Nationwide House Energy Rating Scheme — Multiple Class1-dwelling summary NatHERS Certificate No. 0008626370

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)

Property

Address 16 16 Macpherson Street , Warriewood , NSW , 2102

Lot/DP 4/553816

NatHERS climate zone 56

Accredited assessor

Dean Gorman

Greenview Consulting Pty Ltd

dean@greenview.net.au

8544 1683

Accreditation No. DMN/13/1645

Assessor Accrediting Organisation Design Matters National

Verification

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

Summary of all dwellings

Certificate number and link	Unit Number	Heating load (MJ/m^2/p.a.)	Cooling load (MJ/m^2/p.a.)	Total load (MJ/m^2/p.a.)	Star rating
0008626194	TH2	23.6	24.9	48.5	6.2
0008626160	TH3	26.1	25.3	51.5	5.9
0008626228	TH4	35.3	17.6	52.9	5.9
0008626202	TH5	39.9	17.9	57.7	5.5
0008626152	TH6	37.2	17.8	55	5.7

Continued Over

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.

Summary of all dwellings (continued)

Certificate number and link	Unit Number	Heating load (MJ/m^2/p.a.)	Cooling load (MJ/m^2/p.a.)	Total load (MJ/m^2/p.a.)	Star rating
0008626236	TH7	37.8	23.6	61.5	5.3
0008626186	TH8	37.1	26	63.1	5.2
0008626178	TH9	35.4	25.9	61.4	5.3
0008626129	TH10	39.3	25.9	65.3	5
0008626087	TH11	39.4	25.9	65.3	5
0008626061	TH12	39.4	25.9	65.3	5
0008626038	TH13	39.4	25.9	65.3	5
0008625998	TH14	39.4	25.9	65.3	5
0008625972	TH15	39.4	25.9	65.3	5
0008626145	TH16	31.8	26	57.8	5.5
0008626111	TH17	36.7	25	61.7	5.3
0008626095	TH18	30	26	56	5.6
0008626046	TH19	34.8	25.6	60.5	5.3
0008626020	TH20	39.1	23.9	63.1	5.2
0008625980	TH21	39.2	23.5	62.7	5.2
0008625964	TH22	40	25.1	65.1	5.1
0008626137	TH23	39.9	25.2	65.1	5.1
0008626103	TH24	39.9	25	65	5.1
0008626079	TH25	39.9	25	65	5.1
0008626053	TH26	39.9	25	65	5.1
0008626012	TH27	39.9	25	65	5.1
0008626004	TH28	38.2	25.5	63.7	5.1
0008625956	TH29	37.3	25.2	62.4	5.2

Explanatory notes

About this report

This summary rating is the average rating of all NCC Class 2 dwellings in a development. The individual dwellings' ratings are a comprehensive, dynamic computer modelling evaluation of a home, using the floorplans, elevations and specifications to estimate the 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. For more details about an individual dwelling's assessment, refer to the individual dwelling's NatHERS Certificate (accessible via link).

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). 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.

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, input and creation of the NatHERS Certificate is by the assessor. 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.

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626194

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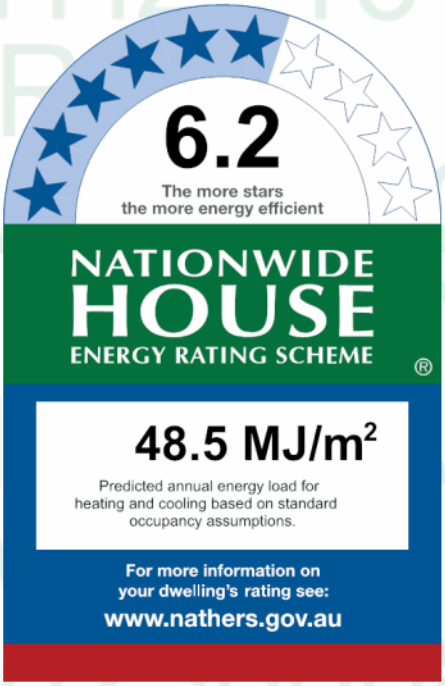

Property

Address	Unit TH2, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*

Conditioned*	161.0
Unconditioned*	4.0
Total	165.0
Garage	0.0

Exposure type

Suburban

NatHERS climate zone

56

Thermal performance

Heating	Cooling
23.6	**24.9**
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.

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645
Assessor Accrediting Organisation	Design Matters National
Declaration of interest	Declaration completed: no conflicts

Verification

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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?

Additional notes

I have modeled the shading in accordance with NatHERS principles

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Living	ALM-006-03 A	n/a	2500	3400	n/a	45	SE	No
Kitchen/Living	ALM-006-03 A	n/a	2500	3280	n/a	60	NW	No
Kitchen/Living	ALM-005-03 A	n/a	1650	800	n/a	45	NE	Yes
Kitchen/Living	ALM-006-03 A	n/a	1650	2000	n/a	45	NE	No
Entry	ALM-006-03 A	n/a	2400	500	n/a	00	SE	No
Entry	ALM-006-03 A	n/a	300	1500	n/a	00	SE	No
Bedroom 1	ALM-006-03 A	n/a	2500	3350	n/a	45	SE	No
Bedroom 1	ALM-005-03 A	n/a	1570	800	n/a	45	NE	No
ENS	ALM-005-03 A	n/a	1650	1400	n/a	45	SE	Yes
WIR	ALM-005-03 A	n/a	1570	800	n/a	45	NE	No
Bath L1	ALM-006-03 A	n/a	800	1600	n/a	45	NE	No
Bedroom 2	ALM-006-03 A	n/a	2500	3000	n/a	45	NW	No
Bedroom 3	ALM-006-03 A	n/a	1570	2015	n/a	45	NW	No
Bed 4/study	ALM-006-03 A	n/a	2500	2800	n/a	45	NW	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight *type and performance*

* Refer to glossary.

