Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0007838212

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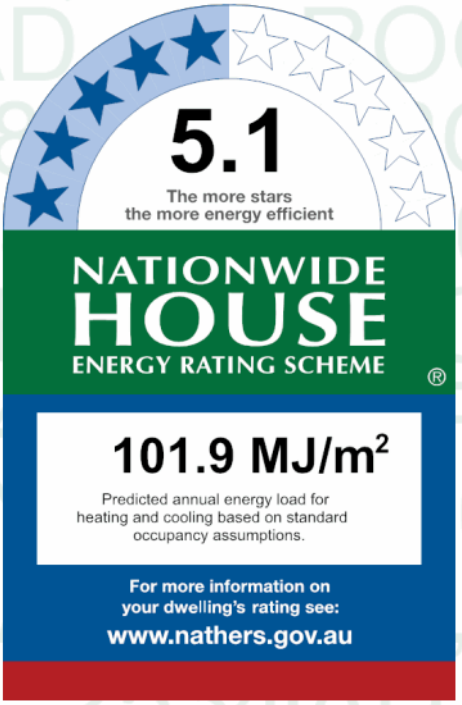

Property

Address	Unit SCND, 16 Crooked River Road , Gerroa , NSW , 2534
Lot/DP	201/1022563
NCC Class*	1A
Type	New Dwelling

Plans

Main Plan	REV 9
Prepared by	FUTURE FLIP

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	234.0	Exposed
Unconditioned*	0.0	**NatHERS climate zone**
Total	234.0	18
Garage	0.0	

Thermal performance

Heating	Cooling
70.6	**31.3**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Abbas Chatrfirouzeh
Business name	SYMEC Group Pty. Ltd. T/As SDS Engineering
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Accreditation No.	101512
Assessor Accrediting Organisation	ABSA
Declaration of interest	Declaration completed: no conflicts

About the rating

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

Verification

To verify this certificate, scan the QR code or visit hstar.com.au/QR/Generate?p=aenkUtnqx.
When using either link, ensure you are visiting hstar.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.

Certificate check

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

Genuine certificate

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

Ceiling penetrations*

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

Windows

Does the installed window meet the substitution tolerances (SHGC and U-value) and window type, of the window shown on this Certificate? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

Additional notes

I have modeled the shading in accordance with NatHERS principles

Window and glazed door *type and performance*

Default* windows

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

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
BRD-041-11 A	BRD-041-11 A SIG Fixed Lite Externally Glazed (125mm) SG 638CPClr	4.2	0.60	0.57	0.63
BRD-033-10 A	BRD-033-10 A ESS Sliding Door (80mm) SG 6.38CPClr	4.3	0.60	0.57	0.63
BRD-081-02 A	BRD-081-02 A Signature Awning Window 100 SG 6.38CPNtl	5.5	0.40	0.38	0.42
BRD-043-06 A	BRD-043-06 A SIG Louvre Window (125mm) SG 6EA	4.5	0.52	0.49	0.55

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
BRD-083-04 A	BRD-083-04 A Signature Entry Door 125 SG 6.38CPClr	4.2	0.51	0.48	0.54

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
KIT/DIN/LIV	BRD-041-11 A	n/a	2400	750	n/a	00	SE	No
KIT/DIN/LIV	BRD-033-10 A	n/a	2400	4800	n/a	45	SE	No
KIT/DIN/LIV	BRD-081-02 A	n/a	1500	2100	n/a	90	NW	No
KIT/DIN/LIV	BRD-081-02 A	n/a	1500	1954	n/a	90	NE	No
KIT/DIN/LIV	BRD-033-10 A	n/a	2400	7666	n/a	45	NE	No
KIT/DIN/LIV	BRD-041-11 A	n/a	2400	750	n/a	00	NE	No
BED 1	BRD-033-10 A	n/a	2400	4400	n/a	45	SE	No
BED 2	BRD-043-06 A	n/a	2400	1200	n/a	90	SW	No
KIT/DIN/LIV	BRD-041-11 A	n/a	2400	2100	n/a	00	NW	No
KIT/DIN/LIV	BRD-083-04 A	n/a	2400	1500	n/a	90	NW	No
BED 4	BRD-043-06 A	n/a	1500	4670	n/a	59	SE	No
BED 4	BRD-041-11 A	n/a	1784	3800	n/a	00	NE	No
BED 3	BRD-043-06 A	n/a	1500	4670	n/a	59	SE	No
LOFT	BRD-041-11 A	n/a	2100	1075	n/a	00	NE	No
void	BRD-041-11 A	n/a	2458	6599	n/a	00	NE	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
VEL-011-01 W	Glass	2.6	0.24	0.23	0.25

