

Nationwide House Energy Rating Scheme® Class 2 Summary

NatHERS® Certificate No. #HR-RXFNC5-01

Generated on 20 Dec 2023 using Hero 3.1.0.6

Property

Address 146-152 Johnston Street, CASINO, NSW,
2470

Lot/DP
NatHERS climate zone 9 - Amberley Aero



Accredited assessor

Name Duncan Hope
Business name Senica Consultancy Group
Email duncan@senica.com.au
Phone +61 280067784
Accreditation No. DMN/14/1658
Assessor Accrediting Organisation DMN

Verification

To verify this certificate, scan the QR code or visit <http://www.hero-software.com.au/pdf/HR-RXFNC5-01>.
When using either link, ensure you are visiting <http://www.hero-software.com.au>



National Construction Code (NCC) requirements

The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J3D3 and J3D15 of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

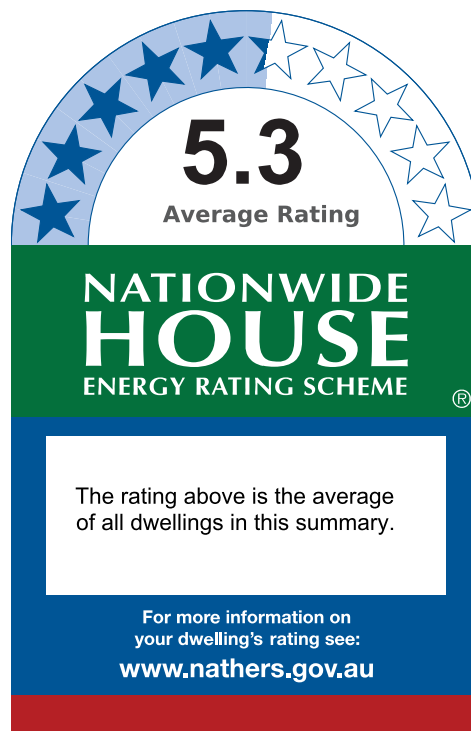
The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

Summary of all dwellings

Certificate number and link	Unit Number	Heating load (load limit) (MJ/m ² .yr)	Cooling load (load limit) (MJ/m ² .yr)	Total load (MJ/m ² .yr)	Star Rating	Whole of Home Rating
HR-KEUUBJ-01	Unit 01	38.4	43.1	81.5	5.2	n/a
HR-8PLVXW-01	Unit 02	21.2	48.6	69.7	5.8	n/a
HR-FDLKII-01	Unit 03	26.9	50.4	77.3	5.4	n/a

Thermal performance Star rating



NCC heating and cooling maximum loads MJ/m².yr

Limits taken from ABCB Standard 2022

	Heating	Cooling
Average load	30.5	48.3
Maximum load	38.4	51.1
Average limit	39.5	50.0
Maximum limit	41.9	53.1

Whole of Home performance rating

No Whole of Home performance rating generated for this certificate or not completed for all dwellings.



Summary of all dwellings

Certificate number and link	Unit Number	Heating load (load limit) (MJ/m ² .yr)	Cooling load (load limit) (MJ/m ² .yr)	Total load (MJ/m ² .yr)	Star Rating	Whole of Home Rating
HR-TPKG0L-01	Unit 04	35.8	51.1	86.9	5.0	n/a
Averages	4x (Total)	30.5	48.3	78.8	5.3	n/a
Maximum Loads and Minimum Ratings		38.4	51.1	86.9	5.0	n/a

Explanatory notes

About the ratings

The thermal performance star rating in this Certificate is the average rating of all NCC Class 2 dwellings in an apartment block. The Whole of Home performance rating in this Certificate is the lowest rating for the apartment block. Individual unit ratings are listed in the ‘Summary of all dwellings’ section of this Certificate.

NatHERS ratings use computer modelling to evaluate a home’s energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the energy loads and societal cost. The thermal performance star rating uses the home’s building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home’s appliances and onsite energy production and storage to estimate the homes societal cost. For more details about an individual dwelling’s assessment, refer to the individual dwelling’s NatHERS Certificate (accessible via link).

Accredited Assessors

For high quality NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.

Licensed assessors in the Australian Capital Territory (ACT) can produce assessments for regulatory purposes only, using endorsed software, as listed on the ACT licensing register.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in certificates is entered by the assessor. It is the assessor’s responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy use, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling’s design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings 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, behaviour, appliance performance, indoor air temperature and local climate.

Not all assumptions 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.

* Refer to glossary

Nationwide House Energy Rating Scheme® NatHERS® Certificate No. #HR-KEUUBJ-01

Generated on 20 Dec 2023 using Hero 3.1.0.6

Property

Address Unit 01, 146-152 Johnston Street,
CASINO, NSW, 2470

Lot/DP

NCC Class* 2

Floor/all Floors 2 of 1 floors

Type New

Plans

Main Plan Project No. 0197:001-B

Prepared by PTMA Architecture

Construction and environment

Assessed floor area (m²)*		Exposure Type
Conditioned*	65.2	Suburban
Unconditioned*	5.7	NatHERS climate zone
Total	70.9	9 - Amberley Aero
Garage	0.0	



Accredited assessor

Name	Duncan Hope
Business name	Senica Consultancy Group
Email	duncan@senica.com.au
Phone	+61 280067784
Accreditation No.	DMN/14/1658
Assessor Accrediting Organisation	DMN
Declaration of interest	No Conflict of Interest

NCC Requirements

BCA provisions Volume 1

State/Territory variation Yes

National Construction Code (NCC) requirements

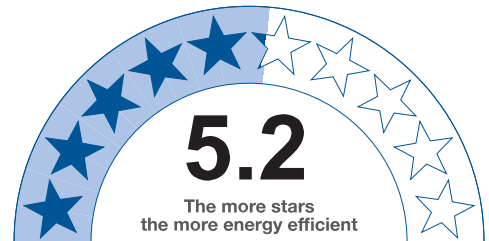
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NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

Thermal performance star rating



NATIONWIDE HOUSE
ENERGY RATING SCHEME

81.5 MJ/m²

Predicted annual energy load for heating and cooling based on standard occupancy assumptions.

