

# Nationwide House Energy Rating Scheme

## NatHERS Certificate No. 0008859654

Generated on 30 Aug 2023 using BERS Pro v4.4.1.5 (3.21)

### Property

**Address** 5 Harvey St,  
Bombira , NSW , 2850

**Lot/DP** 7/1243029

**NCC Class\*** 1A

**Type** New Dwelling

### Plans

**Main plan** James House

**Prepared by** Evolve Building Design

### Construction and environment

Assessed floor area (m <sup>2</sup> )*	Exposure type
Conditioned* 388.0	Suburban
Unconditioned* 94.0	<b>NatHERS climate zone</b>
Total 483.0	65
Garage 69.0	



### Accredited assessor

**Name** marc kiho

**Business name** kiho building consulting

**Email** energy\_rating@bigpond.com

**Phone** 0400 680 815

**Accreditation No.** 20094

**Assessor Accrediting Organisation**

ABSA

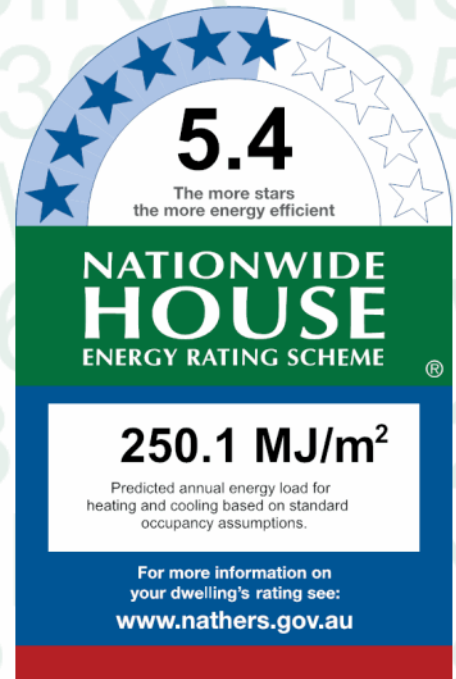
**Declaration of interest** Declaration completed: no conflicts

### National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated houses 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.



### Thermal performance

Heating	Cooling
<b>247.1</b>	<b>3.0</b>
MJ/m <sup>2</sup>	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.

### Verification

To verify this certificate, scan the QR code or visit [hstar.com.au/QR/Generate?p=FqnRIWThM](http://hstar.com.au/QR/Generate?p=FqnRIWThM). When using either link, ensure you are visiting [hstar.com.au](http://hstar.com.au)



## 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? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

### 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

I have modeled the shading in accordance with NatHERS principles

## 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
ALM-001-01 A	ALM-001-01 A Aluminium A SG Clear	6.7	0.57	0.54	0.60
TIM-001-01 W	TIM-001-01 W Timber A SG Clear	5.4	0.56	0.53	0.59

### 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*
Kitchen/Living	ALM-002-01 A	n/a	1800	3800	n/a	35	N	No
Kitchen/Living	ALM-002-01 A	n/a	600	1600	n/a	00	S	No
Kitchen/Living	ALM-002-01 A	n/a	600	1600	n/a	00	S	No
Kitchen/Living	ALM-002-01 A	n/a	2400	4200	n/a	45	W	No
Kitchen/Living	ALM-002-01 A	n/a	1500	2100	n/a	45	W	No
Living 1	ALM-002-01 A	n/a	1800	2400	n/a	45	E	No
Bedroom 1	ALM-002-01 A	n/a	1800	2100	n/a	35	W	No
Bedroom 1	ALM-002-01 A	n/a	1800	3800	n/a	35	N	No
Night Time 2	ALM-001-01 A	n/a	600	1200	n/a	90	S	No
Night Time 2	ALM-001-01 A	n/a	600	1600	n/a	90	S	No
Night Time 2	ALM-001-01 A	n/a	600	1600	n/a	90	W	No
Bedroom 2	ALM-002-01 A	n/a	1200	2200	n/a	35	S	No
Night Time 3	ALM-001-01 A	n/a	600	1600	n/a	90	S	No
Bedroom 3	ALM-002-01 A	n/a	1200	2200	n/a	35	S	No
Bedroom 4	ALM-002-01 A	n/a	600	2400	n/a	45	N	No
Bedroom 4	ALM-002-01 A	n/a	1800	2400	n/a	45	W	No
Bedroom 5	ALM-002-01 A	n/a	600	2400	n/a	45	N	No
Bedroom 5	ALM-002-01 A	n/a	1800	2400	n/a	45	E	No
Night Time 5	ALM-002-01 A	n/a	600	2400	n/a	45	N	No
Unconditioned 1	ALM-001-01 A	n/a	2100	1000	n/a	90	S	No
Unconditioned 2	ALM-001-01 A	n/a	600	1600	n/a	90	W	No
Day Time 1	TIM-001-01 W	n/a	2100	500	n/a	00	E	No
Day Time 1	TIM-001-01 W	n/a	2100	400	n/a	90	E	No
Day Time 4	ALM-002-01 A	n/a	1400	3300	n/a	35	N	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-04-008a	Double-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
Night Time 4	GEN-04-008a	n/a	1500	0.50	S	None	No	0.50

