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NATHERS ENERGY REPORT (FOR REVIEW)

21-23 Ellis Street, Condell Park

Dated: 20 May 2022

Methodology

The purpose of this report is to assess the thermal performance of the development located at **21-23 Ellis Street, Condell Park**. NatHERS Accredited Energy rating software has been used to ascertain the heating and cooling loads (shown in Mj/m^2) which ultimately determine a star rating.

FirstRate5 & HERO are accredited software packages under The Nationwide Home Energy Rating Scheme (NatHERS) and is qualified to perform the rating as per the requirements of The National Construction Code (NCC) Part 3.12, using NatHERS accredited software to achieve the specified star rating and contribute to the *Alternative Performance Solution* as per NCC part 3.12.0 (a)(i).

The heating and cooling scores show how much heat energy must be added or removed to maintain comfortable conditions within the home. They are based on a standard set of occupancy conditions used for rating purposes only. They do not reflect actual energy consumption and should not be used for calculating heating and cooling system requirements.

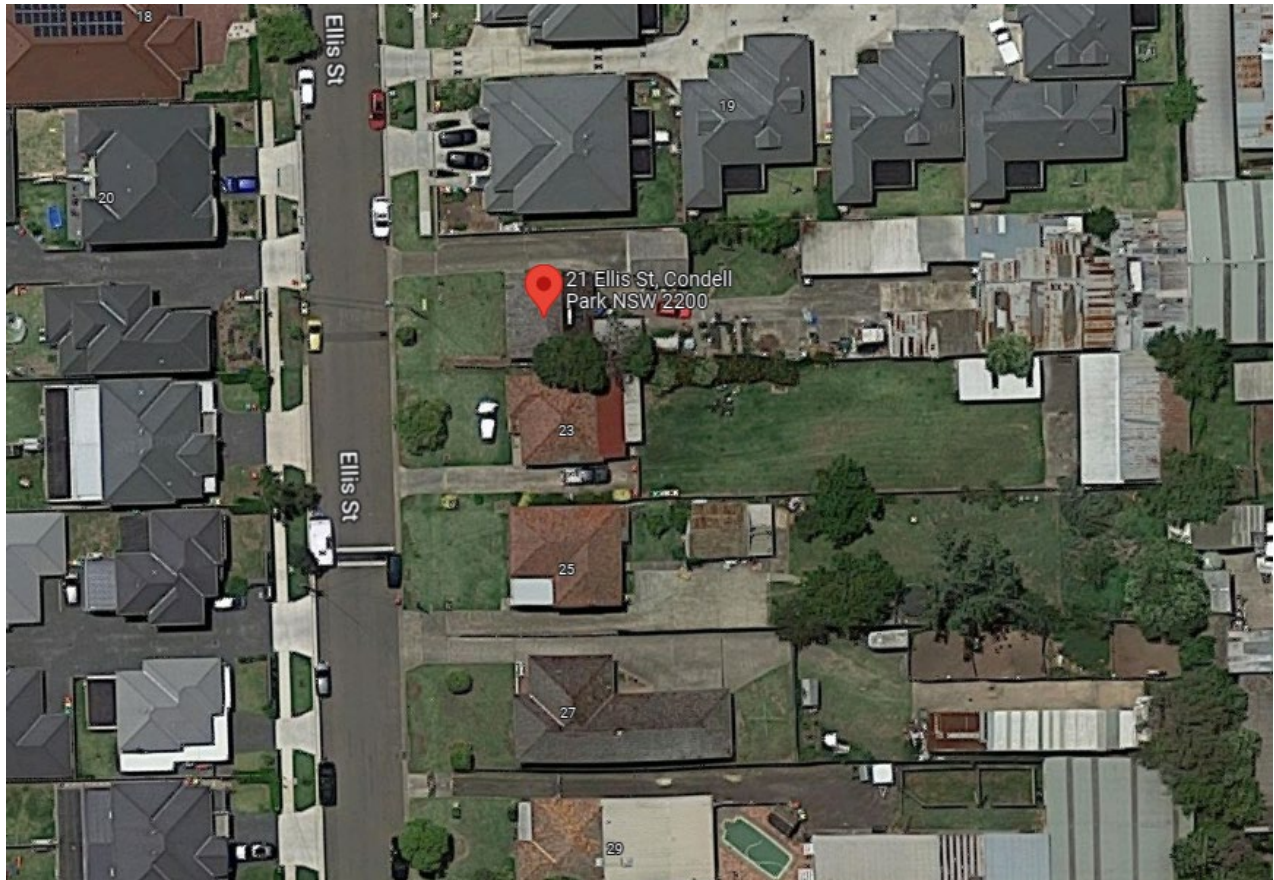


Assessment Details:
Assessor Name: Ayden Frigerio Assessor Accreditation: DMN/20/1956 Accredited Softwares: FirstRate5 & HERO (Home Energy Rating Optimisation) Signed: <i>Ayden</i>
Documentation Details:
Project: 0000 Revision: REV-C 02.03.2022 ISSUE FOR TENDER, NOT FOR CONSTRUCTION Sheets: A01-A26

Development Information

The proposed development involves the construction of a Class 1a Building(s). The project is situated at the location of **21-23 Ellis Street, Condell Park**. Situated in a developed residential area and surrounded by existing homes and established vegetation, the development is in an area of *Suburban Exposure*, as per NatHERS tech note (category 3 wind-shielding).

The aerial image below depicts the existing neighbouring buildings at the time of this rating, which along with the documentation, will be considered in the assessment as potential shading screens, as per NatHERS tech note (part 10.12).



Building Fabric: NCC- Part 3.12.1

The basic building structural elements and components of a building including the roof, ceilings, walls and floors. These building elements are to be installed with a minimum of the added insulation values specified below:

- Refer to Building Fabric Specification Below