For more information on your dwelling's rating see:
www.nathers.gov.au

Thermal performance (MJ/m²)

Limits taken from ABCB Standard 2022

	Heating	Cooling
Modelled	38.4	43.1
Load limits	42	53

Features determining load limits

Floor type	
(lowest conditioned area)	CSOG
NCC climate zone 1 or 2	Y
Outdoor living area	N
Outdoor living area ceiling fan	N

Whole of Home performance rating

No Whole of Home performance rating generated for this certificate.

Verification

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* Refer to glossary.



About the ratings

Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

Heating and Cooling Load Limits

Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the *ABCB Standard: NatHERS heating and cooling load limits* for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

Setting options:

Floor type:

- CSOG - Concrete Slab on Ground
- SF - Suspended Floor (or a mixture of CSOG and SF)
- NA - Not Applicable

NCC climate Zone 1 or 2:

- Yes
- No
- NA - Not Applicable

Outdoor living area:

- Yes
- No
- NA - Not Applicable

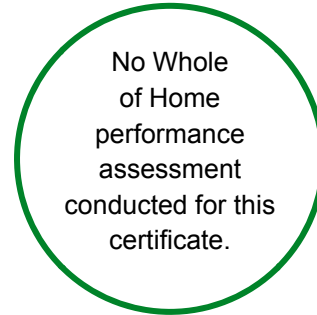
Outdoor living area ceiling fan:

- Yes
- No
- NA - Not Applicable

Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar.

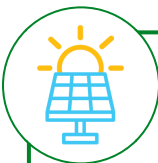
Energy use:



Greenhouse gas emissions:



Cost:



Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

* Refer to glossary.



Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

Approval stage		Construction stage		
Assessor checked	Consent authority/surveyor checked	Builder checked	Consent authority/surveyor checked	Occupancy/other

Genuine certificate check

Does this Certificate match the one available at the web address or QR code verification link on the front page?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thermal performance check

Windows and glazed doors

Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in 'Window and glazed door schedule' and 'Roof window schedule' tables on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the 'Window and glazed door type and performance' and 'Roof window type and performance' tables on this Certificate?			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

External walls

Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the 'External wall type table' on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the external wall shade (colour) match what is shown in the 'External wall type' table on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Floor

Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Floor type' table on this certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Ceiling penetrations*

Does the 'quantity' and 'type' of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Ceiling penetrations' table on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Ceiling

Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Ceiling type' table on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Roof

Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the 'Roof type' table on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Apartment entrance doors (NCC Class 2 assessments only)

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.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
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Exposure*

Has the appropriate exposure type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
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Heating and cooling load limits*

Do the load limits settings (shown on page 1) match what is shown on the NatHERS-stamped plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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* Refer to glossary.



Certificate check

Continued

Approval stage		Construction stage		
Assessor checked	Consent authority/surveyor checked	Builder checked	Consent authority/surveyor checked	Occupancy/other

Additional NCC requirements for thermal performance (not included in the NatHERS assessment)

Thermal bridging

Does the dwelling meet the NCC requirement for thermal bridging?

Insulation installation method

Has the insulation been installed according to the NCC requirements?

Building sealing

Does the dwelling meet the NCC requirements for Building Sealing?

Whole of Home performance check (not applicable if a Whole of Home assessment is not conducted)

Appliances

Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?

Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed, match the location and minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?

Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?

Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?

Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the 'Onsite Renewable Energy schedule' on this Certificate?

Additional NCC Requirements for Services (not included in the NatHERS assessment)

Does the lighting meet the artificial lighting requirements specified in the NCC?

Does the hot water system meet the additional requirements specified in the NCC?

Provisional values* check

Have provisional values* been used in the assessment and, if so, are they noted in 'Additional notes' table below?

Other NCC requirements

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

* Refer to glossary.

Room schedule

Room	Zone Type	Area (m ²)
Kitchen/Living	Kitchen/Living	27.54
bathroom	Unconditioned	5.75
WC	Day Time	1.90
Bedroom 01	Bedroom	11.48
Bedroom 02	Bedroom	10.92
Family	Living	13.31

Window and glazed door type and performance

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
ALM-002-01 A	Aluminium B SG Clear	6.70	0.70	0.66	0.73

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
STG-005-02 A	Aluminium Sliding Door SG 5Clr	6.25	0.72	0.68	0.76
STG-007-01 A	Aluminium Sliding Window SG 3Clr	6.34	0.73	0.69	0.77
STG-077-05 A	Aluminium Fixed Window SG 5Clr	5.89	0.75	0.71	0.79
TND-002-01 A	Trend AI Awning Window SG 3Clr	6.54	0.66	0.63	0.69

Window and glazed door schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bedroom 01	STG-007-01 A	W03	900	1800	Sliding	45	W	None
Bedroom 01	STG-007-01 A	W02	900	1800	Sliding	45	S	None
Bedroom 02	STG-007-01 A	W01	900	1800	Sliding	45	S	None
Kitchen/Living	TND-002-01 A	W07	600	1500	Awning	45	W	None

* Refer to glossary.



Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Kitchen/Living	STG-005-02 A	W05	2400	2700	Sliding Door	60	N	None
Kitchen/Living	STG-077-05 A	W08	1200	1500	Fixed	0	N	None
Kitchen/Living	TND-002-01 A	W06	600	1500	Awning	45	W	None
Kitchen/Living	ALM-002-01 A	W09	415	900	Louvre	90	N	None
bathroom	ALM-002-01 A	W04	600	900	Louvre	90	W	None

Roof window *type and performance value*

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orient-ation	Outdoor shade	Indoor shade
None								

Skylight *type and performance*

Skylight ID	Skylight description
None	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m ²)	Orient-ation	Outdoor shade	Diffuser	Shaft Reflectance
None								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
None				

* Refer to glossary.