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
LOFT	VEL-011-01 W	n/a	0	1100	1200	NW	No	No
void	VEL-011-01 W	n/a	0	1100	1200	NW	No	No

* Refer to glossary.

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
void	VEL-011-01 W	n/a	0	1100	1200	NW	No	No
void	VEL-011-01 W	n/a	0	1100	1200	NW	No	No

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m^2)	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
No Data Available				

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-1	Fibro Cavity Panel Direct Fix	0.33	Light	Foil reflective both sides of the Bulk Insulation R2.5	Yes
EW-2	Fibro Cavity Panel Direct Fix	0.33	Light	Foil reflective both sides of the Bulk Insulation R2.5	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
KIT/DIN/LIV	EW-1	2750	6995	SE	2400	NO
KIT/DIN/LIV	EW-1	2750	1100	SW	6400	YES
KIT/DIN/LIV	EW-1	2750	1300	NW	0	NO
KIT/DIN/LIV	EW-1	2751	2100	NW	300	NO
KIT/DIN/LIV	EW-1	2750	1700	NW	0	NO
KIT/DIN/LIV	EW-1	2751	300	NE	0	NO
KIT/DIN/LIV	EW-1	2750	12600	NE	0	NO
KIT/DIN/LIV	EW-1	2751	200	NE	0	NO
BED 1	EW-1	2750	4495	SE	2400	NO
BED 1	EW-1	2750	3495	SW	0	NO
BED 2	EW-1	2750	3590	SW	0	NO
ENS BED 2	EW-1	2750	1790	SW	0	NO

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
KIT/DIN/LIV	EW-1	2750	1295	SW	0	NO
KIT/DIN/LIV	EW-1	2750	6395	NW	2100	YES
BED 4	EW-1	2100	5695	SE	0	NO
BED 4	EW-1	2100	4595	NE	4000	NO
BED 3	EW-1	2100	5795	SE	0	NO
BED 3	EW-1	2100	5295	SW	0	NO
LOFT	EW-1	2500	1890	NE	4000	NO
LOFT	EW-1	2100	6695	SW	0	NO
LOFT	EW-1	2100	4495	NW	1200	NO
WIR BED 1	EW-1	2750	1790	SW	0	NO
void	EW-2	2100	1895	NW	1200	YES
void	EW-2	2100	1100	SW	6400	YES
void	EW-2	2100	5100	NW	100	NO
void	EW-2	2500	6595	NE	4000	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		192.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
KIT/DIN/LIV	Waffle pod slab 300 mm 100mm	84.80	None	Waffle Pod 300mm	40/60 Ceramic/Cork
BED 1	Waffle pod slab 300 mm 100mm	15.40	None	Waffle Pod 300mm	Cork Tiles or Parquetry 8mm
BED 2	Waffle pod slab 300 mm 100mm	15.60	None	Waffle Pod 300mm	Cork Tiles or Parquetry 8mm
ENS BED 2	Waffle pod slab 300 mm 100mm	4.90	None	Waffle Pod 300mm	Ceramic Tiles 8mm
PWD	Waffle pod slab 300 mm 100mm	2.60	None	Waffle Pod 300mm	Ceramic Tiles 8mm
KIT/DIN/LIV	Waffle pod slab 300 mm 100mm	9.60	None	Waffle Pod 300mm	Cork Tiles or Parquetry 8mm
BED 4/KIT/DIN/LIV	Timber Above Plasterboard 19mm	22.10		No Insulation	Carpet 10mm
BED 3/KIT/DIN/LIV	Timber Above Plasterboard 19mm	5.50		No Insulation	Carpet 10mm
BED 3/BED 1	Timber Above Plasterboard 19mm	15.30		No Insulation	Carpet 10mm
BED 3/WIR BED 1	Timber Above Plasterboard 19mm	2.80		No Insulation	Carpet 10mm
ENS BED 3/KIT/DIN/LIV	Timber Above Plasterboard 19mm	1.20		No Insulation	Ceramic Tiles 8mm
ENS BED 3/ENS BED 1	Timber Above Plasterboard 19mm	4.80		No Insulation	Ceramic Tiles 8mm
LOFT/KIT/DIN/LIV	Timber Above Plasterboard 19mm	9.20		No Insulation	Cork Tiles or Parquetry 8mm
LOFT/BED 2	Timber Above Plasterboard 19mm	15.70		No Insulation	Cork Tiles or Parquetry 8mm
LOFT/ENS BED 2	Timber Above Plasterboard 19mm	5.10		No Insulation	Cork Tiles or Parquetry 8mm
LOFT/PWD	Timber Above Plasterboard 19mm	2.80		No Insulation	Cork Tiles or Parquetry 8mm

