

# Nationwide House Energy Rating Scheme — Multiple Class1-dwelling summary NatHERS Certificate No. 0006236220

Generated on 12 Jul 2021 using BERS Pro v4.4.0.4 (3.21)

## Property

**Address** 19 Marskell Cct , Mudgee , NSW  
, 2850

**Lot/DP** 5/1267151

**NatHERS climate zone** 65

**Accredited assessor** 

John Boutros

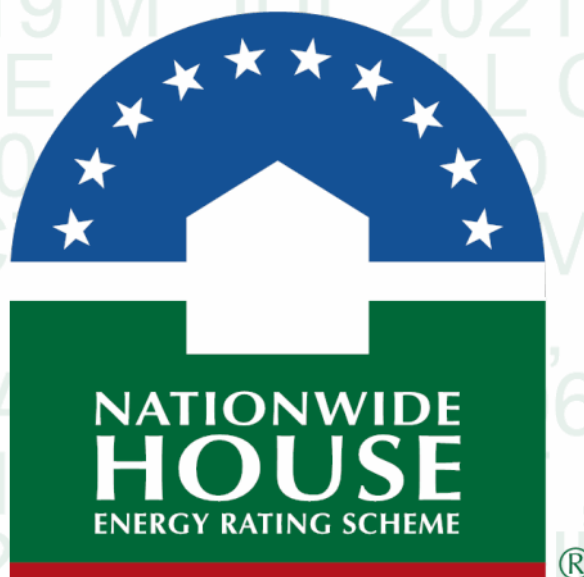
Greenworld Architectural Drafting

greenworldarchi@outlook.com

02 9652 0045

**Accreditation No.** DMN/16/1763

**Assessor Accrediting Organisation** Design Matters  
National



## Verification



To verify this certificate, scan the QR code or visit [hstar.com.au/QR/Generate?p=rOuXKfzvE](https://hstar.com.au/QR/Generate?p=rOuXKfzvE).  
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## Summary of all dwellings

Certificate number and link	Unit Number	Heating load (MJ/m <sup>2</sup> /p.a.)	Cooling load (MJ/m <sup>2</sup> /p.a.)	Total load (MJ/m <sup>2</sup> /p.a.)	Star rating
<a href="#">0006236202</a>	1	220.5	4.2	224.7	5.9
<a href="#">0006236210</a>	2	214.7	4.4	219.1	5.9

## National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated buildings are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at [www.abcb.gov.au](http://www.abcb.gov.au).

State and territory variations and additions to the NCC may also apply.

## Explanatory Notes

### About this report

This is a summary of NCC Class 1 dwellings in a development. The individual dwellings' ratings are a comprehensive, dynamic computer modelling evaluation of a home, using the floorplans, elevations and specifications to estimate the energy load. It addresses the building layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings), but does not cover the water or energy use of appliances, or energy production of solar panels. For more details about an individual dwelling's assessment, refer to the individual dwelling's NatHERS Certificate (accessible via link).

### Accredited Assessors

To ensure the NatHERS Certificate is of a high quality, always use an accredited or licenced assessor. NatHERS accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO). AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country.

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### Disclaimer

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# Nationwide House Energy Rating Scheme NatHERS Certificate No. 0006236202

Generated on 12 Jul 2021 using BERS Pro v4.4.0.4 (3.21)

## Property

**Address** Unit 1, 19 Marskell Cct, Mudgee, NSW, 2850  
**Lot/DP** 5/1267151  
**NCC Class\*** 1A  
**Type** New Dwelling

## Plans

**Main Plan** Issue C  
**Prepared by** AJ Design Draft

## Construction and environment

Assessed floor area (m <sup>2</sup> )*	Exposure Type
Conditioned* 166.0	Suburban
Unconditioned* 28.0	<b>NatHERS climate zone</b>
Total 194.0	65
Garage 19.0	

## Accredited assessor

**Name** John Boutros  
**Business name** Greenworld Architectural Drafting  
**Email** greenworldarchi@outlook.com  
**Phone** 02 9652 0045  
**Accreditation No.** DMN/16/1763