External wall type

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
BV-REFL-CAV	Brick Veneer Stud Wall with Reflective Sarking	0.50	Medium	2.50	Yes
James Hardie Axon Cladding	James Hardie Axon Cladding	0.30	Light	2.50	Yes

External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* projection (mm)	Vertical shading feature
Bedroom 01	James Hardie Axon Cladding	2600	3732	W	720	Yes
Bedroom 01	James Hardie Axon Cladding	2730	3294	S	1194	Yes
Bedroom 02	James Hardie Axon Cladding	2730	3144	S	1195	Yes
Bedroom 02	James Hardie Axon Cladding	2730	2112	E		Yes
Kitchen/Living	James Hardie Axon Cladding	2600	2354	W	720	Yes
Kitchen/Living	James Hardie Axon Cladding	2600	744	N		Yes
Kitchen/Living	James Hardie Axon Cladding	2730	5786	N	4101	Yes
Kitchen/Living	BV-REFL-CAV	2600	2768	W	1363	Yes
Kitchen/Living	James Hardie Axon Cladding	415	5721	N	887	Yes
WC	James Hardie Axon Cladding	2600	910	W	723	Yes
bathroom	James Hardie Axon Cladding	2600	2060	W	728	Yes

Internal wall type

Wall ID	Wall Type	Area (m ²)	Bulk insulation
INT-PB	Internal Plasterboard Stud Wall	18.8	2.00
INT-PB	Internal Plasterboard Stud Wall	30.5	0.00
INT-PB-DIVIDE	Dividing Wall 60/60/60	31.7	0.00

Floor type

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 01	TIMB-001: Suspended Timber Floor	3.1	N/A	0.15	Carpet

* Refer to glossary.

Floor type

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 01	TIMB-002: Suspended Timber Floor - Lined Below	8.4	N/A	2.00	Carpet
Bedroom 02	TIMB-001: Suspended Timber Floor	3.7	N/A	0.15	Carpet
Bedroom 02	TIMB-002: Suspended Timber Floor - Lined Below	7.2	N/A	2.00	Carpet
Family	TIMB-001: Suspended Timber Floor	13.3	N/A	0.15	Carpet
Kitchen/Living	TIMB-001: Suspended Timber Floor	24.8	N/A	0.15	Tile
Kitchen/Living	TIMB-002: Suspended Timber Floor - Lined Below	2.6	N/A	2.00	Tile
WC	TIMB-001: Suspended Timber Floor	1.4	N/A	0.15	Tile
WC	TIMB-002: Suspended Timber Floor - Lined Below	0.5	N/A	2.00	Tile
bathroom	TIMB-001: Suspended Timber Floor	4.6	N/A	0.15	Tile
bathroom	TIMB-002: Suspended Timber Floor - Lined Below	1.2	N/A	2.00	Tile

Ceiling type

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Bedroom 01	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	3.50	Yes
Bedroom 02	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	3.50	Yes
Family	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	3.50	Yes
Kitchen/Living	FLAT-02: Flat Framed / Skillion Metal Roof & Cathedral PB Ceiling (11°-33°)	3.50	Yes
WC	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	3.50	Yes
bathroom	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	3.50	Yes

Ceiling penetrations*

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bedroom 01	1	Downlight	200	Sealed
Bedroom 02	1	Downlight	200	Sealed
Family	2	Downlight	200	Sealed
Kitchen/Living	4	Downlight	200	Sealed

* Refer to glossary.

Ceiling penetrations*

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Kitchen/Living	1	Exhaust Fan	350	Sealed
WC	1	Exhaust Fan	350	Sealed

Ceiling fans

Location	Quantity	Diameter (mm)
Bedroom 01	1	1200
Bedroom 02	1	1200
Family	1	1200
Kitchen/Living	2	1200

Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof Colour
ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	1.30	0.50	Medium
FLAT-02: Flat Framed / Skillion Metal Roof & Cathedral PB Ceiling (11°-33°)	1.30	0.50	Medium

Thermal bridging schedule for steel frame elements

Building element	Steel section dimensions (height x width, mm)	Frame spacing (mm)	Steel thickness (BMT mm)	Thermal Break (R-value)
None				

* Refer to glossary.

Explanatory Notes

About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the home's energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary.

Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

Accredited assessors

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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, behaviour, appliance performance, indoor air temperature and local climate.

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

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
AFRC	Australian Fenestration Rating Council
Assessed floor area	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.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, 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.
Conditioned	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.
COP	Coefficient of performance
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
EER	Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input
Energy use	This is your home's rating without solar or batteries.
Energy value	The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard).
Entrance door	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.
Exposure	see exposure categories below
Exposure category - exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category - open	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).
Exposure category - suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category - protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	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 www.abcb.gov.au .
Net zero home	a home that achieves a net zero energy value*.
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	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 www.nathers.gov.au
Recommended capacity	this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person.
Reflective wrap (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.
Roof window	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.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	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.
Skylight (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.
STCs	Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory
Thermal breaks	are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions
Vertical shading features	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).
Window shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies)

* Refer to glossary.

Nationwide House Energy Rating Scheme® NatHERS® Certificate No. #HR-8PLVXW-01

Generated on 20 Dec 2023 using Hero 3.1.0.6

Property

Address Unit 02, 146-152 Johnston Street,
CASINO, NSW, 2470

Lot/DP

NCC Class* 2

Floor/all Floors 2 of 1 floors

Type New

Plans

Main Plan Project No. 0197:001-B

Prepared by PTMA Architecture

Construction and environment

Assessed floor area (m ²)*	Exposure Type
Conditioned* 46.0	Suburban
Unconditioned* 4.8	NatHERS climate zone
Total 50.8	9 - Amberley Aero
Garage 0.0	



Accredited assessor

Name	Duncan Hope
Business name	Senica Consultancy Group
Email	duncan@senica.com.au
Phone	+61 280067784
Accreditation No.	DMN/14/1658
Assessor Accrediting Organisation	DMN
Declaration of interest	No Conflict of Interest

NCC Requirements

BCA provisions Volume 1

State/Territory variation Yes

National Construction Code (NCC) requirements

The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J2D2(2)(a) and (3) of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

Thermal performance star rating



NATIONWIDE HOUSE
ENERGY RATING SCHEME

69.7 MJ/m²

Predicted annual energy load for heating and cooling based on standard occupancy assumptions.

