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NatHERS Assessment

Canvas Architecture & Design
Proposed Residential Development

To be built at 14 Kristine Place Mna Vale

Issue	File Ref	Description	Author	Date
A	23-4432R	NatHERS Thermal Comfort Assessment	PM	26/09/23

This report has been prepared by Efficient Living Pty Ltd on behalf of our client Canvas Architecture and Design. Efficient Living prepares all reports in accordance with the BASIX Thermal Comfort Protocol and is backed by professional indemnity insurance. This report takes into account our Client's instructions and preferred building inclusions.

If there is a change to this specification during design or construction phases, please contact Efficient Living and quote the above file reference for advice, and to obtain an updated Certificate if required.

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26 September 2023

Canvas Architecture and Desgin
14 Kristine Place Mna Vale

Assessor: Pavithra Muruganandam
Email: pavithra@efficientliving.com.au

License Holder: Stefanie Simpson
Accreditation Number: HERA10035

NatHERS Thermal Comfort Inclusions

External Floors

Concrete Slab on Ground

Suspended Timber floor (enclosed) with R3.0 (insulation only value)

Internal Floors

Suspended Timber floor between levels

External Walls

FC Cladding with R3.0 (insulation only value)

Reverse brick veneer with R2.86 (insulation only value)

No insulation to garage walls

External Colour:

Medium (SA 0.475 – 0.70)

Walls within dwellings

Plasterboard on studs with R2.5 to internal garage walls and walls between bathroom and habitable rooms

Plasterboard on studs with R2.0 to partition wall between main dwelling

Glazing Doors/Windows

Bifold doors:
U-value: 4.8 (equal to or lower than) SHGC: 0.34 (±10%)

Sliding windows:
U-value: 4.8 (equal to or lower than) SHGC: 0.34 (±10%)

Louvres:
U-value: 5.6 (equal to or lower than) SHGC: 0.41 (±10%)

Given values are AFRC total window system values (glass and frame)

Roof and Ceilings

Metal roof

Plasterboard ceiling with R4.0 insulation (insulation only value) where metal roof above

Plasterboard ceiling with R2.5 insulation (insulation only value) to Garage ceiling

External Colour

Dark (SA > 0.70)

Ceiling Penetrations

Sealed LED downlights not to exceed NatHERS certificate

LED recessed downlights (sealed and insulated) included at a rate of 1 per 5m^2

Exhaust fans (sealed and insulated) included to all bathrooms and kitchen

1500mm ceiling fan to Ground floor Living and First floor study area

Floor coverings

Tiles to bathroom and Timber elsewhere

External Shading

Shading as per stamped drawings

Ventilation

All external doors have weather seals, all exhaust fans and chimneys have dampers, and down lights proposed will have capped fittings.

Nationwide House Energy Rating Scheme
NatHERS Certificate No. #HR-6DYSBC-01

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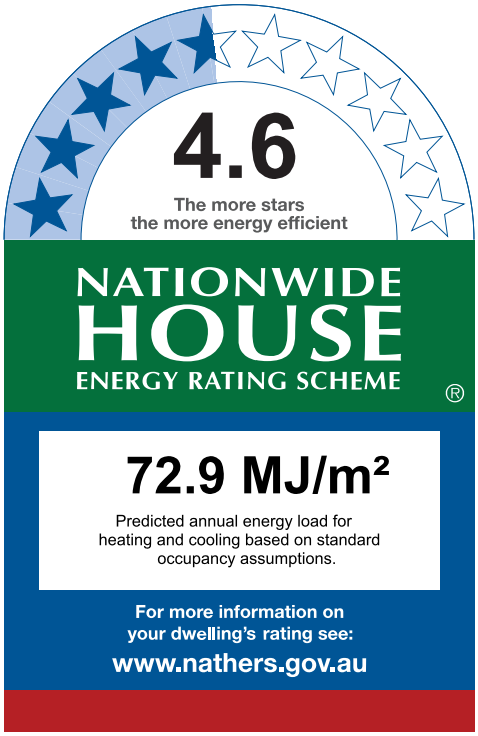