### Assessor Accrediting Organisation

Design Matters National

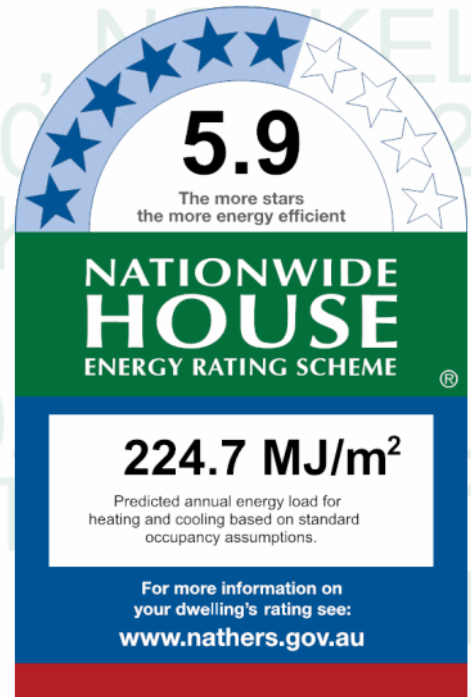
**Declaration of interest** Declaration completed: no conflicts

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In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at [www.abcb.gov.au](http://www.abcb.gov.au).

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## Thermal performance

Heating	Cooling
<b>220.5</b> MJ/m <sup>2</sup>	<b>4.2</b> MJ/m <sup>2</sup>

## About the rating

NatHERS software models the expected thermal energy loads using information about the design and construction, climate and common patterns of household use. The software does not take into account appliances, apart from the airflow impacts from ceiling fans.

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## Certificate check

Ensure the dwelling is designed and then built as per the NatHERS Certificate. While you need to check the accuracy of the whole Certificate, the following spot check covers some important items impacting the dwelling's rating.

### Genuine certificate

Does this Certificate match the one available at the web address or QR code in the verification box on the front page? Does the set of NatHERS-stamped plans for the dwelling have a Certificate number on the stamp that matches this Certificate?

### Ceiling penetrations\*

Does the 'number' and 'type' of ceiling penetrations (e.g. downlights, exhaust fans, etc) shown on the stamped plans or installed, match what is shown in this Certificate?

### Windows

Does the installed window meet the substitution tolerances (SHGC and U-value) and window type, of the window shown on this Certificate?

### Apartment entrance doors

Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.

### Exposure\*

Has the appropriate exposure level (terrain) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".

### Provisional\* values

Have provisional values been used in the assessment and, if so, noted in "additional notes" below?

## Additional notes

## Window and glazed door *type and performance*

### Default\* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-002-01 A	ALM-002-01 A Aluminium B SG Clear	6.7	0.70	0.66	0.73

### Custom\* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

## Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LG Liv/Ldy/WC	ALM-002-01 A	n/a	2400	3000	n/a	60	NE	No
Master Ens	ALM-002-01 A	n/a	750	1200	n/a	45	SE	No
Master Bedroom	ALM-002-01 A	n/a	1500	2400	n/a	45	NE	No

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kit/Liv/Ldy/Ent	ALM-002-01 A	n/a	2400	3600	n/a	70	NE	No
Kit/Liv/Ldy/Ent	ALM-002-01 A	n/a	1500	2400	n/a	45	NE	No
Bedroom 4	ALM-002-01 A	n/a	2100	900	n/a	30	SW	No
Bedroom 4	ALM-002-01 A	n/a	2100	900	n/a	30	SW	No
Bedroom 3	ALM-002-01 A	n/a	900	1800	n/a	45	SE	No
Bedroom 2	ALM-002-01 A	n/a	900	1800	n/a	45	SE	No

## Roof window type and performance

### Default\* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

### Custom\* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

## Roof window schedule

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

## Skylight type and performance

Skylight ID	Skylight description
GEN-04-006a	Single-glazed clear, Timber and Aluminium Frame

## Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m <sup>2</sup> )	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
UG Bath	GEN-04-006a	n/a	1500	0.80	SE	None	No	0.50

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
Kit/Liv/Ldy/Ent	2400	1100	90	SW
Garage	2400	2530	90	SW