* Refer to glossary.

Location	Construction	Area (m)	Sub-floor ventilation	Added insulation (R-value)	Covering
LOFT/KIT/DIN/LIV	Timber Above Plasterboard 19mm	5.70		No Insulation	Cork Tiles or Parquetry 8mm
ENS BED 4/KIT/DIN/LIV	Timber Above Plasterboard 19mm	6.00		No Insulation	Ceramic Tiles 8mm
WIR BED 1	Waffle pod slab 300 mm 100mm	2.70	None	Waffle Pod 300mm	Cork Tiles or Parquetry 8mm
ENS BED 1	Waffle pod slab 300 mm 100mm	4.80	None	Waffle Pod 300mm	Ceramic Tiles 8mm
void/KIT/DIN/LIV	Timber Above Plasterboard 19mm	39.40		No Insulation	Carpet 10mm
void/KIT/DIN/LIV	Timber Above Plasterboard 19mm	4.10		No Insulation	Carpet 10mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
KIT/DIN/LIV	Timber Above Plasterboard	No Insulation	No
BED 1	Timber Above Plasterboard	No Insulation	No
BED 2	Timber Above Plasterboard	No Insulation	No
ENS BED 2	Timber Above Plasterboard	No Insulation	No
PWD	Timber Above Plasterboard	No Insulation	No
KIT/DIN/LIV	Timber Above Plasterboard	No Insulation	No
BED 4	Plasterboard	Bulk Insulation R3.5	No
BED 3	Plasterboard	Bulk Insulation R3.5	No
ENS BED 3	Plasterboard	Bulk Insulation R3.5	No
LOFT	Plasterboard	Bulk Insulation R3.5	No
ENS BED 4	Plasterboard	Bulk Insulation R3.5	No
WIR BED 1	Timber Above Plasterboard	No Insulation	No
ENS BED 1	Timber Above Plasterboard	No Insulation	No
void	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
KIT/DIN/LIV	1	Exhaust Fans	300	Sealed
ENS BED 2	1	Exhaust Fans	300	Sealed
PWD	1	Exhaust Fans	300	Sealed
ENS BED 3	1	Exhaust Fans	300	Sealed
ENS BED 4	1	Exhaust Fans	300	Sealed
ENS BED 1	1	Exhaust Fans	300	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
KIT/DIN/LIV	1	900

* Refer to glossary.

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Foil, Gap Above, Reflective Side Down, Anti-glare Up	0.34	Light

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.