Property

Address	14 Kristine Place, MONA VALE, NSW, 2103
Lot/DP	11/242690
NCC Class*	1a
Type	New

Plans

Main Plan	2202: SULLMAN
Prepared by	CANVAS

Construction and environment

Assessed floor area (m²)*		**Exposure Type**
Conditioned*	58.7	Suburban
Unconditioned*	18.6	**NatHERS climate zone**
Total	95.0	56 - Mascot AMO
Garage	17.7	

Thermal Performance

Heating	**Cooling**
46.8	**26.2**
MJ/m²	MJ/m²

Accredited assessor

Name	Stefanie Simpson
Business name	Efficient Living
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Phone	+61 299706181
Accreditation No.	10035
Assessor Accrediting Organisation	HERA
Declaration of interest	No Conflict of Interest

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-6DYSBC-01. When using either link, ensure you are visiting http://www.hero-software.com.au

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.

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

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

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-002-04 A	Aluminium B SG Low Solar Gain Low-E	5.60	0.41	0.39	0.43
ALM-005-04 A	Aluminium A DG Argon Fill Low Solar Gain low-E -Clear	4.80	0.34	0.32	0.36
ALM-006-04 A	Aluminium B DG Argon Fill Low Solar Gain low-E -Clear	4.80	0.34	0.32	0.36

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*

* Refer to glossary.

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bath	ALM-006-04 A	W03	810	1435	Sliding	45	ENE	None
Bed 1	ALM-006-04 A	W02	810	1800	Sliding	45	ENE	None
Bed 1	ALM-006-04 A	W01	1640	1610	Sliding	45	SSE	None
BedroomVoid	ALM-006-04 A	W08	1640	1800	Sliding	45	ENE	None
BedroomVoid	ALM-006-04 A	W07	1640	1610	Sliding	45	SSE	None
Kitchen/Living 1	ALM-002-04 A	W04	2010	1800	Louvre	90	ENE	None
Kitchen/Living 1	ALM-005-04 A	D02-B	2400	4037	Bi-fold	90	WSW	None
Storage	ALM-002-04 A	W12	1500	800	Louvre	90	WSW	None
Storage	ALM-002-04 A	W14	1500	800	Louvre	90	WSW	None
Study	ALM-006-04 A	W11	1640	1800	Sliding	45	WSW	None
Study	ALM-006-04 A	W10	1640	1800	Sliding	45	ENE	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	

* Refer to glossary.

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
Garage	3080	2600	90	SSE
Garage	2040	900	90	WSW
Kitchen/Living 1	2040	900	90	WSW
Study	2040	900	90	WSW

External wall *type*

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
FC-NONREFL-CAV-A	Fibre-Cement Clad Battened (Non-Refl Cavity) Stud Wall	0.50	Medium	3.00	No
FC-NONREFL-CAV-B	Fibre-Cement Clad Battened (Non-Refl Cavity) Stud Wall	0.50	Medium	0.00	No
REV-VEN-WB-NONREFLCAV-PB-A	Reverse Brick Veneer - Weatherboard Clad Non-Refl Cavity - PB Internally	0.50	Medium	2.86	No
REV-VEN-WB-NONREFLCAV-PB-B	Reverse Brick Veneer - Weatherboard Clad Non-Refl Cavity - PB Internally	0.50	Medium	0.00	No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orient-ation	Horizontal shading feature* projection (mm)	Vertical shading feature
Bath	FC-NONREFL-CAV-A	2960	478	ENE		Yes
Bath	REV-VEN-WB-NONREFLCAV-PB-A	2660	2174	ENE		Yes
Bed 1	REV-VEN-WB-NONREFLCAV-PB-A	2960	2970	ENE		Yes
Bed 1	FC-NONREFL-CAV-A	2960	4075	SSE	863	Yes
BedroomVoid	FC-NONREFL-CAV-A	2610	2961	ENE	448	No
BedroomVoid	FC-NONREFL-CAV-A	2610	2647	SSE	477	No
Garage	REV-VEN-WB-NONREFLCAV-PB-B	3640	949	NNW		Yes
Garage	FC-NONREFL-CAV-B	3640	3028	SSE		Yes
Garage	FC-NONREFL-CAV-B	3640	402	WSW		Yes

* Refer to glossary.