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-1	Concrete block, lined	0.50	Medium	No insulation	No
EW-2	Brick Veneer	0.50	Medium	Foil, Anti-glare one side + Bulk Insulation R2	No
EW-3	Fibro Cavity Panel Direct Fix	0.50	Medium	Foil, Anti-glare one side + Bulk Insulation R2	No

## External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LG Liv/Ldy/WC	EW-1	2600	4100	SW	0	NO
LG Liv/Ldy/WC	EW-2	2600	4095	NE	3400	NO
LG Liv/Ldy/WC	EW-1	2600	1700	SE	3600	YES
Master Ens	EW-2	2600	2795	SE	0	NO
Master Ens	EW-1	2600	1395	SW	1700	NO
Master Bedroom	EW-1	2600	2190	SW	1700	YES
Master Bedroom	EW-2	2600	3595	NE	3400	NO
Master Bedroom	EW-2	2600	4495	SE	0	NO
Kit/Liv/Ldy/Ent	EW-3	2700	4200	NE	1900	YES
Kit/Liv/Ldy/Ent	EW-3	2700	1500	NW	6800	YES
Kit/Liv/Ldy/Ent	EW-3	2700	3500	NE	400	NO
Kit/Liv/Ldy/Ent	EW-2	2700	7295	SE	400	NO
Kit/Liv/Ldy/Ent	EW-2	2700	1590	SW	1900	YES
Garage	EW-2	2700	3095	SW	500	NO
Bedroom 4	EW-2	2700	4095	SE	400	NO
Bedroom 4	EW-2	2700	3000	SW	900	NO
Bedroom 4	EW-2	2700	1000	NW	2000	YES
Bedroom 3	EW-2	2700	3990	SE	400	NO
Bedroom 2	EW-2	2700	3990	SE	400	NO

## Internal wall type

Wall ID	Wall type	Area (m <sup>2</sup> )	Bulk insulation
IW-1	Cavity brick, plasterboard	69.00	No Insulation
IW-2	Cavity wall, direct fix plasterboard, single gap	104.00	No insulation
IW-3	Cavity wall, direct fix plasterboard, single gap	26.00	Foil, Anti-glare one side + Bulk Insulation R2

## Floor type

Location	Construction	Area (m <sup>2</sup> )	Sub-floor ventilation (R-value)	Added insulation (R-value)	Covering
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Location	Construction	Area (m <sup>2</sup> )	Sub-floor ventilation	Added insulation (R-value)	Covering
LG Liv/Ldy/WC	Concrete Slab on Ground 100mm	36.60	None	No Insulation	80/20 Carpet 10mm/Ceramic
Master Ens	Concrete Slab on Ground 100mm	3.70	None	No Insulation	Ceramic Tiles 8mm
Master Bedroom	Concrete Slab on Ground 100mm	21.80	None	No Insulation	Carpet 10mm
Kit/Liv/Ldy/Ent/LG Liv/Ldy/WC	Timber Above Plasterboard 100mm	30.20		No Insulation	Carpet 10mm
Kit/Liv/Ldy/Ent/Master Ens	Timber Above Plasterboard 100mm	3.80		No Insulation	Carpet 10mm
Kit/Liv/Ldy/Ent/Master Bedroom	Timber Above Plasterboard 100mm	21.80		No Insulation	Carpet 10mm
Kit/Liv/Ldy/Ent	Concrete Slab on Ground 100mm	12.10	None	No Insulation	40/60 Carpet 10mm/Ceramic
Garage	Concrete Slab on Ground 100mm	19.40	None	No Insulation	Bare
UG Bath	Concrete Slab on Ground 100mm	8.60	None	No Insulation	Ceramic Tiles 8mm
Bedroom 4	Concrete Slab on Ground 100mm	12.00	None	No Insulation	Carpet 10mm
Bedroom 3	Concrete Slab on Ground 100mm	13.50	None	No Insulation	Carpet 10mm
Bedroom 2	Concrete Slab on Ground 100mm	13.50	None	No Insulation	Carpet 10mm

## Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
LG Liv/Ldy/WC	Plasterboard	Bulk Insulation R2.5	No
LG Liv/Ldy/WC	Timber Above Plasterboard	No Insulation	No
Master Ens	Timber Above Plasterboard	No Insulation	No
Master Bedroom	Timber Above Plasterboard	No Insulation	No
Kit/Liv/Ldy/Ent	Plasterboard	Bulk Insulation R4	No
Garage	Plasterboard	Bulk Insulation R4	No
UG Bath	Plasterboard	Bulk Insulation R4	No
Bedroom 4	Plasterboard	Bulk Insulation R4	No
Bedroom 3	Plasterboard	Bulk Insulation R4	No
Bedroom 2	Plasterboard	Bulk Insulation R4	No

## Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm <sup>2</sup> )	Sealed/unsealed
LG Liv/Ldy/WC	20	Downlights - LED	150	Sealed
LG Liv/Ldy/WC	2	Exhaust Fans	300	Sealed
Master Ens	3	Downlights - LED	150	Sealed
Master Ens	1	Exhaust Fans	300	Sealed
Master Bedroom	8	Downlights - LED	150	Sealed
Kit/Liv/Ldy/Ent	50	Downlights - LED	150	Sealed
Kit/Liv/Ldy/Ent	2	Exhaust Fans	300	Sealed
Garage	8	Downlights - LED	150	Sealed
UG Bath	4	Downlights - LED	150	Sealed

Location	Quantity	Type	Diameter (mm )	Sealed/unsealed
UG Bath	1	Exhaust Fans	300	Sealed
Bedroom 4	6	Downlights - LED	150	Sealed
Bedroom 3	6	Downlights - LED	150	Sealed
Bedroom 2	6	Downlights - LED	150	Sealed

## Ceiling fans

Location	Quantity	Diameter (mm)
No Data Available		

## Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Waterproofing Membrane	No Insulation, Only an Air Gap	0.50	Medium
Corrugated Iron	Foil, Gap Above, Reflective Side Down, Anti-glare Up	0.50	Medium



## Explanatory notes

### About this report

A NatHERS rating is a comprehensive, dynamic computer modelling evaluation of a home, using the floorplans, elevations and specifications to estimate an energy load. It addresses the building layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings), but does not cover the water or energy use of appliances or energy production of solar panels.

Ratings are based on a unique climate zone where the home is located and are generated using standard assumptions, including occupancy patterns and thermostat settings. The actual energy consumption of a home may vary significantly from the predicted energy load, as the assumptions used in the rating will not match actual usage patterns. For example, the number of occupants and personal heating or cooling preferences will vary.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparing different dwelling designs and to demonstrate that the design meets the energy efficiency requirements in the National Construction Code. Homes that are energy efficient use less energy, are warmer on cool days, cooler on hot days and cost less to run. The higher the star rating the more thermally efficient the dwelling is.

### Accredited assessors

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Australian Capital Territory (ACT) licensed assessors may only produce assessments for regulatory purposes using software for which they have a licence endorsement. Licence endorsements can be confirmed on the ACT licensing register

AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country. Non-accredited assessors do not have this level of quality assurance or any ongoing training requirements.

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The predicted annual energy load in this NatHERS Certificate is an estimate based on an assessment of the building by the assessor. It is not a prediction of actual energy use, but may be used to compare how other buildings are likely to perform when used in a similar way.

Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, indoor air temperature and local climate.

Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

## Glossary

<b>Annual energy load</b>	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
<b>Assessed floor area</b>	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
<b>Ceiling penetrations</b>	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
<b>Conditioned</b>	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
<b>Custom windows</b>	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
<b>Default windows</b>	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
<b>Entrance door</b>	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
<b>Exposure category – exposed</b>	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
<b>Exposure category – open</b>	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
<b>Exposure category – suburban</b>	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
<b>Exposure category – protected</b>	terrain with numerous, closely spaced obstructions over 10m e.g. city and industrial areas.
<b>Horizontal shading feature</b>	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
<b>National Construction Code (NCC) Class</b>	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at <a href="http://www.abcb.gov.au">www.abcb.gov.au</a> .
<b>Opening percentage</b>	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
<b>Provisional value</b>	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at <a href="http://www.nathers.gov.au">www.nathers.gov.au</a>
<b>Reflective wrap (also known as foil)</b>	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
<b>Roof window</b>	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
<b>Shading device</b>	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
<b>Shading features</b>	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
<b>Solar heat gain coefficient (SHGC)</b>	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
<b>Skylight (also known as roof lights)</b>	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
<b>U-value</b>	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
<b>Unconditioned</b>	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
<b>Vertical shading features</b>	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).