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
Entry	2400	820	90	SE

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Living	EW-1	2800	4700	SE	1700	NO
Living	EW-2	2800	1000	SW	2400	YES
Living	EW-2	2800	4395	NE	0	NO
Kitchen/Living	EW-1	2800	1800	SW	3100	YES
Kitchen/Living	EW-1	2800	4000	NW	0	NO
Kitchen/Living	EW-1	2800	9495	NE	0	NO
Entry	EW-1	2800	2395	SE	1300	YES
Bedroom 1	EW-1	2740	4700	SE	2100	NO
Bedroom 1	EW-1	2740	1000	SW	2400	YES

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	EW-1	2740	4095	NE	700	NO
ENS	EW-1	2740	2395	SE	600	YES
WIR	EW-1	2740	2190	NE	700	NO
Bath L1	EW-1	2740	1690	NE	700	NO
Bedroom 2	EW-1	2740	3995	NW	2300	NO
Bedroom 2	EW-1	2740	4095	NE	700	NO
Bedroom 3	EW-1	2740	3095	NW	500	NO
Bed 4/study	EW-1	2800	3595	SW	0	NO
Bed 4/study	EW-1	2800	3095	NW	1400	YES
ENS Bed 4	EW-1	2800	2190	SW	0	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		163.00	No insulation
IW-2 - Stud, plasterboard		45.00	No Insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Living	Concrete Slab on Ground 200mm	20.30	None	No Insulation	Cork Tiles or Parquetry 8mm
Kitchen/Living	Concrete Slab on Ground 200mm	37.50	None	No Insulation	Cork Tiles or Parquetry 8mm
Stairs GF	Concrete Slab on Ground 200mm	5.50	None	No Insulation	Cork Tiles or Parquetry 8mm
Entry	Concrete Slab on Ground 200mm	7.90	None	No Insulation	Cork Tiles or Parquetry 8mm
Bedroom 1/Living	Timber Above Plasterboard 200mm	18.90		No Insulation	Carpet+Rubber Underlay 18mm
ENS /Entry	Timber Above Plasterboard 200mm	7.90		No Insulation	Ceramic Tiles 8mm
WIR/Living	Timber Above Plasterboard 19mm	0.80		No Insulation	Carpet+Rubber Underlay 18mm
WIR/Kitchen/Living	Timber Above Plasterboard 19mm	5.00		No Insulation	Carpet+Rubber Underlay 18mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bath L1/Kitchen/Living	Timber Above Plasterboard 19mm	4.40		No Insulation	Ceramic Tiles 8mm
Stairs L1/Living	Timber Above Plasterboard 19mm	0.50		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Kitchen/Living	Timber Above Plasterboard 19mm	4.10		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Stairs GF	Timber Above Plasterboard 19mm	5.60		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Hall	Timber Above Plasterboard 19mm	1.20		No Insulation	Cork Tiles or Parquetry 8mm
Ldy/ENS Bed 4	Timber Above Plasterboard 19mm	3.00		No Insulation	Ceramic Tiles 8mm
Bedroom 2/Kitchen/Living	Timber Above Plasterboard 19mm	16.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3/Bed 4/study	Timber Above Plasterboard 19mm	11.40		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3/ENS Bed 4	Timber Above Plasterboard 19mm	1.00		No Insulation	Carpet+Rubber Underlay 18mm
Bed 4/study	Concrete Slab on Ground 200mm	11.70	None	No Insulation	Cork Tiles or Parquetry 8mm
ENS Bed 4	Concrete Slab on Ground 200mm	4.10	None	No Insulation	Cork Tiles or Parquetry 8mm
Hall	Concrete Slab on Ground 200mm	1.30	None	No Insulation	Cork Tiles or Parquetry 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Living	Timber Above Plasterboard	No Insulation	No
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Stairs GF	Timber Above Plasterboard	No Insulation	No
Entry	Timber Above Plasterboard	No Insulation	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS	Plasterboard	Bulk Insulation R3.5	No
WIR	Plasterboard	Bulk Insulation R3.5	No
Bath L1	Plasterboard	Bulk Insulation R3.5	No
Stairs L1	Plasterboard	Bulk Insulation R3.5	No

* Refer to glossary.

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Ldy	Plasterboard	Bulk Insulation R3.5	No
Bedroom 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 3	Plasterboard	Bulk Insulation R3.5	No
Bed 4/study	Timber Above Plasterboard	No Insulation	No
ENS Bed 4	Timber Above Plasterboard	No Insulation	No
Hall	Timber Above Plasterboard	No Insulation	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Living	8	Downlights - LED	150	Sealed
Kitchen/Living	15	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Stairs GF	2	Downlights - LED	150	Sealed
Entry	1	Downlights - LED	150	Sealed
Bedroom 1	8	Downlights - LED	150	Sealed
ENS	2	Downlights - LED	150	Sealed
ENS	1	Exhaust Fans	300	Sealed
WIR	2	Downlights - LED	150	Sealed
Bath L1	1	Downlights - LED	150	Sealed
Bath L1	1	Exhaust Fans	300	Sealed
Stairs L1	5	Downlights - LED	150	Sealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Bedroom 2	6	Downlights - LED	150	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed
Bed 4/study	5	Downlights - LED	150	Sealed
ENS Bed 4	1	Downlights - LED	150	Sealed
ENS Bed 4	1	Exhaust Fans	300	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	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

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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).

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626160

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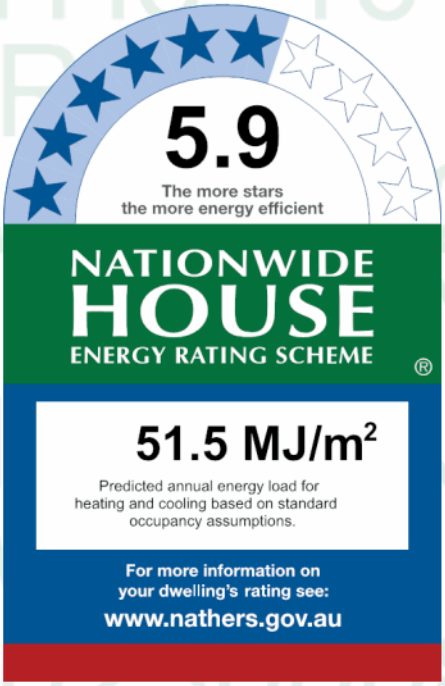

Property

Address	Unit TH3, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*

Conditioned*	148.0
Unconditioned*	18.0
Total	165.0
Garage	18.0

Exposure type

Suburban

NatHERS climate zone

56

Thermal performance

Heating	Cooling
26.1	**25.3**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

About the rating

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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?