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orient-ation	Horizontal shading feature* projection (mm)	Vertical shading feature
Garage	FC-NONREFL-CAV-B	3640	903	ENE	4188	Yes
Garage	REV-VEN-WB-NONREFLCAV-PB-B	3640	1161	NNW	5312	Yes
Garage	REV-VEN-WB-NONREFLCAV-PB-B	3640	5437	WSW		Yes
Kitchen/Living 1	FC-NONREFL-CAV-A	2660	4599	ENE		Yes
Kitchen/Living 1	FC-NONREFL-CAV-A	2660	1160	WSW	988	Yes
Kitchen/Living 1	FC-NONREFL-CAV-A	2660	4191	WSW	988	Yes
Kitchen/Living 1	FC-NONREFL-CAV-A	955	5098	NNW		No
Storage	FC-NONREFL-CAV-A	2610	951	NNW		Yes
Storage	FC-NONREFL-CAV-A	2610	3028	SSE	469	No
Storage	FC-NONREFL-CAV-A	2610	4936	WSW		No
Storage	FC-NONREFL-CAV-A	2610	1159	NNW	5439	Yes
Study	FC-NONREFL-CAV-A	2610	5351	WSW	992	Yes
Study	FC-NONREFL-CAV-A	2610	3649	NNW		No
Study	FC-NONREFL-CAV-A	2610	7343	ENE	450	No

Internal wall *type*

Wall ID	Wall Type	Area (m^2)	Bulk insulation
INT-PB	Internal Plasterboard Stud Wall	44.7	2.50
INT-PB	Internal Plasterboard Stud Wall	8.6	0.00
PARTYWALL-PB1	Partywall Plasterboard Stud Wall	8.9	2.00

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bath	TIMB-001: Suspended Timber Floor	3.6	Enclosed (Disc.)	3.00	Tile
Bed 1	TIMB-001: Suspended Timber Floor	12.1	Enclosed (Disc.)	3.00	Timber
BedroomVoid	TIMB-001: Suspended Timber Floor	7.8	N/A	0.15	Timber

* Refer to glossary.

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage	CSOG-150: Concrete Slab on Ground (150mm)	17.7	N/A	0.00	Timber
Kitchen/Living 1	TIMB-001: Suspended Timber Floor	31.4	Enclosed (Disc.)	3.00	Timber
Storage	TIMB-001: Suspended Timber Floor	14.9	N/A	2.50	Timber
Study	TIMB-001: Suspended Timber Floor	24.8	N/A	0.15	Timber

Ceiling *type*

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Bath	FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	4.00	No
Bed 1	FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	4.00	No
BedroomVoid	FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	4.00	No
Garage	FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	0.00	No
Kitchen/Living 1	FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	4.00	No
Storage	FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	4.00	No
Study	FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	4.00	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bath	1	Downlight	100	Sealed
Bath	1	Exhaust Fan	250	Sealed
Bed 1	3	Downlight	100	Sealed
BedroomVoid	2	Downlight	100	Sealed
Kitchen/Living 1	7	Downlight	100	Sealed
Kitchen/Living 1	1	Exhaust Fan	250	Sealed
Study	5	Downlight	100	Sealed

* Refer to glossary.

Ceiling *fans*

Location	Quantity	Diameter (mm)
Kitchen/Living 1	1	1500
Study	1	1500

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof Colour
FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	0.00	0.85	Dark

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).

* Refer to glossary.