External Glazing: NCC - Part 3.12.2

The following performance values need to be achieved for each window system, as specified on plans.

- Refer to Building Fabric Specification Below

Building Sealing: NCC - Part 3.12.3

Building sealing procedures are to be as following:

- Mitigation of air leakage is paramount and must be considered in construction of all building elements. Unnoticed air leakage, drafts caused by poorly sealed external openings and construction gaps can affect the building occupants' sense of comfort, causing them to increase the use of artificial heating and cooling.
- All roofs, walls, floors etc are to be constructed in a manner that will minimise air leakage and all external doors and windows are to be adequately sealed by foam or rubber materials to prevent any air infiltration,
- Exhaust fans, Rangehoods should have an inbuilt draught seal or dampers, which should be self-close when the fan is not in operation. A chimney or flue serving an open solid fuel burning appliance is required to have a damper or flap fitted that can be closed (may be operated by the occupants)
- External door seals - for an effective seal, compression seals or bulb seals should be fitted to the door jamb, at the head and sides. (refer to general notes and NCC 2019: Volume 2: Part 3.12.3 Building Sealing, for strategies that may be employed).
- Weather-strips can be factory fitted or installed on site.
- Recessed downlights - All internal recessed downlights to be sealed.

Air Movement: NCC - Part 3.12.4

Air movement has been assessed as part of the NatHERS assessment and has been taken into consideration as part of this star rating.

Services: NCC - Part 3.12.5

No heating or cooling services have been considered as part of this NatHERS assessment. It is assumed any mechanical ventilation systems requiring compliance to NCC will be addressed by the projects mechanical engineer.

Artificial lighting and power is to be limited throughout the building, a sufficient electrical design has been provided on plans and shows compliance to the NCC.

Rainwater tanks and solar hot water heater systems

All new Class 1 buildings require:

- A rainwater tank (minimum capacity of 2000 litres) connected to all toilets in the building for the purpose of sanitary flushing;

Or

- A solar water heater system installed in accordance with the Plumbing Regulations 2008 (the Plumbing Regulations)