Additional notes

I have modeled the shading in accordance with NatHERS principles

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-006-01 A	ALM-006-01 A Aluminium B DG Argon Fill Clear-Clear	4.5	0.61	0.58	0.64
ALM-003-01 A	ALM-003-01 A Aluminium A DG Air Fill Clear-Clear	4.8	0.51	0.48	0.54

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Living	ALM-006-01 A	n/a	2500	3400	n/a	45	SE	No
Kitchen/Living	ALM-006-01 A	n/a	2500	2700	n/a	45	NW	No
Living	ALM-006-01 A	n/a	2400	500	n/a	00	SE	No
Living	ALM-006-01 A	n/a	300	1500	n/a	00	SE	No
Bedroom 1	ALM-006-01 A	n/a	2500	3350	n/a	45	SE	No
ENS	ALM-003-01 A	n/a	1650	1400	n/a	45	SE	Yes
Bedroom 2	ALM-006-01 A	n/a	2500	3000	n/a	45	NW	No
Bedroom 3	ALM-006-01 A	n/a	1570	2015	n/a	45	NW	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight *type and performance*

Skylight ID	Skylight description
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
Garage	2400	2700	90	NW
Living	2400	820	90	SE

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Living	EW-1	2800	4700	SE	1700	NO
Living	EW-2	2800	1000	SW	2400	YES
Living	EW-2	2800	1100	NE	0	NO
Kitchen/Living	EW-1	2800	1800	SW	3100	YES
Kitchen/Living	EW-1	2800	4000	NW	0	NO
Kitchen/Living	EW-1	2800	1700	NE	0	NO
Garage	EW-1	2800	3095	NW	1400	YES
Living	EW-1	2800	2395	SE	1300	YES
Bedroom 1	EW-1	2740	4700	SE	2100	NO
Bedroom 1	EW-1	2740	1000	SW	2400	YES
Bedroom 1	EW-1	2740	800	NE	700	NO
ENS	EW-1	2740	2395	SE	600	YES
Bedroom 2	EW-1	2740	3995	NW	2300	NO

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 3	EW-1	2740	3095	NW	500	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		155.00	No insulation
IW-2 - Stud, plasterboard		124.00	No Insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Living	Concrete Slab on Ground 200mm	20.30	None	No Insulation	Cork Tiles or Parquetry 8mm
Kitchen/Living	Concrete Slab on Ground 200mm	37.50	None	No Insulation	Cork Tiles or Parquetry 8mm
Garage	Concrete Slab on Ground 200mm	17.60	None	No Insulation	Bare
Stairs GF	Concrete Slab on Ground 200mm	5.50	None	No Insulation	Cork Tiles or Parquetry 8mm
WC	Concrete Slab on Ground 200mm	3.60	None	No Insulation	Ceramic Tiles 8mm
Living	Concrete Slab on Ground 200mm	4.10	None	No Insulation	Cork Tiles or Parquetry 8mm
Bedroom 1/Living	Timber Above Plasterboard 19mm	18.90		No Insulation	Carpet+Rubber Underlay 18mm
ENS /WC	Timber Above Plasterboard 19mm	3.70		No Insulation	Ceramic Tiles 8mm
ENS /Living	Timber Above Plasterboard 19mm	4.20		No Insulation	Ceramic Tiles 8mm
WIR/Living	Timber Above Plasterboard 19mm	0.80		No Insulation	Carpet+Rubber Underlay 18mm
WIR/Kitchen/Living	Timber Above Plasterboard 19mm	5.00		No Insulation	Carpet+Rubber Underlay 18mm
Bath L1/Kitchen/Living	Timber Above Plasterboard 19mm	4.40		No Insulation	Ceramic Tiles 8mm
Stairs L1/Living	Timber Above Plasterboard 19mm	0.50		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Kitchen/Living	Timber Above Plasterboard 19mm	4.10		No Insulation	Cork Tiles or Parquetry 8mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Stairs L1/Garage	Timber Above Plasterboard 19mm	1.70		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Stairs GF	Timber Above Plasterboard 19mm	5.60		No Insulation	Cork Tiles or Parquetry 8mm
Ldy/Garage	Timber Above Plasterboard 19mm	3.30		No Insulation	Ceramic Tiles 8mm
Bedroom 2/Kitchen/Living	Timber Above Plasterboard 19mm	16.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3/Garage	Timber Above Plasterboard 19mm	12.40		No Insulation	Carpet+Rubber Underlay 18mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Living	Timber Above Plasterboard	No Insulation	No
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Garage	Timber Above Plasterboard	No Insulation	No
Stairs GF	Timber Above Plasterboard	No Insulation	No
WC	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS	Plasterboard	Bulk Insulation R3.5	No
WIR	Plasterboard	Bulk Insulation R3.5	No
Bath L1	Plasterboard	Bulk Insulation R3.5	No
Stairs L1	Plasterboard	Bulk Insulation R3.5	No
Ldy	Plasterboard	Bulk Insulation R3.5	No
Bedroom 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 3	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Living	8	Downlights - LED	150	Sealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Kitchen/Living	15	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Stairs GF	2	Downlights - LED	150	Sealed
Living	1	Downlights - LED	150	Sealed
Bedroom 1	8	Downlights - LED	150	Sealed
ENS	2	Downlights - LED	150	Sealed
ENS	1	Exhaust Fans	300	Sealed
WIR	2	Downlights - LED	150	Sealed
Bath L1	1	Downlights - LED	150	Sealed
Bath L1	1	Exhaust Fans	300	Sealed
Stairs L1	5	Downlights - LED	150	Sealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Bedroom 2	6	Downlights - LED	150	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	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.

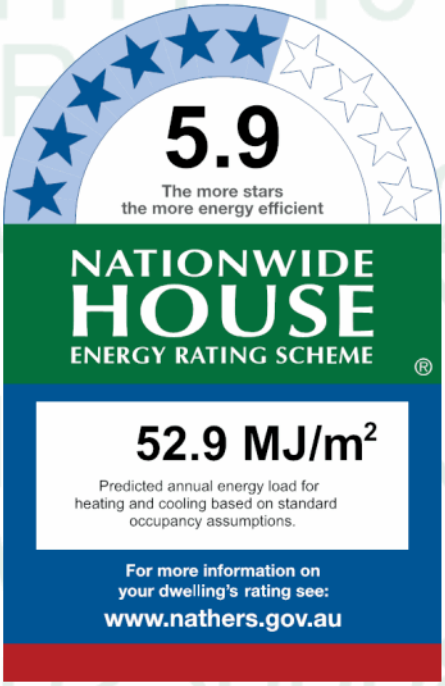
Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

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).