# Nationwide House Energy Rating Scheme

## NatHERS Certificate No. 0006236210

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**Type** New Dwelling

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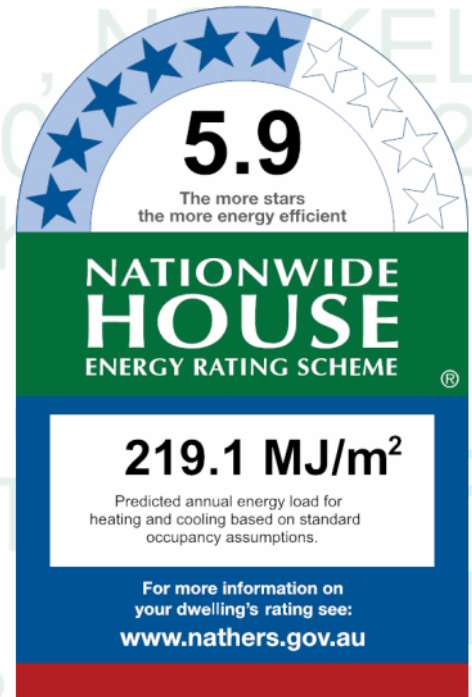
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### Thermal performance

Heating	Cooling
<b>214.7</b> MJ/m <sup>2</sup>	<b>4.4</b> MJ/m <sup>2</sup>

### About the rating

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## Additional notes

## Window and glazed door *type and performance*

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### Custom\* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
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No Data Available					

## Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LG Liv/Ldy/WC	ALM-002-01 A	n/a	2400	3000	n/a	60	NE	No
Master Ens	ALM-002-01 A	n/a	750	1200	n/a	45	NW	No
Master Bedroom	ALM-002-01 A	n/a	1500	2400	n/a	45	NE	No

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kit/Liv/Ldy/Ent	ALM-002-01 A	n/a	1500	2400	n/a	45	NE	No
Kit/Liv/Ldy/Ent	ALM-002-01 A	n/a	2400	3600	n/a	70	NE	No
Bedroom 4	ALM-002-01 A	n/a	2100	900	n/a	30	SW	No
Bedroom 4	ALM-002-01 A	n/a	2100	900	n/a	30	SW	No
Bedroom 3	ALM-002-01 A	n/a	900	1800	n/a	45	NW	No
Bedroom 2	ALM-002-01 A	n/a	900	1800	n/a	45	NW	No

## Roof window type and performance

### Default\* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

### Custom\* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

## Roof window schedule

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

## Skylight type and performance

Skylight ID	Skylight description
GEN-04-006a	Single-glazed clear, Timber and Aluminium Frame

## Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m <sup>2</sup> )	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
UG Bath	GEN-04-006a	n/a	1500	0.80	NW	None	No	0.50

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
Kit/Liv/Ldy/Ent	2400	1100	90	SW
Garage	2400	2530	90	SW

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-1	Concrete block, lined	0.50	Medium	No insulation	No
EW-2	Brick Veneer	0.50	Medium	Foil, Anti-glare one side + Bulk Insulation R2	No
EW-3	Fibro Cavity Panel Direct Fix	0.50	Medium	Foil, Anti-glare one side + Bulk Insulation R2	No