Dwelling 1 Building Fabric Specifications			
STAR RATING ACHIEVED	CALCULATED HEATING	CALCULATED COOLING	TOTAL HEATING & COOLING mj/m ²
5.3 ☆	39.9	21.8	61.7
Basix Compliance Achieved: ☒			
Floor Construction Type:		MIN. INSULATION REQUIRED (Excluding Class 10a Areas if applicable)	
Concrete Slab on Ground:		R1.1 Rigid Insulation Required	
First Floor Areas over Garage:		R2.5 Bulk Insulation Required	
Cantilevering Floors:		R2.5 Bulk Insulation Required	
Between Floor Levels Remaining:		None Required	
Wall Construction Type:		MIN. INSULATION REQUIRED (Excluding Class 10a Areas if applicable)	
Double Brick Walls:		None Required	
Internal Walls:		None Required	
Roof and/or Ceiling Type:		MIN. INSULATION REQUIRED (Excluding Class 10a Areas if applicable)	
Pitched Tiled Continuous Roof:		R5.0 Bulk + Reflective Foil Insulation Required	
Flat Framed Roof:		R3.5 Bulk + R1.3 Reflective Blanket Insulation Required	
Windows: (Aluminium – Default)		GLAZING REQUIREMENTS	
French Doors (Double Glazed)		U-Value Required – 4.10 or lower SHGC Value Required – 0.47 (+/- 5%)	
Fixed & Sliding (Double Glazed)		U-Value Required – 4.10 or lower SHGC Value Required – 0.52 (+/- 5%)	

ADDITIONAL DETAILS & CLAUSES

- All Exhaust fans are to be sealed
- All Downlights are to be sealed & min. 50mm Clearance around unless IC-4 Rated specified
- All Windows & Doors are to be weather sealed appropriately
- This document is only a **guide** to the building fabric; NatHERS Certificates supersede this document & should be primarily referred too;

Nationwide House Energy Rating Scheme

NatHERS Certificate No. #HR-7U2XTE-01

Generated on 20 May 2022 using Hero 2.0

Property

Address Unit A, 21-23 Ellis Street, Condell Park, NSW, 2200

Lot/DP

NCC Class* 1a

Type New

Plans

Main Plan FB0022 / REV - 12.05.22

Prepared by Femme Build

Construction and environment

Assessed floor area (m ²)*	Exposure Type
Conditioned* 294.6	Suburban
Unconditioned* 16.3	NatHERS climate zone
Total 343.7	56 - Mascot AMO
Garage 32.8	



Accredited assessor

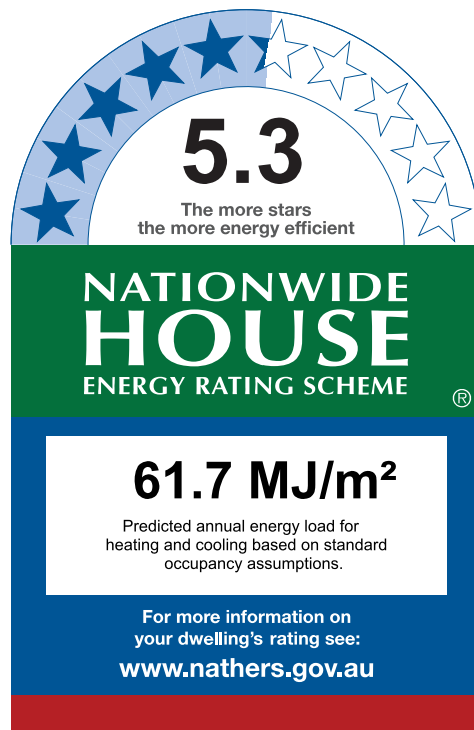
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Accreditation No.	DMN/20/1956
Assessor Accrediting Organisation	DMN
Declaration of interest	Conflict of Interest (Managed)

National Construction Code (NCC) requirements

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

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

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



Thermal Performance

Heating	Cooling
39.9	21.8
MJ/m ²	MJ/m ²

About the rating

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

Verification

To verify this certificate, scan the QR code or visit <http://www.hero-software.com.au/pdf/HR-7U2XTE-01>. When using either link, ensure you are visiting <http://www.hero-software.com.au>



* Refer to glossary.