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626228

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH4, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	143.0
Unconditioned*	22.0
Total	165.0
Garage	18.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
35.3	**17.6**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645
Assessor Accrediting Organisation	Design Matters National
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=cjaGnvVRI.
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Provisional* values

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Additional notes

I have modeled the shading in accordance with NatHERS principles

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Living	ALM-006-03 A	n/a	2500	3400	n/a	45	SW	No
Kitchen/Living	ALM-006-03 A	n/a	2500	2700	n/a	45	NE	No
Kitchen/Living	ALM-005-03 A	n/a	1650	800	n/a	45	SE	Yes
Kitchen/Living	ALM-006-03 A	n/a	1650	2000	n/a	45	SE	No
Living	ALM-006-03 A	n/a	2400	500	n/a	00	SW	No
Living	ALM-006-03 A	n/a	300	1500	n/a	00	SW	No
Bedroom 1	ALM-006-03 A	n/a	2500	3350	n/a	45	SW	No
Bedroom 1	ALM-005-03 A	n/a	1570	800	n/a	45	SE	No
ENS	ALM-005-03 A	n/a	1650	1400	n/a	45	SW	Yes
WIR	ALM-005-03 A	n/a	1570	800	n/a	45	SE	No
Bath L1	ALM-006-03 A	n/a	800	1600	n/a	45	SE	No
Bedroom 2	ALM-006-03 A	n/a	2500	3000	n/a	45	NE	No
Bedroom 3	ALM-006-03 A	n/a	1570	2015	n/a	45	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
No Data Available					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight *type and performance*

Skylight ID	Skylight description
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
Garage	2400	2700	90	NE
Living	2400	820	90	SW

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Living	EW-1	2800	4700	SW	1700	NO
Living	EW-2	2800	1000	NW	2400	YES
Living	EW-2	2800	4395	SE	0	NO
Kitchen/Living	EW-1	2800	1800	NW	3100	YES
Kitchen/Living	EW-1	2800	4000	NE	0	NO
Kitchen/Living	EW-1	2800	9495	SE	0	NO
Garage	EW-1	2800	3095	NE	1400	YES
Living	EW-1	2800	2395	SW	1300	YES

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	EW-1	2740	4700	SW	2100	NO
Bedroom 1	EW-1	2740	1000	NW	2400	YES
Bedroom 1	EW-1	2740	4095	SE	700	NO
ENS	EW-1	2740	2395	SW	600	YES
WIR	EW-1	2740	2190	SE	700	NO
Bath L1	EW-1	2740	1690	SE	700	NO
Bedroom 2	EW-1	2740	3995	NE	2300	NO
Bedroom 2	EW-1	2740	4095	SE	700	NO
Bedroom 3	EW-1	2740	3095	NE	500	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		155.00	No insulation
IW-2 - Stud, plasterboard		61.00	No Insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Living	Concrete Slab on Ground 200mm	20.30	None	No Insulation	Cork Tiles or Parquetry 8mm
Kitchen/Living	Concrete Slab on Ground 200mm	37.50	None	No Insulation	Cork Tiles or Parquetry 8mm
Garage	Concrete Slab on Ground 200mm	17.60	None	No Insulation	Bare
Stairs GF	Concrete Slab on Ground 200mm	5.50	None	No Insulation	Cork Tiles or Parquetry 8mm
WC	Concrete Slab on Ground 200mm	3.60	None	No Insulation	Ceramic Tiles 8mm
Living	Concrete Slab on Ground 200mm	4.10	None	No Insulation	Cork Tiles or Parquetry 8mm
Bedroom 1/Living	Timber Above Plasterboard 19mm	18.90		No Insulation	Carpet+Rubber Underlay 18mm
ENS /WC	Timber Above Plasterboard 19mm	3.70		No Insulation	Ceramic Tiles 8mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
ENS /Living	Timber Above Plasterboard 19mm	4.20		No Insulation	Ceramic Tiles 8mm
WIR/Living	Timber Above Plasterboard 19mm	0.80		No Insulation	Carpet+Rubber Underlay 18mm
WIR/Kitchen/Living	Timber Above Plasterboard 19mm	5.00		No Insulation	Carpet+Rubber Underlay 18mm
Bath L1/Kitchen/Living	Timber Above Plasterboard 19mm	4.40		No Insulation	Ceramic Tiles 8mm
Stairs L1/Living	Timber Above Plasterboard 19mm	0.50		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Kitchen/Living	Timber Above Plasterboard 19mm	4.10		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Garage	Timber Above Plasterboard 19mm	1.70		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Stairs GF	Timber Above Plasterboard 19mm	5.60		No Insulation	Cork Tiles or Parquetry 8mm
Ldy/Garage	Timber Above Plasterboard 19mm	3.30		No Insulation	Ceramic Tiles 8mm
Bedroom 2/Kitchen/Living	Timber Above Plasterboard 19mm	16.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3/Garage	Timber Above Plasterboard 19mm	12.40		No Insulation	Carpet+Rubber Underlay 18mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Living	Timber Above Plasterboard	No Insulation	No
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Garage	Timber Above Plasterboard	No Insulation	No
Stairs GF	Timber Above Plasterboard	No Insulation	No
WC	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS	Plasterboard	Bulk Insulation R3.5	No
WIR	Plasterboard	Bulk Insulation R3.5	No
Bath L1	Plasterboard	Bulk Insulation R3.5	No
Stairs L1	Plasterboard	Bulk Insulation R3.5	No

* Refer to glossary.

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Ldy	Plasterboard	Bulk Insulation R3.5	No
Bedroom 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 3	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Living	8	Downlights - LED	150	Sealed
Kitchen/Living	15	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Stairs GF	2	Downlights - LED	150	Sealed
Living	1	Downlights - LED	150	Sealed
Bedroom 1	8	Downlights - LED	150	Sealed
ENS	2	Downlights - LED	150	Sealed
ENS	1	Exhaust Fans	300	Sealed
WIR	2	Downlights - LED	150	Sealed
Bath L1	1	Downlights - LED	150	Sealed
Bath L1	1	Exhaust Fans	300	Sealed
Stairs L1	5	Downlights - LED	150	Sealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Bedroom 2	6	Downlights - LED	150	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium

Explanatory notes

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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.