For more information on your dwelling's rating see:
www.nathers.gov.au

Thermal performance (MJ/m²)

Limits taken from ABCB Standard 2022

	Heating	Cooling
Modelled	21.2	48.6
Load limits	42	53

Features determining load limits

Floor type	
(lowest conditioned area)	CSOG
NCC climate zone 1 or 2	Y
Outdoor living area	N
Outdoor living area ceiling fan	N

Whole of Home performance rating

No Whole of Home performance rating generated for this certificate.

Verification

To verify this certificate, scan the QR code or visit

<http://www.hero-software.com.au/pdf/HR-8PLVXW-01>.

When using either link, ensure you are visiting <http://www.hero-software.com.au>



* Refer to glossary.



About the ratings

Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

Heating and Cooling Load Limits

Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the *ABCB Standard: NatHERS heating and cooling load limits* for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

Setting options:

Floor type:

- CSOG - Concrete Slab on Ground
- SF - Suspended Floor (or a mixture of CSOG and SF)
- NA - Not Applicable

NCC climate Zone 1 or 2:

- Yes
- No
- NA - Not Applicable

Outdoor living area:

- Yes
- No
- NA - Not Applicable

Outdoor living area ceiling fan:

- Yes
- No
- NA - Not Applicable

Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar.

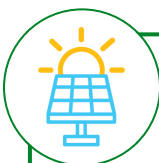
Energy use:



Greenhouse gas emissions:



Cost:



Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

* Refer to glossary.



Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

Approval stage		Construction stage		
Assessor checked	Consent authority/surveyor checked	Builder checked	Consent authority/surveyor checked	Occupancy/other

Genuine certificate check

Does this Certificate match the one available at the web address or QR code verification link on the front page?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thermal performance check

Windows and glazed doors

Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in 'Window and glazed door schedule' and 'Roof window schedule' tables on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the 'Window and glazed door type and performance' and 'Roof window type and performance' tables on this Certificate?			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

External walls

Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the 'External wall type table' on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the external wall shade (colour) match what is shown in the 'External wall type' table on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Floor

Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Floor type' table on this certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Ceiling penetrations*

Does the 'quantity' and 'type' of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Ceiling penetrations' table on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Ceiling

Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Ceiling type' table on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Roof

Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the 'Roof type' table on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Apartment entrance doors (NCC Class 2 assessments only)

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.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
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Exposure*

Has the appropriate exposure type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
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Heating and cooling load limits*

Do the load limits settings (shown on page 1) match what is shown on the NatHERS-stamped plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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* Refer to glossary.



Certificate check

Continued

Approval stage		Construction stage		
Assessor checked	Consent authority/surveyor checked	Builder checked	Consent authority/surveyor checked	Occupancy/other

Additional NCC requirements for thermal performance (not included in the NatHERS assessment)

Thermal bridging

Does the dwelling meet the NCC requirement for thermal bridging?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Insulation installation method

Has the insulation been installed according to the NCC requirements?			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Building sealing

Does the dwelling meet the NCC requirements for Building Sealing?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Whole of Home performance check (not applicable if a Whole of Home assessment is not conducted)

Appliances

Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed, match the location and minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the 'Onsite Renewable Energy schedule' on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Additional NCC Requirements for Services (not included in the NatHERS assessment)

Does the lighting meet the artificial lighting requirements specified in the NCC?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the hot water system meet the additional requirements specified in the NCC?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Provisional values* check

Have provisional values* been used in the assessment and, if so, are they noted in 'Additional notes' table below?	<input type="checkbox"/>	<input type="checkbox"/>			
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Other NCC requirements

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

* Refer to glossary.

Room schedule

Room	Zone Type	Area (m ²)
Kitchen/Living	Kitchen/Living	29.06
Bathroom	Unconditioned	4.76
Bedroom 01	Bedroom	16.95

Window and glazed door type and performance

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
ALM-002-01 A	Aluminium B SG Clear	6.70	0.70	0.66	0.73

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
STG-005-02 A	Aluminium Sliding Door SG 5Clr	6.25	0.72	0.68	0.76
STG-007-01 A	Aluminium Sliding Window SG 3Clr	6.34	0.73	0.69	0.77
STG-077-05 A	Aluminium Fixed Window SG 5Clr	5.89	0.75	0.71	0.79

Window and glazed door schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bedroom 01	ALM-002-01 A	W04	1500	822	Louvre	90	N	None
Kitchen/Living	STG-007-01 A	W01	900	1800	Sliding	45	N	None
Kitchen/Living	STG-077-05 A	W02	1500	750	Fixed	0	N	None
Kitchen/Living	STG-005-02 A	W03	2400	2400	Sliding Door	60	E	None

Roof window type and performance value

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit

* Refer to glossary.

Roof window type and performance value

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Roof window schedule

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
None								

Skylight type and performance

Skylight ID	Skylight description
None	

Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m ²)	Orientation	Outdoor shade	Diffuser	Shaft Reflectance
None								

External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
None				

External wall type

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
FC-REFL-CAV	Fibre-Cement Clad Battened (Refl Cavity) Stud Wall	0.50	Medium	2.00	Yes
James Hardie Primeline Cladding with Battens	James Hardie Primeline Cladding Batten	0.50	Medium	2.00	Yes
MC-REFL-CAV	Metal Clad Battened (Refl Cavity) Stud Wall	0.50	Medium	2.00	Yes

External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* projection (mm)	Vertical shading feature

* Refer to glossary.

External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* projection (mm)	Vertical shading feature
Bedroom 01	FC-REFL-CAV	2730	1266	N	3713	Yes
Bedroom 01	FC-REFL-CAV	2730	598	W	2657	Yes
Bedroom 01	FC-REFL-CAV	2730	1790	N	3115	Yes
Bedroom 01	James Hardie Primeline Cladding with Battens	2730	593	E	7500	Yes
Bedroom 01	James Hardie Primeline Cladding with Battens	2730	822	N	3092	Yes
Kitchen/Living	MC-REFL-CAV	2730	5904	N	1000	Yes
Kitchen/Living	MC-REFL-CAV	2730	2718	E	11517	Yes
Kitchen/Living	MC-REFL-CAV	2730	3151	W	7549	Yes

Internal wall type

Wall ID	Wall Type	Area (m ²)	Bulk insulation
INT-PB	Internal Plasterboard Stud Wall	19.6	0.00
INT-PB-DIVIDE	Dividing Wall 60/60/60	45.0	0.00

Floor type

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bathroom	TIMB-001: Suspended Timber Floor	4.8	N/A	0.15	Tile
Bedroom 01	TIMB-001: Suspended Timber Floor	15.6	N/A	0.15	Vinyl
Bedroom 01	TIMB-002: Suspended Timber Floor - Lined Below	1.3	N/A	2.00	Carpet
Kitchen/Living	TIMB-001: Suspended Timber Floor	20.3	N/A	0.15	Timber
Kitchen/Living	TIMB-002: Suspended Timber Floor - Lined Below	8.7	N/A	2.00	Timber

Ceiling type

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Bathroom	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	3.50	Yes
Bedroom 01	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	3.50	Yes

* Refer to glossary.