Certificate Check

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

Genuine certificate

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

Ceiling penetrations*

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

Windows

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

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

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-005-03 A	Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.10	0.47	0.45	0.49
ALM-006-03 A	Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.10	0.52	0.49	0.55

Custom* windows

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

Window and glazed door schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bath	ALM-006-03 A	W25-1	530	1570	Sliding	45	SSW	None
Bath	ALM-006-03 A	W25-2	415	1570	Fixed	0	SSW	None



Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bed 2	ALM-005-03 A	W03	2100	1090	French	90	WNW	None
Bed 2	ALM-005-03 A	W04	2100	1090	French	90	WNW	None
Bed 3	ALM-005-03 A	W05	2100	1090	French	90	WNW	None
Bed 3	ALM-005-03 A	W06	2100	1090	French	90	WNW	None
Bed 4	ALM-006-03 A	W08-1	500	2650	Sliding	45	NNE	None
Bed 4	ALM-006-03 A	W08-2	445	2650	Fixed	0	NNE	None
Bed 5	ALM-006-03 A	W09-1	500	2650	Sliding	45	NNE	None
Bed 5	ALM-006-03 A	W09-2	445	2650	Fixed	0	NNE	None
Dining	ALM-005-03 A	W15	2400	1090	French	90	NNE	None
Dining	ALM-005-03 A	W16	2400	1090	French	90	NNE	None
Ens - GUEST	ALM-006-03 A	W13	945	1090	Sliding	45	NNE	None
Ens - Master	ALM-006-03 A	W11-1	500	1090	Sliding	45	NNE	None
Ens - Master	ALM-006-03 A	W11-2	1000	1090	Fixed	0	NNE	None
Garage	ALM-006-03 A	W23	600	2890	Sliding	30	SSW	None
Guest Bed	ALM-006-03 A	W12	2100	2890	Sliding	60	NNE	None
Kitchen/Dining/Family	ALM-006-03 A	W28	2100	4090	Sliding	45	ESE	None
Kitchen/Dining/Family	ALM-005-03 A	W18	2100	1090	French	90	SSW	None
Kitchen/Dining/Family	ALM-005-03 A	W19	2100	1090	French	90	SSW	None
Kitchen/Dining/Family	ALM-006-03 A	W20	600	3650	Fixed	0	SSW	None
Kitchen/Dining/Family	ALM-006-03 A	W17	2100	4810	Sliding	45	NNE	None
L'dry	ALM-006-03 A	W22	2100	610	Fixed	0	SSW	None
Living	ALM-005-03 A	W01	2400	1090	French	90	WNW	None
Living	ALM-005-03 A	W02	2400	1090	French	90	WNW	None
Master	ALM-006-03 A	W10-1	500	2650	Sliding	45	NNE	None
Master	ALM-006-03 A	W10-2	445	2650	Fixed	0	NNE	None
Master	ALM-006-03 A	W27	2400	3610	Sliding	45	ESE	None
Retreat	ALM-006-03 A	W26	2400	3610	Sliding	60	ESE	None

* Refer to glossary.

Window and glazed door schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Shading device*
Retreat	ALM-006-03 A	W24	600	4090	Sliding	45	SSW	None
Entry/Stairs	ALM-006-03 A	W07	2100	1090	Fixed	0	WNW	None
WC	ALM-006-03 A	W14	945	1090	Sliding	45	NNE	None
WIP	ALM-006-03 A	W21	1200	1210	Sliding	45	SSW	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)	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
Entry/Stairs	2700	1220	90	WNW
Garage	2400	5770	90	WNW
Garage	2400	820	90	ESE