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Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
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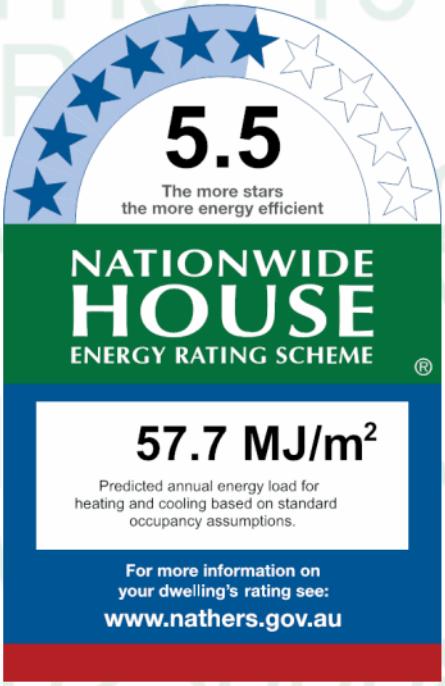
Exposure category – exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category – open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland 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).

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626202

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH5, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	143.0
Unconditioned*	22.0
Total	165.0
Garage	18.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
39.9	**17.9**
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.

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645
Assessor Accrediting Organisation	Design Matters National
Declaration of interest	Declaration completed: no conflicts

Verification

To verify this certificate, scan the QR code or visit hstar.com.au/QR/Generate?p=IdwFLUrJv.
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
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Living	ALM-006-03 A	n/a	2500	3400	n/a	45	SW	No
Kitchen/Living	ALM-006-03 A	n/a	2500	2700	n/a	45	NE	No
Kitchen/Living	ALM-005-03 A	n/a	1650	800	n/a	45	SE	Yes
Kitchen/Living	ALM-006-03 A	n/a	1650	2000	n/a	45	SE	No
Living	ALM-006-03 A	n/a	2400	500	n/a	00	SW	No
Living	ALM-006-03 A	n/a	300	1500	n/a	00	SW	No
Bedroom 1	ALM-006-03 A	n/a	2500	3350	n/a	45	SW	No
Bedroom 1	ALM-005-03 A	n/a	1570	800	n/a	45	SE	No
ENS	ALM-005-03 A	n/a	1650	1400	n/a	45	SW	Yes
WIR	ALM-005-03 A	n/a	1570	800	n/a	45	SE	No
Bath L1	ALM-006-03 A	n/a	800	1600	n/a	45	SE	No
Bedroom 2	ALM-006-03 A	n/a	2500	3000	n/a	45	NE	No
Bedroom 3	ALM-006-03 A	n/a	1570	2015	n/a	45	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
No Data Available					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight *type and performance*

Skylight ID	Skylight description
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
Garage	2400	2700	90	NE
Living	2400	820	90	SW

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Living	EW-1	2800	4700	SW	1700	NO
Living	EW-2	2800	1000	NW	2400	YES
Living	EW-2	2800	4395	SE	0	NO
Kitchen/Living	EW-1	2800	1800	NW	3100	YES
Kitchen/Living	EW-1	2800	4000	NE	0	NO
Kitchen/Living	EW-1	2800	9495	SE	0	NO
Garage	EW-1	2800	5795	NW	0	NO
Garage	EW-1	2800	3095	NE	1400	YES

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Stairs GF	EW-1	2800	1890	NW	0	NO
WC	EW-1	2800	1590	NW	0	NO
Living	EW-1	2800	2395	SW	1300	YES
Living	EW-1	2800	1795	NW	0	NO
Bedroom 1	EW-1	2740	4700	SW	2100	NO
Bedroom 1	EW-1	2740	1000	NW	2400	YES
Bedroom 1	EW-1	2740	4095	SE	700	NO
ENS	EW-1	2740	2395	SW	600	YES
ENS	EW-1	2740	3395	NW	0	NO
WIR	EW-1	2740	2190	SE	700	NO
Bath L1	EW-1	2740	1690	SE	700	NO
Stairs L1	EW-1	2740	1990	NW	0	NO
Ldy	EW-1	2740	1590	NW	0	NO
Bedroom 2	EW-1	2740	3995	NE	2300	NO
Bedroom 2	EW-1	2740	4095	SE	700	NO
Bedroom 3	EW-1	2740	4095	NW	0	NO
Bedroom 3	EW-1	2740	3095	NE	500	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		34.00	Bulk Insulation, No Air Gap R1.5
IW-2 - Cavity wall, direct fix plasterboard, single gap		120.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Living	Concrete Slab on Ground 200mm	20.30	None	No Insulation	Cork Tiles or Parquetry 8mm
Kitchen/Living	Concrete Slab on Ground 200mm	37.50	None	No Insulation	Cork Tiles or Parquetry 8mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage	Concrete Slab on Ground 200mm	17.60	None	No Insulation	Bare
Stairs GF	Concrete Slab on Ground 200mm	5.50	None	No Insulation	Cork Tiles or Parquetry 8mm
WC	Concrete Slab on Ground 200mm	3.60	None	No Insulation	Ceramic Tiles 8mm
Living	Concrete Slab on Ground 200mm	4.10	None	No Insulation	Cork Tiles or Parquetry 8mm
Bedroom 1/Living	Timber Above Plasterboard 19mm	18.90		No Insulation	Carpet+Rubber Underlay 18mm
ENS /WC	Timber Above Plasterboard 19mm	3.70		No Insulation	Ceramic Tiles 8mm
ENS /Living	Timber Above Plasterboard 19mm	4.20		No Insulation	Ceramic Tiles 8mm
WIR/Living	Timber Above Plasterboard 19mm	0.80		No Insulation	Carpet+Rubber Underlay 18mm
WIR/Kitchen/Living	Timber Above Plasterboard 19mm	5.00		No Insulation	Carpet+Rubber Underlay 18mm
Bath L1/Kitchen/Living	Timber Above Plasterboard 19mm	4.40		No Insulation	Ceramic Tiles 8mm
Stairs L1/Living	Timber Above Plasterboard 19mm	0.50		No Insulation	Cork Tiles or Parquetry 8mm
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Ldy/Garage	Timber Above Plasterboard 19mm	3.30		No Insulation	Ceramic Tiles 8mm
Bedroom 2/Kitchen/Living	Timber Above Plasterboard 19mm	16.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3/Garage	Timber Above Plasterboard 19mm	12.40		No Insulation	Carpet+Rubber Underlay 18mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Living	Timber Above Plasterboard	No Insulation	No
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Garage	Timber Above Plasterboard	No Insulation	No

