review by a report by an Ecologically Sustainable Development (ESD) consultant/expert.

3.0 Building Works That Do Not Require NCC Section J Compliance

- 3.1** All building envelope works that do not require NCC Section J compliance shall comply with the following requirements.

4.0 Building Envelope Requirements

- | | | |
|----------------------|--------------|---|
| Orientation | 4.1 | Building long walls are to face north and south (+/- 22.5 degrees). |
| Roofs | 4.2.1 | Light coloured (Solar Absorptance (SA) ≤ 0.45), unventilated, with a minimum total roof R-Value of 3.7. |
| | 4.2.2 | For pitched roofs with flat ceilings, this is to be achieved using a AS4200.1 heavy duty Class 1 vapour barrier (top, refer to DIPL vapour barrier design drawings), R2.5 (minimum) perforated foil faced blanket (perf. foil facing down) and insulation spacing system ('roof raisers') – unless prevented by building height or other physical restrictions. |
| | 4.2.3 | Ceiling insulation is only to be used to meet Sustainability requirements with approval of the DIPL Principal's Representative. |
| All External Walls | 4.3 | All walls to be light to medium coloured (SA < 0.6). |
| Steel Frame Walls | 4.4 | Minimum R-Value 0.2 thermal breaks and total wall R-Value of 1.0. |
| 24/7 Blockwork Walls | 4.5 | All external blockwork walls in 24 hour air conditioned buildings shall have an external AS4200.1 heavy duty Class 1 vapour barrier. |
| All Blockwork Walls | 4.6 | A minimum total wall R-Value of 1.0.
Or
Meet NCC 2019 Section J1.5 requirements. |

Glazing Shading

- 4.7** Use sun path modelling to ensure that the following conditions are met:

South of the Tropic of Capricorn

No direct radiation enters through glazing between 9am and 3pm from September 1 to April 30. Direct sun penetration is encouraged from May 1 to August 31.

Shading images of each façade are to be submitted for: 9am and 3pm on 21 January and April 30.

North of the Tropic of Capricorn

No direct radiation enters glazing between 9am and 3pm at any time of the year.

Shading images for each façade are to be submitted for: 9am and 3pm on 21 January and 21 June.

Glazing General

- 4.8** Glazing to be not more than 30% of each façade area - to be focussed on northern and southern facades and minimised on other façades whilst maintaining occupant connectivity with the outdoors.

Or

Meet NCC 2019 Section J1.5 requirements.