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
L'dry	2400	820	90	SSW

External wall *type*

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
DBL-BRICK-110-110-EXP	DBL-BRICK-110-110-EXP: Double Brick - 110mm/110mm Exposed	0.50	Medium	0.16	No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* projection (mm)	Vertical shading feature
Bath	DBL-BRICK-110-110-EXP	2700	3793	SSW	573	No
Bed 2	DBL-BRICK-110-110-EXP	2700	5462	SSW	573	No
Bed 2	DBL-BRICK-110-110-EXP	2700	3781	WNW	573	Yes
Bed 3	DBL-BRICK-110-110-EXP	2700	2984	NNE	572	Yes
Bed 3	DBL-BRICK-110-110-EXP	2700	4334	WNW	573	Yes
Bed 3	DBL-BRICK-110-110-EXP	2700	1497	SSW	6186	Yes
Bed 4	DBL-BRICK-110-110-EXP	2700	3200	NNE	588	Yes
Bed 5	DBL-BRICK-110-110-EXP	2700	3802	NNE	573	Yes
Dining	DBL-BRICK-110-110-EXP	3300	3500	NNE		Yes
Ens - GUEST	DBL-BRICK-110-110-EXP	3300	1190	NNE		Yes
Ens - Master	DBL-BRICK-110-110-EXP	2700	2719	NNE	573	Yes
Entry/Stairs	DBL-BRICK-110-110-EXP	3300	1567	WNW	1557	Yes
Garage	DBL-BRICK-110-110-EXP	3400	5485	SSW		Yes
Garage	DBL-BRICK-110-110-EXP	3400	5982	WNW	1511	Yes
Garage	DBL-BRICK-110-110-EXP	3400	2198	ESE	2193	Yes
Guest Bed	DBL-BRICK-110-110-EXP	2400	3896	NNE		Yes
Guest Bed	DBL-BRICK-110-110-EXP	2400	3857	ESE	3365	Yes
Kitchen/Dining/Family	DBL-BRICK-110-110-EXP	2400	5991	ESE	4996	Yes
Kitchen/Dining/Family	DBL-BRICK-110-110-EXP	2400	11764	SSW		Yes
Kitchen/Dining/Family	DBL-BRICK-110-110-EXP	2400	8377	NNE	4007	Yes

* Refer to glossary.

L'dry	DBL-BRICK-110-110-EXP	3300	2275	SSW	2243	Yes
Living	DBL-BRICK-110-110-EXP	3300	5114	NNE		Yes
Living	DBL-BRICK-110-110-EXP	3300	4340	WNW		Yes
Living	DBL-BRICK-110-110-EXP	3300	1528	SSW	1699	Yes
Master	DBL-BRICK-110-110-EXP	2700	4001	NNE	573	Yes
Master	DBL-BRICK-110-110-EXP	2700	4755	ESE	2572	Yes
Retreat	DBL-BRICK-110-110-EXP	2700	5077	ESE	2572	Yes
Retreat	DBL-BRICK-110-110-EXP	2700	6190	SSW	572	No
Entry/Stairs	DBL-BRICK-110-110-EXP	2700	1600	WNW	2070	Yes
WC	DBL-BRICK-110-110-EXP	3300	1709	NNE		Yes
WIP	DBL-BRICK-110-110-EXP	2400	2862	SSW		Yes

Internal wall type

Wall ID	Wall Type	Area (m ²)	Bulk insulation
INT-PB	Internal Plasterboard Stud Wall	131.0	0.00
SGL-BRICK-110-EXP	Single 110mm Brick Wall - Exposed	147.5	0.00

Floor type

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bath	TIMB-002: Suspended Timber Floor - Lined Below	6.0	N/A	0.00	Tile
Bed 2	TIMB-002: Suspended Timber Floor - Lined Below	20.6	N/A	2.50	Carpet
Bed 2	TIMB-002: Suspended Timber Floor - Lined Below	0.1	N/A	0.00	Carpet
Bed 3	TIMB-002: Suspended Timber Floor - Lined Below	12.9	N/A	0.00	Carpet
Bed 4	TIMB-002: Suspended Timber Floor - Lined Below	11.2	N/A	0.00	Carpet
Bed 5	TIMB-002: Suspended Timber Floor - Lined Below	11.3	N/A	0.00	Carpet
Dining	CSOG-100: Concrete Slab on Ground (100mm)	15.2	N/A	1.10	Timber
Ens - GUEST	CSOG-100: Concrete Slab on Ground (100mm)	6.0	N/A	1.10	Tile
Ens - Master	TIMB-002: Suspended Timber Floor - Lined Below	7.5	N/A	0.00	Tile

Entry/Stairs	CSOG-100: Concrete Slab on Ground (100mm)	23.7	N/A	1.10	Timber
Garage	CSOG-100: Concrete Slab on Ground (100mm)	32.8	N/A	0.00	Exposed
Guest Bed	CSOG-100: Concrete Slab on Ground (100mm)	15.0	N/A	1.10	Carpet
Kitchen/Dining/Family	CSOG-100: Concrete Slab on Ground (100mm)	72.9	N/A	1.10	Timber
L'dry	CSOG-100: Concrete Slab on Ground (100mm)	6.1	N/A	1.10	Tile
Living	CSOG-100: Concrete Slab on Ground (100mm)	22.2	N/A	1.10	Timber
Master	TIMB-002: Suspended Timber Floor - Lined Below	18.3	N/A	0.00	Carpet
Master	TIMB-002: Suspended Timber Floor - Lined Below	6.1	N/A	2.50	Carpet
Retreat	TIMB-002: Suspended Timber Floor - Lined Below	44.5	N/A	0.00	Carpet
WC	CSOG-100: Concrete Slab on Ground (100mm)	4.2	N/A	1.10	Tile
WIP	CSOG-100: Concrete Slab on Ground (100mm)	7.2	N/A	1.10	Timber