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Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Stairs GF	Timber Above Plasterboard	No Insulation	No
WC	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS	Plasterboard	Bulk Insulation R3.5	No
WIR	Plasterboard	Bulk Insulation R3.5	No
Bath L1	Plasterboard	Bulk Insulation R3.5	No
Stairs L1	Plasterboard	Bulk Insulation R3.5	No
Ldy	Plasterboard	Bulk Insulation R3.5	No
Bedroom 2	Plasterboard	Bulk Insulation R3.5	No
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Living	8	Downlights - LED	150	Sealed
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Stairs L1	5	Downlights - LED	150	Sealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Bedroom 2	6	Downlights - LED	150	Sealed

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Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Bedroom 3	5	Downlights - LED	150	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
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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.
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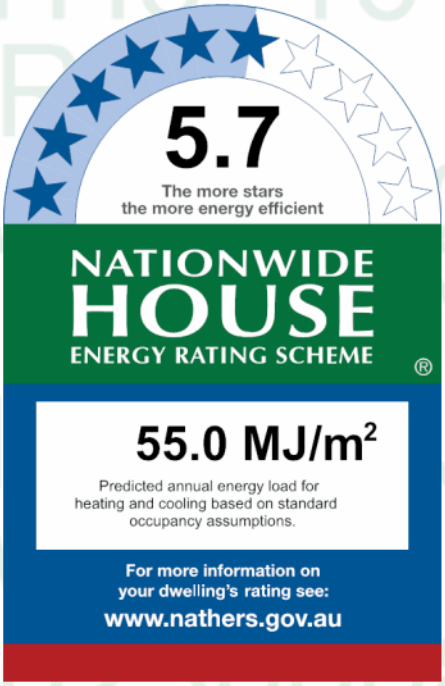
Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626152

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH6, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	161.0
Unconditioned*	4.0
Total	165.0
Garage	0.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
37.2	17.8
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.

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645
Assessor Accrediting Organisation	Design Matters National
Declaration of interest	Declaration completed: no conflicts

Verification

To verify this certificate, scan the QR code or visit hstar.com.au/QR/Generate?p=vVPqPfBno.
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Does the 'number' and 'type' of ceiling penetrations (e.g. downlights, exhaust fans, etc) shown on the stamped plans or installed, match what is shown in this Certificate?

Windows

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

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

Additional notes

I have modeled the shading in accordance with NatHERS principles

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Living	ALM-006-03 A	n/a	2500	3400	n/a	45	SW	No
Kitchen/Living	ALM-006-03 A	n/a	2500	3280	n/a	60	NE	No
Kitchen/Living	ALM-005-03 A	n/a	1650	800	n/a	45	SE	Yes
Kitchen/Living	ALM-006-03 A	n/a	1650	2000	n/a	45	SE	No
Entry	ALM-006-03 A	n/a	2400	500	n/a	00	SW	No
Entry	ALM-006-03 A	n/a	300	1500	n/a	00	SW	No
Bedroom 1	ALM-006-03 A	n/a	2500	3350	n/a	45	SW	No
Bedroom 1	ALM-005-03 A	n/a	1570	800	n/a	45	SE	No
ENS	ALM-005-03 A	n/a	1650	1400	n/a	45	SW	Yes
WIR	ALM-005-03 A	n/a	1570	800	n/a	45	SE	No
Bath L1	ALM-006-03 A	n/a	800	1600	n/a	45	SE	No
Bedroom 2	ALM-006-03 A	n/a	2500	3000	n/a	45	NE	No
Bedroom 3	ALM-006-03 A	n/a	1570	2015	n/a	45	NE	No
Bed 4/study	ALM-006-03 A	n/a	2500	2800	n/a	45	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
No Data Available					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight *type and performance*

Skylight ID	Skylight description
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
Entry	2400	820	90	SW

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Living	EW-1	2800	4700	SW	1700	NO
Living	EW-1	2800	1000	NW	2400	YES
Living	EW-1	2800	4395	SE	0	NO
Kitchen/Living	EW-1	2800	1800	NW	3100	YES
Kitchen/Living	EW-1	2800	4000	NE	0	NO
Kitchen/Living	EW-1	2800	9495	SE	0	NO
Stairs GF	EW-1	2800	1890	NW	0	NO
Entry	EW-1	2800	2395	SW	1300	YES
Entry	EW-1	2800	3395	NW	0	NO
Bedroom 1	EW-1	2740	4700	SW	2100	NO

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	EW-1	2740	1000	NW	2400	YES
Bedroom 1	EW-1	2740	4095	SE	700	NO
ENS	EW-1	2740	2395	SW	600	YES
ENS	EW-1	2740	3395	NW	0	NO
WIR	EW-1	2740	2190	SE	700	NO
Bath L1	EW-1	2740	1690	SE	700	NO
Stairs L1	EW-1	2740	1990	NW	0	NO
Ldy	EW-1	2740	1590	NW	0	NO
Bedroom 2	EW-1	2740	3995	NE	2300	NO
Bedroom 2	EW-1	2740	4095	SE	700	NO
Bedroom 3	EW-1	2740	4095	NW	0	NO
Bedroom 3	EW-1	2740	3095	NE	500	NO
Bed 4/study	EW-1	2800	3595	NW	0	NO
Bed 4/study	EW-1	2800	3095	NE	1400	YES
ENS Bed 4	EW-1	2800	2190	NW	0	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		163.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Living	Concrete Slab on Ground 200mm	20.30	None	No Insulation	Cork Tiles or Parquetry 8mm
Kitchen/Living	Concrete Slab on Ground 200mm	37.50	None	No Insulation	Cork Tiles or Parquetry 8mm
Stairs GF	Concrete Slab on Ground 200mm	5.50	None	No Insulation	Cork Tiles or Parquetry 8mm
Entry	Concrete Slab on Ground 200mm	7.90	None	No Insulation	Cork Tiles or Parquetry 8mm
Bedroom 1/Living	Timber Above Plasterboard 200mm	18.90		No Insulation	Carpet+Rubber Underlay 18mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
ENS /Entry	Timber Above Plasterboard 200mm	7.90		No Insulation	Ceramic Tiles 8mm
WIR/Living	Timber Above Plasterboard 19mm	0.80		No Insulation	Carpet+Rubber Underlay 18mm
WIR/Kitchen/Living	Timber Above Plasterboard 19mm	5.00		No Insulation	Carpet+Rubber Underlay 18mm
Bath L1/Kitchen/Living	Timber Above Plasterboard 19mm	4.40		No Insulation	Ceramic Tiles 8mm
Stairs L1/Living	Timber Above Plasterboard 19mm	0.50		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Kitchen/Living	Timber Above Plasterboard 19mm	4.10		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Stairs GF	Timber Above Plasterboard 19mm	5.60		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Hall	Timber Above Plasterboard 19mm	1.20		No Insulation	Cork Tiles or Parquetry 8mm
Ldy/ENS Bed 4	Timber Above Plasterboard 19mm	3.00		No Insulation	Ceramic Tiles 8mm
Bedroom 2/Kitchen/Living	Timber Above Plasterboard 19mm	16.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3/Bed 4/study	Timber Above Plasterboard 19mm	11.40		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3/ENS Bed 4	Timber Above Plasterboard 19mm	1.00		No Insulation	Carpet+Rubber Underlay 18mm
Bed 4/study	Concrete Slab on Ground 200mm	11.70	None	No Insulation	Cork Tiles or Parquetry 8mm
ENS Bed 4	Concrete Slab on Ground 200mm	4.10	None	No Insulation	Ceramic Tiles 8mm
Hall	Concrete Slab on Ground 200mm	1.30	None	No Insulation	Cork Tiles or Parquetry 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Living	Concrete, Plasterboard	Bulk Insulation R2.5	No
Living	Timber Above Plasterboard	No Insulation	No
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Stairs GF	Concrete, Plasterboard	Bulk Insulation R2.5	No
Stairs GF	Timber Above Plasterboard	No Insulation	No