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
Garage 1	2400	6600	90	E
Day Time 1	2040	520	90	E

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-1	Fibro Cavity Panel Direct Fix	0.50	Medium	No insulation	No
EW-2	Brick Veneer	0.50	Medium	Bulk Insulation R2.5	No
EW-3	Fibro Cavity Panel Direct Fix	0.50	Medium	Bulk Insulation R2.5	No

## External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage 1	EW-1	2700	8200	E	600	NO
Garage 1	EW-1	2700	8795	S	600	NO
Garage 1	EW-1	2700	1000	N	13200	YES
Kitchen/Living	EW-2	2700	6400	N	600	YES
Kitchen/Living	EW-2	2700	5195	S	600	YES
Kitchen/Living	EW-2	2700	595	N	9200	YES
Kitchen/Living	EW-2	2700	8600	W	5200	YES
Living 1	EW-2	500	1400	N	0	YES
Living 1	EW-3	2200	1400	N	8200	YES
Living 1	EW-2	500	4995	E	0	YES
Living 1	EW-3	2200	4995	E	3400	YES
Bedroom 1	EW-3	2700	4795	W	600	YES
Bedroom 1	EW-3	2700	4995	N	600	NO
Night Time 1	EW-2	2700	2590	S	600	NO
Night Time 2	EW-2	2700	3995	S	600	NO
Night Time 2	EW-2	2700	3600	W	600	NO
Night Time 2	EW-2	2700	1000	N	5400	YES
Bedroom 2	EW-2	2700	4190	S	600	NO
Night Time 3	EW-2	2700	1990	S	600	NO
Bedroom 3	EW-2	2700	4400	E	600	YES
Bedroom 3	EW-2	2700	4195	S	600	NO
Bedroom 4	EW-2	2700	4795	N	600	NO

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 4	EW-2	2700	4995	W	600	YES
Bedroom 5	EW-2	500	4995	N	0	NO
Bedroom 5	EW-3	2200	4995	N	600	NO
Bedroom 5	EW-2	500	4800	E	0	NO
Bedroom 5	EW-3	2200	4800	E	1400	NO
Bedroom 5	EW-2	500	3400	S	0	YES
Bedroom 5	EW-3	2200	3400	S	16600	YES
Night Time 5	EW-2	2700	5590	N	600	NO
Unconditioned 1	EW-3	2700	2190	S	600	NO
Unconditioned 1	EW-3	2700	1990	W	600	YES
Unconditioned 2	EW-3	2700	3395	S	600	NO
Unconditioned 2	EW-3	2700	2395	W	600	NO
Day Time 1	EW-2	2700	2790	E	4800	YES
Day Time 4	EW-3	2700	5195	N	600	NO
Day Time 4	EW-3	2700	1200	E	0	YES
Day Time 4	EW-3	2700	3995	N	9200	YES

## Internal wall type

Wall ID	Wall type	Area (m <sup>2</sup> )	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		275.00	No insulation
IW-2 - Cavity wall, direct fix plasterboard, single gap		46.00	Bulk Insulation, No Air Gap R2.5

## Floor type

Location	Construction	Area (m <sup>2</sup> )	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage 1	Waffle pod slab 225 mm 100mm	68.90	None	Waffle Pod 225mm	Bare
Kitchen/Living	Waffle pod slab 225 mm 100mm	134.70	None	Waffle Pod 225mm	Vinyl 3mm
Living 1	Waffle pod slab 225 mm 100mm	31.30	None	Waffle Pod 225mm	Carpet+Rubber Underlay 18mm
Bedroom 1	Waffle pod slab 225 mm 100mm	23.60	None	Waffle Pod 225mm	Carpet+Rubber Underlay 18mm