Ceiling type

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Bath	ATTIC-CONCTILE-01: Pitched / Attic Conc Tiled Roof (Roofspace) + Flat PB Ceiling	5.00	Yes
Bed 2	ATTIC-CONCTILE-01: Pitched / Attic Conc Tiled Roof (Roofspace) + Flat PB Ceiling	5.00	Yes
Bed 3	ATTIC-CONCTILE-01: Pitched / Attic Conc Tiled Roof (Roofspace) + Flat PB Ceiling	5.00	Yes
Bed 4	ATTIC-CONCTILE-01: Pitched / Attic Conc Tiled Roof (Roofspace) + Flat PB Ceiling	5.00	Yes
Bed 5	ATTIC-CONCTILE-01: Pitched / Attic Conc Tiled Roof (Roofspace) + Flat PB Ceiling	5.00	Yes
Dining	FLAT-01: Flat Framed / Skillion Metal Roof + Flat Ceiling	3.50	Yes
Ens - GUEST	FLAT-01: Flat Framed / Skillion Metal Roof + Flat Ceiling	3.50	Yes
Ens - Master	ATTIC-CONCTILE-01: Pitched / Attic Conc Tiled Roof (Roofspace) + Flat PB Ceiling	5.00	Yes
Entry/Stairs	FLAT-01: Flat Framed / Skillion Metal Roof + Flat Ceiling	3.50	Yes
Garage	FLAT-01: Flat Framed / Skillion Metal Roof + Flat Ceiling	0.00	Yes
Guest Bed	FLAT-01: Flat Framed / Skillion Metal Roof + Flat Ceiling	3.50	Yes
Kitchen/Dining/Family	FLAT-01: Flat Framed / Skillion Metal Roof + Flat Ceiling	3.50	Yes
L'dry	FLAT-01: Flat Framed / Skillion Metal Roof + Flat Ceiling	3.50	Yes

* Refer to glossary.

Living	FLAT-01: Flat Framed / Skillion Metal Roof + Flat Ceiling	3.50	Yes
Master	ATTIC-CONCTILE-01: Pitched / Attic Conc Tiled Roof (Roofspace) + Flat PB Ceiling	5.00	Yes
Retreat	ATTIC-CONCTILE-01: Pitched / Attic Conc Tiled Roof (Roofspace) + Flat PB Ceiling	5.00	Yes
Entry/Stairs	ATTIC-CONCTILE-01: Pitched / Attic Conc Tiled Roof (Roofspace) + Flat PB Ceiling	5.00	Yes
WC	FLAT-01: Flat Framed / Skillion Metal Roof + Flat Ceiling	3.50	Yes
WIP	FLAT-01: Flat Framed / Skillion Metal Roof + Flat Ceiling	3.50	Yes

Ceiling penetrations*

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bath	1	Exhaust Fan	300	Sealed
Ens - GUEST	1	Exhaust Fan	300	Sealed
Ens - Master	1	Exhaust Fan	300	Sealed

Ceiling fans

Location	Quantity	Diameter (mm)
None		

Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof Colour
ATTIC-CONCTILE-01: Pitched / Attic Conc Tiled Roof (Roofspace) + Flat PB Ceiling	0.00	0.50	Medium
FLAT-01: Flat Framed / Skillion Metal Roof + Flat Ceiling	0.00	0.50	Medium
FLAT-01: Flat Framed / Skillion Metal Roof + Flat Ceiling	1.30	0.50	Medium

Explanatory Notes

About this report

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

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

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

Accredited assessors

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

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

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

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

Disclaimer

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

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

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

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

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
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, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
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.
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.
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 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 .
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
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 device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
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.
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).