Ceiling type

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Kitchen/Living	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	3.50	Yes

Ceiling penetrations*

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bathroom	1	Downlight	200	Sealed
Bathroom	1	Exhaust Fan	350	Sealed
Bedroom 01	2	Downlight	200	Sealed
Kitchen/Living	4	Downlight	200	Sealed
Kitchen/Living	1	Exhaust Fan	350	Sealed

Ceiling fans

Location	Quantity	Diameter (mm)
Bedroom 01	1	1200
Kitchen/Living	1	1200

Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof Colour
ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	1.30	0.50	Medium

Thermal bridging schedule for steel frame elements

Building element	Steel section dimensions (height x width, mm)	Frame spacing (mm)	Steel thickness (BMT mm)	Thermal Break (R-value)
None				

* Refer to glossary.

Explanatory Notes

About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the home's energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary.

Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and

are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings 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, behaviour, appliance performance, indoor air temperature and local climate.

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

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
AFRC	Australian Fenestration Rating Council
Assessed floor area	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.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, 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.
Conditioned	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.
COP	Coefficient of performance
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Skylight (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.
STCs	Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory
Thermal breaks	are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions
Vertical shading features	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).
Window shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies)

* Refer to glossary.

Nationwide House Energy Rating Scheme® NatHERS® Certificate No. #HR-FDLKII-01

Generated on 20 Dec 2023 using Hero 3.1.0.6

Property

Address Unit 03, 146-152 Johnston Street,
CASINO, NSW, 2470

Lot/DP

NCC Class* 2

Floor/all Floors 2 of 1 floors

Type New

Plans

Main Plan Project No. 0197:001-B

Prepared by PTMA Architecture

Construction and environment

Assessed floor area (m²)*		Exposure Type
Conditioned*	69.4	Suburban
Unconditioned*	7.0	NatHERS climate zone
Total	76.4	9 - Amberley Aero
Garage	0.0	



Accredited assessor

Name	Duncan Hope
Business name	Senica Consultancy Group
Email	duncan@senica.com.au
Phone	+61 280067784
Accreditation No.	DMN/14/1658
Assessor Accrediting Organisation	DMN
Declaration of interest	No Conflict of Interest

NCC Requirements

BCA provisions Volume 1

State/Territory variation Yes

National Construction Code (NCC) requirements

The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J2D2(2)(a) and (3) of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

Thermal performance star rating



NATIONWIDE HOUSE ENERGY RATING SCHEME®

77.3 MJ/m²

Predicted annual energy load for heating and cooling based on standard occupancy assumptions.

For more information on your dwelling's rating see:
www.nathers.gov.au

Thermal performance (MJ/m²)

Limits taken from ABCB Standard 2022

	Heating	Cooling
Modelled	26.9	50.4
Load limits	42	53

Features determining load limits

Floor type	
(lowest conditioned area)	CSOG
NCC climate zone 1 or 2	Y
Outdoor living area	N
Outdoor living area ceiling fan	N

Whole of Home performance rating

No Whole of Home performance rating generated for this certificate.

Verification

To verify this certificate, scan the QR code or visit

<http://www.hero-software.com.au/pdf/HR-FDLKII-01>.

When using either link, ensure you are visiting <http://www.hero-software.com.au>



* Refer to glossary.



About the ratings

Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

Heating and Cooling Load Limits

Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the *ABCB Standard: NatHERS heating and cooling load limits* for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

Setting options:

Floor type:

- CSOG - Concrete Slab on Ground
- SF - Suspended Floor (or a mixture of CSOG and SF)
- NA - Not Applicable

NCC climate Zone 1 or 2:

- Yes
- No
- NA - Not Applicable

Outdoor living area:

- Yes
- No
- NA - Not Applicable

Outdoor living area ceiling fan:

- Yes
- No
- NA - Not Applicable

Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar.

Energy use:

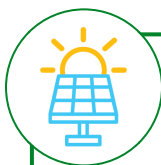
No Whole of Home performance assessment conducted for this certificate.

Greenhouse gas emissions:

No Whole of Home performance assessment conducted for this certificate.

Cost:

No Whole of Home performance assessment conducted for this certificate.



Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

* Refer to glossary.



Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

Approval stage		Construction stage		
Assessor checked	Consent authority/surveyor checked	Builder checked	Consent authority/surveyor checked	Occupancy/other

Genuine certificate check

Does this Certificate match the one available at the web address or QR code verification link on the front page?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thermal performance check

Windows and glazed doors

Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in 'Window and glazed door schedule' and 'Roof window schedule' tables on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the 'Window and glazed door type and performance' and 'Roof window type and performance' tables on this Certificate?			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

External walls

Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the 'External wall type table' on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the external wall shade (colour) match what is shown in the 'External wall type' table on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Floor

Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Floor type' table on this certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Ceiling penetrations*

Does the 'quantity' and 'type' of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Ceiling penetrations' table on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Ceiling

Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Ceiling type' table on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Roof

Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the 'Roof type' table on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Apartment entrance doors (NCC Class 2 assessments only)

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.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
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Exposure*

Has the appropriate exposure type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	--	--------------------------	--------------------------

Heating and cooling load limits*

Do the load limits settings (shown on page 1) match what is shown on the NatHERS-stamped plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

* Refer to glossary.