Location	Construction	Area (m <sup>2</sup> )	Sub-floor ventilation	Added insulation (R-value)	Covering
Night Time 1	Waffle pod slab 225 mm 100mm	8.90	None	Waffle Pod 225mm	Carpet+Rubber Underlay 18mm
Night Time 2	Waffle pod slab 225 mm 100mm	14.10	None	Waffle Pod 225mm	Ceramic Tiles 8mm
Bedroom 2	Waffle pod slab 225 mm 100mm	21.10	None	Waffle Pod 225mm	Carpet+Rubber Underlay 18mm
Night Time 3	Waffle pod slab 225 mm 100mm	4.50	None	Waffle Pod 225mm	Ceramic Tiles 8mm
Bedroom 3	Waffle pod slab 225 mm 100mm	20.60	None	Waffle Pod 225mm	Carpet+Rubber Underlay 18mm
Night Time 4	Waffle pod slab 225 mm 100mm	4.80	None	Waffle Pod 225mm	Ceramic Tiles 8mm
Bedroom 4	Waffle pod slab 225 mm 100mm	23.60	None	Waffle Pod 225mm	Carpet+Rubber Underlay 18mm
Bedroom 5	Waffle pod slab 225 mm 100mm	23.70	None	Waffle Pod 225mm	Carpet+Rubber Underlay 18mm
Night Time 5	Waffle pod slab 225 mm 100mm	17.40	None	Waffle Pod 225mm	Ceramic Tiles 8mm
Unconditioned 1	Waffle pod slab 225 mm 100mm	17.40	None	Waffle Pod 225mm	Ceramic Tiles 8mm
Unconditioned 2	Waffle pod slab 225 mm 100mm	7.90	None	Waffle Pod 225mm	Ceramic Tiles 8mm
Day Time 1	Waffle pod slab 225 mm 100mm	11.70	None	Waffle Pod 225mm	Vinyl 3mm
Day Time 2	Waffle pod slab 225 mm 100mm	11.80	None	Waffle Pod 225mm	Carpet+Rubber Underlay 18mm
Day Time 3	Waffle pod slab 225 mm 100mm	10.90	None	Waffle Pod 225mm	Ceramic Tiles 8mm
Day Time 4	Waffle pod slab 225 mm 100mm	25.80	None	Waffle Pod 225mm	Carpet+Rubber Underlay 18mm

## Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage 1	Plasterboard	No insulation	No
Kitchen/Living	Plasterboard	Bulk Insulation R4	No
Living 1	Plasterboard	Bulk Insulation R4	No
Bedroom 1	Plasterboard	Bulk Insulation R4	No
Night Time 1	Plasterboard	Bulk Insulation R4	No
Night Time 2	Plasterboard	Bulk Insulation R4	No
Bedroom 2	Plasterboard	Bulk Insulation R4	No
Night Time 3	Plasterboard	Bulk Insulation R4	No
Bedroom 3	Plasterboard	Bulk Insulation R4	No
Night Time 4	Plasterboard	Bulk Insulation R4	No
Bedroom 4	Plasterboard	Bulk Insulation R4	No



Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Bedroom 5	Plasterboard	Bulk Insulation R4	No
Night Time 5	Plasterboard	Bulk Insulation R4	No
Unconditioned 1	Plasterboard	Bulk Insulation R4	No
Unconditioned 2	Plasterboard	Bulk Insulation R4	No
Day Time 1	Plasterboard	Bulk Insulation R4	No
Day Time 2	Plasterboard	Bulk Insulation R4	No
Day Time 3	Plasterboard	Bulk Insulation R4	No
Day Time 4	Plasterboard	Bulk Insulation R4	No

## Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Living	1	Exhaust Fans	100	Sealed
Kitchen/Living	1	Chimneys	150	Sealed
Night Time 2	1	Exhaust Fans	300	Sealed
Night Time 3	1	Exhaust Fans	300	Sealed
Night Time 4	1	Exhaust Fans	300	Sealed
Night Time 5	1	Exhaust Fans	300	Sealed
Unconditioned 2	1	Exhaust Fans	300	Sealed

## Ceiling fans

Location	Quantity	Diameter (mm)
No Data Available		

## Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
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 10 m 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 operability 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</b> (also known as foil)	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</b> (also known as roof lights)	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).