* Refer to glossary.

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Entry	Concrete, Plasterboard	Bulk Insulation R2.5	No
Entry	Timber Above Plasterboard	No Insulation	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS	Plasterboard	Bulk Insulation R3.5	No
WIR	Plasterboard	Bulk Insulation R3.5	No
Bath L1	Plasterboard	Bulk Insulation R3.5	No
Stairs L1	Plasterboard	Bulk Insulation R3.5	No
Ldy	Plasterboard	Bulk Insulation R3.5	No
Bedroom 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 3	Plasterboard	Bulk Insulation R3.5	No
Bed 4/study	Concrete, Plasterboard	Bulk Insulation R2.5	No
Bed 4/study	Timber Above Plasterboard	No Insulation	No
ENS Bed 4	Concrete, Plasterboard	Bulk Insulation R2.5	No
ENS Bed 4	Timber Above Plasterboard	No Insulation	No
Hall	Concrete, Plasterboard	Bulk Insulation R2.5	No
Hall	Timber Above Plasterboard	No Insulation	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Living	8	Downlights - LED	150	Sealed
Kitchen/Living	15	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Stairs GF	2	Downlights - LED	150	Sealed
Entry	1	Downlights - LED	150	Sealed
Bedroom 1	8	Downlights - LED	150	Sealed
ENS	2	Downlights - LED	150	Sealed
ENS	1	Exhaust Fans	300	Sealed
WIR	2	Downlights - LED	150	Sealed
Bath L1	1	Downlights - LED	150	Sealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Bath L1	1	Exhaust Fans	300	Sealed
Stairs L1	5	Downlights - LED	150	Sealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Bedroom 2	6	Downlights - LED	150	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed
Bed 4/study	5	Downlights - LED	150	Sealed
ENS Bed 4	1	Downlights - LED	150	Sealed
ENS Bed 4	1	Exhaust Fans	300	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	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.
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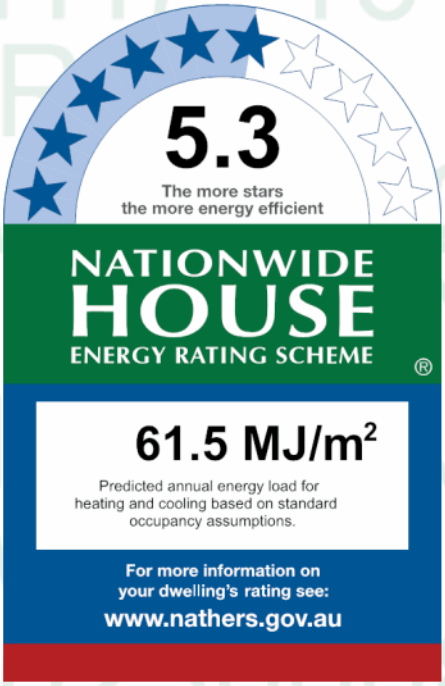
Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626236

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

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Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

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Prepared by	PBD Architects

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Garage	36.0

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Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
37.8 MJ/m^2	23.6 MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645
Assessor Accrediting Organisation	Design Matters National
Declaration of interest	Declaration completed: no conflicts

About the rating

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Additional notes

I have modeled the shading in accordance with NatHERS principles

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living	ALM-006-03 A	n/a	2500	2890	n/a	45	SE	No
Family room GF	ALM-005-03 A	n/a	2200	900	n/a	60	NE	No
Family room GF	ALM-006-03 A	n/a	2500	3200	n/a	45	SE	No
Living	ALM-006-03 A	n/a	2500	2380	n/a	45	NW	No
Living	ALM-005-03 A	n/a	2200	900	n/a	60	NE	No
Family/Guest	ALM-006-03 A	n/a	1580	2000	n/a	45	SE	No
Family/Guest	ALM-005-03 A	n/a	1400	1460	n/a	10	SE	No
Bed 2	ALM-006-03 A	n/a	2500	3180	n/a	45	SE	No
Bed 2	ALM-005-03 A	n/a	1600	900	n/a	10	NE	No
Bedroom 1	ALM-006-03 A	n/a	2500	2900	n/a	60	NW	No
ENS Bed 1	ALM-006-03 A	n/a	800	1700	n/a	45	SW	No
Bath 1	ALM-005-03 A	n/a	650	1120	n/a	10	NW	No
Bedroom 3	ALM-005-03 A	n/a	1450	2400	n/a	10	NW	No
Bedroom 3	ALM-005-03 A	n/a	1600	900	n/a	10	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
No Data Available					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight *type and performance*

* Refer to glossary.