Certificate check

Continued

Approval stage		Construction stage		
Assessor checked	Consent authority/surveyor checked	Builder checked	Consent authority/surveyor checked	Occupancy/other

Additional NCC requirements for thermal performance (not included in the NatHERS assessment)

Thermal bridging

Does the dwelling meet the NCC requirement for thermal bridging?

Insulation installation method

Has the insulation been installed according to the NCC requirements?

Building sealing

Does the dwelling meet the NCC requirements for Building Sealing?

Whole of Home performance check (not applicable if a Whole of Home assessment is not conducted)

Appliances

Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?

Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed, match the location and minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?

Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?

Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?

Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the 'Onsite Renewable Energy schedule' on this Certificate?

Additional NCC Requirements for Services (not included in the NatHERS assessment)

Does the lighting meet the artificial lighting requirements specified in the NCC?

Does the hot water system meet the additional requirements specified in the NCC?

Provisional values* check

Have provisional values* been used in the assessment and, if so, are they noted in 'Additional notes' table below?

Other NCC requirements

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

* Refer to glossary.

Room schedule

Room	Zone Type	Area (m ²)
Kitchen/Living	Kitchen/Living	43.59
Laundry	Day Time	2.46
Bathroom	Unconditioned	5.12
Bedroom 01	Bedroom	12.83
Bedroom 02	Bedroom	10.49
WC	Unconditioned	1.93

Window and glazed door type and performance

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
ALM-002-01 A	Aluminium B SG Clear	6.70	0.70	0.66	0.73

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
STG-002-01 A	Aluminium Awning Window SG 3Clr	6.46	0.65	0.62	0.68
STG-005-02 A	Aluminium Sliding Door SG 5Clr	6.25	0.72	0.68	0.76
STG-007-01 A	Aluminium Sliding Window SG 3Clr	6.34	0.73	0.69	0.77
STG-077-05 A	Aluminium Fixed Window SG 5Clr	5.89	0.75	0.71	0.79

Window and glazed door schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bathroom	STG-002-01 A	W05	600	900	Awning	90	E	None
Bedroom 01	STG-007-01 A	W07	900	1800	Sliding	45	S	None
Bedroom 01	STG-002-01 A	W06	600	900	Awning	90	E	None
Bedroom 02	STG-007-01 A	W08	900	1685	Sliding	45	S	None

* Refer to glossary.



Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Kitchen/Living	ALM-002-01 A	W04	2100	745	Louvre	90	E	None
Kitchen/Living	STG-002-01 A	W09	600	900	Awning	90	E	None
Kitchen/Living	STG-002-01 A	W10	600	900	Awning	90	E	None
Kitchen/Living	STG-077-05 A	W02	1500	600	Fixed	0	N	None
Kitchen/Living	STG-005-02 A	W03	2400	2700	Sliding Door	60	N	None
Kitchen/Living	ALM-002-01 A	W11	900	2700	Louvre	90	N	None
WC	ALM-002-01 A	W01	1500	750	Louvre	90	N	None

Roof window *type and performance value*

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orient-ation	Outdoor shade	Indoor shade
None								

Skylight *type and performance*

Skylight ID	Skylight description
None	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m ²)	Orient-ation	Outdoor shade	Diffuser	Shaft Reflectance
None								

* Refer to glossary.

External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
None				

External wall type

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
FC-REFL-CAV	Fibre-Cement Clad Battened (Refl Cavity) Stud Wall	0.50	Medium	2.00	Yes
James Hardie Axon Cladding	James Hardie Axon Cladding	0.30	Light	2.00	Yes
James Hardie Primeline Cladding with Battens	James Hardie Primeline Cladding Batten	0.50	Medium	2.00	Yes
MC-REFL-CAV	Metal Clad Battened (Refl Cavity) Stud Wall	0.50	Medium	2.00	Yes

External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* projection (mm)	Vertical shading feature
Bathroom	MC-REFL-CAV	2730	2118	E		Yes
Bedroom 01	FC-REFL-CAV	2730	4278	S	3303	Yes
Bedroom 01	MC-REFL-CAV	2730	3156	E	537	Yes
Bedroom 02	FC-REFL-CAV	2730	3510	S	3298	Yes
Kitchen/Living	James Hardie Primeline Cladding with Battens	2730	236	N		Yes
Kitchen/Living	FC-REFL-CAV	2730	1991	E	739	Yes
Kitchen/Living	MC-REFL-CAV	2730	681	N		Yes
Kitchen/Living	MC-REFL-CAV	2730	2664	E		Yes
Kitchen/Living	FC-REFL-CAV	2730	5693	N	3732	Yes
Kitchen/Living	James Hardie Axon Cladding	995	5672	N	624	Yes
WC	James Hardie Primeline Cladding with Battens	2730	1168	N	3685	Yes

Internal wall type

Wall ID	Wall Type	Area (m ²)	Bulk insulation
INT-PB	Internal Plasterboard Stud Wall	52.1	0.00

* Refer to glossary.

Internal wall type

Wall ID	Wall Type	Area (m ²)	Bulk insulation
INT-PB-DIVIDE	Dividing Wall 60/60/60	26.6	0.00

Floor type

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bathroom	TIMB-001: Suspended Timber Floor	5.1	N/A	0.15	Tile
Bedroom 01	TIMB-001: Suspended Timber Floor	10.8	N/A	0.15	Carpet
Bedroom 01	TIMB-002: Suspended Timber Floor - Lined Below	2.0	N/A	2.00	Carpet
Bedroom 02	TIMB-001: Suspended Timber Floor	10.5	N/A	0.15	Carpet
Kitchen/Living	TIMB-001: Suspended Timber Floor	42.2	N/A	0.15	Timber
Kitchen/Living	TIMB-002: Suspended Timber Floor - Lined Below	1.4	N/A	2.00	Timber
Laundry	TIMB-001: Suspended Timber Floor	2.5	N/A	0.15	Tile
WC	TIMB-001: Suspended Timber Floor	1.9	N/A	0.15	Tile

Ceiling type

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Bathroom	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	3.50	Yes
Bedroom 01	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	3.50	Yes
Bedroom 02	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	3.50	Yes
Kitchen/Living	FLAT-02: Flat Framed / Skillion Metal Roof & Cathedral PB Ceiling (11°-33°)	3.50	Yes
Laundry	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	3.50	Yes
WC	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	3.50	Yes

Ceiling penetrations*

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bathroom	1	Downlight	200	Sealed
Bedroom 01	2	Downlight	200	Sealed
Bedroom 02	1	Downlight	200	Sealed

* Refer to glossary.