## External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LG Liv/Ldy/WC	EW-1	2600	1700	NW	3600	YES
LG Liv/Ldy/WC	EW-2	2600	4095	NE	3400	NO
LG Liv/Ldy/WC	EW-1	2600	4100	SW	0	NO
Master Ens	EW-1	2600	1395	SW	1700	NO
Master Ens	EW-2	2600	2795	NW	0	NO
Master Bedroom	EW-2	2600	4495	NW	0	NO
Master Bedroom	EW-2	2600	3595	NE	3400	NO
Master Bedroom	EW-1	2600	2190	SW	1700	YES
Kit/Liv/Ldy/Ent	EW-2	2700	1590	SW	1900	YES
Kit/Liv/Ldy/Ent	EW-2	2700	7295	NW	400	NO
Kit/Liv/Ldy/Ent	EW-3	2700	3500	NE	400	NO
Kit/Liv/Ldy/Ent	EW-3	2700	1500	SE	6800	YES
Kit/Liv/Ldy/Ent	EW-3	2700	4200	NE	1900	YES
Garage	EW-2	2700	3095	SW	500	NO
Bedroom 4	EW-2	2700	1000	SE	7300	YES
Bedroom 4	EW-2	2700	3000	SW	900	NO
Bedroom 4	EW-2	2700	4095	NW	400	NO
Bedroom 3	EW-2	2700	3990	NW	400	NO
Bedroom 2	EW-2	2700	3990	NW	400	NO

## Internal wall type

Wall ID	Wall type	Area (m <sup>2</sup> )	Bulk insulation
IW-1	Cavity wall, direct fix plasterboard, single gap	104.00	No insulation
IW-2	Cavity brick, plasterboard	69.00	No Insulation
IW-3	Cavity wall, direct fix plasterboard, single gap	26.00	Foil, Anti-glare one side + Bulk Insulation R2

## Floor type

Location	Construction	Area (m <sup>2</sup> )	Sub-floor ventilation (R-value)	Added insulation (R-value)	Covering
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Location	Construction	Area (m <sup>2</sup> )	Sub-floor ventilation	Added insulation (R-value)	Covering
LG Liv/Ldy/WC	Concrete Slab on Ground 100mm	36.60	None	No Insulation	80/20 Carpet 10mm/Ceramic
Master Ens	Concrete Slab on Ground 100mm	3.70	None	No Insulation	Ceramic Tiles 8mm
Master Bedroom	Concrete Slab on Ground 100mm	21.80	None	No Insulation	Carpet 10mm
Kit/Liv/Ldy/Ent/LG Liv/Ldy/WC	Timber Above Plasterboard 100mm	30.20		No Insulation	Carpet 10mm
Kit/Liv/Ldy/Ent/Master Ens	Timber Above Plasterboard 100mm	3.80		No Insulation	Carpet 10mm
Kit/Liv/Ldy/Ent/Master Bedroom	Timber Above Plasterboard 100mm	21.80		No Insulation	Carpet 10mm
Kit/Liv/Ldy/Ent	Concrete Slab on Ground 100mm	12.20	None	No Insulation	40/60 Carpet 10mm/Ceramic
Garage	Concrete Slab on Ground 100mm	19.40	None	No Insulation	Bare
UG Bath	Concrete Slab on Ground 100mm	8.60	None	No Insulation	Ceramic Tiles 8mm
Bedroom 4	Concrete Slab on Ground 100mm	12.00	None	No Insulation	Carpet 10mm
Bedroom 3	Concrete Slab on Ground 100mm	13.50	None	No Insulation	Carpet 10mm
Bedroom 2	Concrete Slab on Ground 100mm	13.50	None	No Insulation	Carpet 10mm

## Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
LG Liv/Ldy/WC	Plasterboard	Bulk Insulation R2.5	No
LG Liv/Ldy/WC	Timber Above Plasterboard	No Insulation	No
Master Ens	Timber Above Plasterboard	No Insulation	No
Master Bedroom	Timber Above Plasterboard	No Insulation	No
Kit/Liv/Ldy/Ent	Plasterboard	Bulk Insulation R4	No
Garage	Plasterboard	Bulk Insulation R4	No
UG Bath	Plasterboard	Bulk Insulation R4	No
Bedroom 4	Plasterboard	Bulk Insulation R4	No
Bedroom 3	Plasterboard	Bulk Insulation R4	No
Bedroom 2	Plasterboard	Bulk Insulation R4	No

## Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm <sup>2</sup> )	Sealed/unsealed
LG Liv/Ldy/WC	20	Downlights - LED	150	Sealed
LG Liv/Ldy/WC	2	Exhaust Fans	300	Sealed
Master Ens	3	Downlights - LED	150	Sealed
Master Ens	1	Exhaust Fans	300	Sealed
Master Bedroom	8	Downlights - LED	150	Sealed
Kit/Liv/Ldy/Ent	50	Downlights - LED	150	Sealed
Kit/Liv/Ldy/Ent	2	Exhaust Fans	300	Sealed
Garage	8	Downlights - LED	150	Sealed
UG Bath	4	Downlights - LED	150	Sealed