Ceiling penetrations*

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Kitchen/Living	6	Downlight	200	Sealed
Kitchen/Living	1	Exhaust Fan	350	Sealed
Laundry	1	Exhaust Fan	350	Sealed

Ceiling fans

Location	Quantity	Diameter (mm)
Bedroom 01	1	1400
Bedroom 02	1	1400
Kitchen/Living	2	1400

Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof Colour
ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	1.30	0.50	Medium
FLAT-02: Flat Framed / Skillion Metal Roof & Cathedral PB Ceiling (11°-33°)	1.30	0.50	Medium

Thermal bridging schedule for steel frame elements

Building element	Steel section dimensions (height x width, mm)	Frame spacing (mm)	Steel thickness (BMT mm)	Thermal Break (R-value)
None				

* Refer to glossary.

Explanatory Notes

About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the home's energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary.

Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and

are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings 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, behaviour, appliance performance, indoor air temperature and local climate.

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

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
AFRC	Australian Fenestration Rating Council
Assessed floor area	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.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, 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.
Conditioned	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.
COP	Coefficient of performance
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
EER	Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input
Energy use	This is your home's rating without solar or batteries.
Energy value	The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard).
Entrance door	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.
Exposure	see exposure categories below
Exposure category - exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category - open	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).
Exposure category - suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category - protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	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 www.abcb.gov.au .
Net zero home	a home that achieves a net zero energy value*.
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	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 www.nathers.gov.au
Recommended capacity	this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person.
Reflective wrap (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.
Roof window	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.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	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.
Skylight (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.
STCs	Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory
Thermal breaks	are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions
Vertical shading features	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).
Window shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies)

* Refer to glossary.

Nationwide House Energy Rating Scheme® NatHERS® Certificate No. #HR-TPKG0L-01

Generated on 20 Dec 2023 using Hero 3.1.0.6

Property

Address Unit 04, 146-152 Johnston Street,
CASINO, NSW, 2470

Lot/DP

NCC Class* 2

Floor/all Floors 2 of 1 floors

Type New

Plans

Main Plan Project No. 0197:001-B

Prepared by PTMA Architecture

Construction and environment

Assessed floor area (m²)*		Exposure Type
Conditioned*	46.2	Suburban
Unconditioned*	4.0	NatHERS climate zone
Total	50.2	9 - Amberley Aero
Garage	0.0	



Accredited assessor

Name	Duncan Hope
Business name	Senica Consultancy Group
Email	duncan@senica.com.au
Phone	+61 280067784
Accreditation No.	DMN/14/1658
Assessor Accrediting Organisation	DMN
Declaration of interest	No Conflict of Interest

NCC Requirements

BCA provisions Volume 1

State/Territory variation Yes

National Construction Code (NCC) requirements

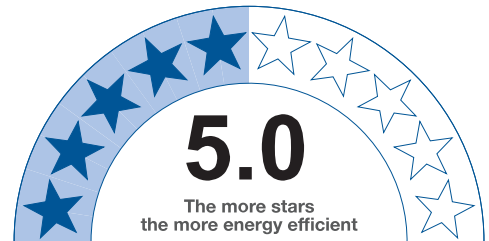
The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J2D2(2)(a) and (3) of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

Thermal performance star rating



**NATIONWIDE
HOUSE**
ENERGY RATING SCHEME®

86.9 MJ/m²

Predicted annual energy load for heating and cooling based on standard occupancy assumptions.

For more information on your dwelling's rating see:
www.nathers.gov.au

Thermal performance (MJ/m²)

Limits taken from ABCB Standard 2022

	Heating	Cooling
Modelled	35.8	51.1
Load limits	42	53

Features determining load limits

Floor type	
(lowest conditioned area)	CSOG
NCC climate zone 1 or 2	Y
Outdoor living area	N
Outdoor living area ceiling fan	N

Whole of Home performance rating

No Whole of Home performance rating generated for this certificate.

Verification

To verify this certificate, scan the QR code or visit

<http://www.hero-software.com.au/pdf/HR-TPKG0L-01>.

When using either link, ensure you are visiting <http://www.hero-software.com.au>



* Refer to glossary.



About the ratings

Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

Heating and Cooling Load Limits

Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the *ABCB Standard: NatHERS heating and cooling load limits* for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

Setting options:

Floor type:

- CSOG - Concrete Slab on Ground
- SF - Suspended Floor (or a mixture of CSOG and SF)
- NA - Not Applicable

NCC climate Zone 1 or 2:

- Yes
- No
- NA - Not Applicable

Outdoor living area:

- Yes
- No
- NA - Not Applicable

Outdoor living area ceiling fan:

- Yes
- No
- NA - Not Applicable

Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar.

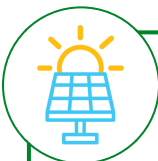
Energy use:



Greenhouse gas emissions:



Cost:



Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

* Refer to glossary.



Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

Approval stage		Construction stage		
Assessor checked	Consent authority/surveyor checked	Builder checked	Consent authority/surveyor checked	Occupancy/other

Genuine certificate check

Does this Certificate match the one available at the web address or QR code verification link on the front page?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thermal performance check

Windows and glazed doors

Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in 'Window and glazed door schedule' and 'Roof window schedule' tables on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the 'Window and glazed door type and performance' and 'Roof window type and performance' tables on this Certificate?			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

External walls

Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the 'External wall type table' on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the external wall shade (colour) match what is shown in the 'External wall type' table on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Floor

Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Floor type' table on this certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Ceiling penetrations*

Does the 'quantity' and 'type' of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Ceiling penetrations' table on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Ceiling

Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Ceiling type' table on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Roof

Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the 'Roof type' table on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Apartment entrance doors (NCC Class 2 assessments only)

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.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
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Exposure*

Has the appropriate exposure type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
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Heating and cooling load limits*

Do the load limits settings (shown on page 1) match what is shown on the NatHERS-stamped plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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* Refer to glossary.