Location	Quantity	Type	Diameter (mm )	Sealed/unsealed
UG Bath	1	Exhaust Fans	300	Sealed
Bedroom 4	6	Downlights - LED	150	Sealed
Bedroom 3	6	Downlights - LED	150	Sealed
Bedroom 2	6	Downlights - LED	150	Sealed

## Ceiling fans

Location	Quantity	Diameter (mm)
No Data Available		

## Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Waterproofing Membrane	No Insulation, Only an Air Gap	0.50	Medium
Corrugated Iron	Foil, Gap Above, Reflective Side Down, Anti-glare Up	0.50	Medium

## Explanatory notes

### About this report

A NatHERS rating is a comprehensive, dynamic computer modelling evaluation of a home, using the floorplans, elevations and specifications to estimate an energy load. It addresses the building layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings), but does not cover the water or energy use of appliances or energy production of solar panels.

Ratings are based on a unique climate zone where the home is located and are generated using standard assumptions, including occupancy patterns and thermostat settings. The actual energy consumption of a home may vary significantly from the predicted energy load, as the assumptions used in the rating will not match actual usage patterns. For example, the number of occupants and personal heating or cooling preferences will vary.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparing different dwelling designs and to demonstrate that the design meets the energy efficiency requirements in the National Construction Code. Homes that are energy efficient use less energy, are warmer on cool days, cooler on hot days and cost less to run. The higher the star rating the more thermally efficient the dwelling is.

### Accredited assessors

To ensure the NatHERS Certificate is of a high quality, always use an accredited or licenced assessor. NatHERS accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO).

Australian Capital Territory (ACT) licensed assessors may only produce assessments for regulatory purposes using software for which they have a licence endorsement. Licence endorsements can be confirmed on the ACT licensing register

AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country. Non-accredited assessors do not have this level of quality assurance or any ongoing training requirements.

Any questions or concerns about this report should be directed to the assessor in the first instance. If the assessor is unable to address these questions or concerns, the AAO specified on the front of this certificate should be contacted.

### Disclaimer

The format of the NatHERS Certificate was developed by the NatHERS Administrator. However the content of each individual certificate is entered and created by the assessor to create a NatHERS Certificate. It is the responsibility of the assessor who prepared this certificate to use NatHERS accredited software correctly and follow the NatHERS Technical Notes to produce a NatHERS Certificate.

The predicted annual energy load in this NatHERS Certificate is an estimate based on an assessment of the building by the assessor. It is not a prediction of actual energy use, but may be used to compare how other buildings are likely to perform when used in a similar way.

Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, indoor air temperature and local climate.

Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

## Glossary

<b>Annual energy load</b>	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
<b>Assessed floor area</b>	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
<b>Ceiling penetrations</b>	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
<b>Conditioned</b>	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
<b>Custom windows</b>	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
<b>Default windows</b>	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
<b>Entrance door</b>	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
<b>Exposure category – exposed</b>	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
<b>Exposure category – open</b>	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
<b>Exposure category – suburban</b>	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
<b>Exposure category – protected</b>	terrain with numerous, closely spaced obstructions over 10m e.g. city and industrial areas.
<b>Horizontal shading feature</b>	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
<b>National Construction Code (NCC) Class</b>	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at <a href="http://www.abcb.gov.au">www.abcb.gov.au</a> .
<b>Opening percentage</b>	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
<b>Provisional value</b>	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at <a href="http://www.nathers.gov.au">www.nathers.gov.au</a>
<b>Reflective wrap (also known as foil)</b>	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
<b>Roof window</b>	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
<b>Shading device</b>	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
<b>Shading features</b>	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
<b>Solar heat gain coefficient (SHGC)</b>	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
<b>Skylight (also known as roof lights)</b>	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
<b>U-value</b>	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
<b>Unconditioned</b>	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
<b>Vertical shading features</b>	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).