Certificate check

Continued

Approval stage		Construction stage		
Assessor checked	Consent authority/surveyor checked	Builder checked	Consent authority/surveyor checked	Occupancy/other

Additional NCC requirements for thermal performance (not included in the NatHERS assessment)

Thermal bridging

Does the dwelling meet the NCC requirement for thermal bridging?

Insulation installation method

Has the insulation been installed according to the NCC requirements?

Building sealing

Does the dwelling meet the NCC requirements for Building Sealing?

Whole of Home performance check (not applicable if a Whole of Home assessment is not conducted)

Appliances

Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?

Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed, match the location and minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?

Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?

Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?

Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the 'Onsite Renewable Energy schedule' on this Certificate?

Additional NCC Requirements for Services (not included in the NatHERS assessment)

Does the lighting meet the artificial lighting requirements specified in the NCC?

Does the hot water system meet the additional requirements specified in the NCC?

Provisional values* check

Have provisional values* been used in the assessment and, if so, are they noted in 'Additional notes' table below?

Other NCC requirements

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

* Refer to glossary.



Room schedule

Room	Zone Type	Area (m ²)
Kitchen/Living	Kitchen/Living	29.44
Bedroom 01	Bedroom	14.90
Laundry	Day Time	1.89
Bathroom	Unconditioned	4.01

Window and glazed door type and performance

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
STG-005-02 A	Aluminium Sliding Door SG 5Clr	6.25	0.72	0.68	0.76
STG-007-01 A	Aluminium Sliding Window SG 3Clr	6.34	0.73	0.69	0.77

Window and glazed door schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bedroom 01	STG-005-02 A	W04	2400	1500	Sliding Door	45	S	None
Kitchen/Living	STG-005-02 A	W02	2400	1500	Sliding Door	45	W	None
Kitchen/Living	STG-005-02 A	W03	2400	1500	Sliding Door	45	S	None
Kitchen/Living	STG-007-01 A	W01	900	2400	Sliding	45	S	None

Roof window type and performance value

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

* Refer to glossary.



Roof window type and performance value

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Roof window schedule

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
None								

Skylight type and performance

Skylight ID	Skylight description
None	

Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m ²)	Orientation	Outdoor shade	Diffuser	Shaft Reflectance
None								

External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
None				

External wall type

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
MC-REFL-CAV	Metal Clad Battened (Refl Cavity) Stud Wall	0.50	Medium	2.00	Yes

External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* projection (mm)	Vertical shading feature
Bedroom 01	MC-REFL-CAV	2730	1370	S	3038	Yes

* Refer to glossary.

External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* projection (mm)	Vertical shading feature
Bedroom 01	MC-REFL-CAV	2730	1786	S	3038	Yes
Kitchen/Living	MC-REFL-CAV	2730	609	E		Yes
Kitchen/Living	MC-REFL-CAV	2730	733	S		Yes
Kitchen/Living	MC-REFL-CAV	2730	3018	W	5260	Yes
Kitchen/Living	MC-REFL-CAV	2730	1994	S	3038	Yes
Kitchen/Living	MC-REFL-CAV	2730	2157	E	8665	Yes
Kitchen/Living	MC-REFL-CAV	2730	3923	S	640	Yes

Internal wall type

Wall ID	Wall Type	Area (m ²)	Bulk insulation
INT-PB	Internal Plasterboard Stud Wall	26.4	0.00
INT-PB-DIVIDE	Dividing Wall 60/60/60	50.8	0.00

Floor type

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bathroom	TIMB-001: Suspended Timber Floor	4.0	N/A	0.15	Tile
Bedroom 01	TIMB-001: Suspended Timber Floor	14.3	N/A	0.15	Carpet
Bedroom 01	TIMB-002: Suspended Timber Floor - Lined Below	0.6	N/A	2.00	Carpet
Kitchen/Living	TIMB-001: Suspended Timber Floor	25.8	N/A	0.15	Timber
Kitchen/Living	TIMB-001: Suspended Timber Floor	0.9	N/A	0.15	Vinyl
Kitchen/Living	TIMB-002: Suspended Timber Floor - Lined Below	2.7	N/A	2.00	Vinyl
Laundry	TIMB-001: Suspended Timber Floor	1.9	N/A	0.15	Tile

Ceiling type

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Bathroom	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	3.50	Yes

* Refer to glossary.

Ceiling type

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Bedroom 01	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	3.50	Yes
Kitchen/Living	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	3.50	Yes
Laundry	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	3.50	Yes

Ceiling penetrations*

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bathroom	1	Downlight	200	Sealed
Bathroom	1	Exhaust Fan	350	Sealed
Bedroom 01	2	Downlight	200	Sealed
Kitchen/Living	4	Downlight	200	Sealed
Kitchen/Living	1	Exhaust Fan	350	Sealed

Ceiling fans

Location	Quantity	Diameter (mm)
Bedroom 01	1	1400
Kitchen/Living	2	1400

Roof type

Construction	Added insulation (R-value)	Solar absorbptance	Roof Colour
ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	1.30	0.50	Medium

Thermal bridging schedule for steel frame elements

Building element	Steel section dimensions (height x width, mm)	Frame spacing (mm)	Steel thickness (BMT mm)	Thermal Break (R-value)
None				

* Refer to glossary.

Explanatory Notes

About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the home's energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary.

Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and

are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings 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, behaviour, appliance performance, indoor air temperature and local climate.

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

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
AFRC	Australian Fenestration Rating Council
Assessed floor area	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.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, 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.
Conditioned	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.
COP	Coefficient of performance
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
EER	Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input
Energy use	This is your home's rating without solar or batteries.
Energy value	The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard).
Entrance door	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.
Exposure	see exposure categories below
Exposure category - exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category - open	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).
Exposure category - suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category - protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	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 www.abcb.gov.au .
Net zero home	a home that achieves a net zero energy value*.
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	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 www.nathers.gov.au
Recommended capacity	this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person.
Reflective wrap (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.
Roof window	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.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	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.
Skylight (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.
STCs	Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory
Thermal breaks	are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions
Vertical shading features	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).
Window shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies)

* Refer to glossary.