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
Family room GF	2040	980	90	SE
Family room GF	2040	820	90	NW
Garage	2300	4800	90	NW

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	6295	SW	0	NO
Kitchen/Living	EW-1	2800	395	SE	800	YES
Kitchen/Living	EW-1	2800	800	NE	6400	YES
Kitchen/Living	EW-1	2800	4200	SE	0	NO
Family room GF	EW-1	2800	800	SW	6300	YES
Family room GF	EW-1	2800	3795	NE	0	NO
Family room GF	EW-1	2800	4300	SE	1500	NO
Living	EW-1	2800	1100	SW	7600	YES

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Living	EW-1	2800	3000	NW	0	NO
Living	EW-1	2800	4195	NE	0	NO
Family room GF	EW-1	2800	1690	SE	800	YES
Family room GF	EW-1	2800	1790	NW	1300	YES
Stairs lower	EW-1	2800	1990	NE	0	NO
Garage	EW-1	2800	6195	SW	0	NO
Garage	EW-1	2800	5800	NW	0	NO
Garage	EW-1	2800	3600	NE	0	YES
Family/Guest	EW-1	2740	3795	SW	600	NO
Family/Guest	EW-1	2740	4395	SE	700	NO
Bed 2	EW-1	2740	4795	SE	1700	NO
Bed 2	EW-1	2740	3795	NE	800	NO
Bedroom 1	EW-1	2740	4400	NW	1700	NO
Bedroom 1	EW-1	2740	500	NE	5600	YES
Bedroom 1	EW-1	2740	3695	SW	600	NO
ENS Bed 1	EW-1	2740	3190	SW	600	NO
Bath 1	EW-1	2740	1790	NW	1100	YES
Bedroom 3	EW-1	2740	2995	NW	1100	NO
Bedroom 3	EW-1	2740	4295	NE	800	NO
Stairs upper	EW-1	2740	2090	NE	800	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		24.00	Bulk Insulation, No Air Gap R1.5
IW-2 - Cavity wall, direct fix plasterboard, single gap		181.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab on Ground 200mm	28.20	None	No Insulation	Cork Tiles or Parquetry 8mm
Family room GF	Concrete Slab on Ground 200mm	16.00	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	11.20	None	No Insulation	Cork Tiles or Parquetry 8mm
Family room GF	Concrete Slab on Ground 200mm	14.20	None	No Insulation	Cork Tiles or Parquetry 8mm
Ldy	Concrete Slab on Ground 200mm	2.00	None	No Insulation	Ceramic Tiles 8mm
PWD	Concrete Slab on Ground 200mm	2.70	None	No Insulation	Ceramic Tiles 8mm
Stairs lower	Concrete Slab on Ground 200mm	3.70	None	No Insulation	Cork Tiles or Parquetry 8mm
Garage	Concrete Slab on Ground 200mm	35.60	None	No Insulation	Bare
Family/Guest/Kitchen/Living	Timber Above Plasterboard 19mm	11.60		No Insulation	Carpet+Rubber Underlay 18mm
Family/Guest/Family room GF	Timber Above Plasterboard 19mm	3.50		No Insulation	Carpet+Rubber Underlay 18mm
Family/Guest	Suspended Timber Floor 19mm	1.20	Totally Open	No Insulation	Cork Tiles or Parquetry 8mm
Bed 2/Family room GF	Timber Above Plasterboard 19mm	14.30		No Insulation	Carpet+Rubber Underlay 18mm
Bed 2/Family room GF	Timber Above Plasterboard 19mm	0.80		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 1/Garage	Timber Above Plasterboard 19mm	17.00		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 1/Kitchen/Living	Timber Above Plasterboard 19mm	5.70		No Insulation	Ceramic Tiles 8mm
ENS Bed 1/Garage	Timber Above Plasterboard 19mm	1.90		No Insulation	Ceramic Tiles 8mm
WIR Bed 1/Kitchen/Living	Timber Above Plasterboard 19mm	1.70		No Insulation	Carpet+Rubber Underlay 18mm
WIR Bed 1/Family room GF	Timber Above Plasterboard 19mm	0.70		No Insulation	Carpet+Rubber Underlay 18mm
WIR Bed 1/Ldy	Timber Above Plasterboard 19mm	1.60		No Insulation	Carpet+Rubber Underlay 18mm
Bath 1/Family room GF	Timber Above Plasterboard 19mm	3.00		No Insulation	Ceramic Tiles 8mm
Bath 1	Suspended Timber Floor 19mm	2.20	Totally Open	No Insulation	Ceramic Tiles 8mm
Bedroom 3/Living	Timber Above Plasterboard 19mm	11.10		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3/PWD	Timber Above Plasterboard 19mm	0.90		No Insulation	Carpet+Rubber Underlay 18mm

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 3	Suspended Timber Floor 19mm	0.60	Totally Open	No Insulation	Carpet+Rubber Underlay 18mm
Stairs upper/Family room GF	Timber Above Plasterboard 19mm	1.60		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Family room GF	Timber Above Plasterboard 19mm	6.20		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/PWD	Timber Above Plasterboard 19mm	2.00		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Stairs lower	Timber Above Plasterboard 19mm	3.90		No Insulation	Cork Tiles or Parquetry 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Family room GF	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Family room GF	Timber Above Plasterboard	No Insulation	No
Ldy	Timber Above Plasterboard	No Insulation	No
PWD	Timber Above Plasterboard	No Insulation	No
Stairs lower	Timber Above Plasterboard	No Insulation	No
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	No Insulation	No
Family/Guest	Plasterboard	Bulk Insulation R3.5	No
Bed 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 1	Plasterboard	Bulk Insulation R3.5	No
WIR Bed 1	Plasterboard	Bulk Insulation R3.5	No
Bath 1	Plasterboard	Bulk Insulation R3.5	No
Bedroom 3	Plasterboard	Bulk Insulation R3.5	No
Stairs upper	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Kitchen/Living	12	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Family room GF	5	Downlights - LED	150	Sealed
Living	5	Downlights - LED	150	Sealed
Family room GF	5	Downlights - LED	150	Sealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
PWD	1	Downlights - LED	150	Sealed
PWD	1	Exhaust Fans	300	Sealed
Stairs lower	1	Downlights - LED	150	Sealed
Family/Guest	5	Downlights - LED	150	Sealed
Bed 2	5	Downlights - LED	150	Sealed
Bedroom 1	6	Downlights - LED	150	Sealed
ENS Bed 1	3	Downlights - LED	150	Sealed
ENS Bed 1	1	Exhaust Fans	300	Sealed
WIR Bed 1	2	Downlights - LED	150	Sealed
Bath 1	2	Downlights - LED	150	Sealed
Bath 1	1	Exhaust Fans	300	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed
Stairs upper	5	Downlights - LED	150	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
Living	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium

* Refer to glossary.

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	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.

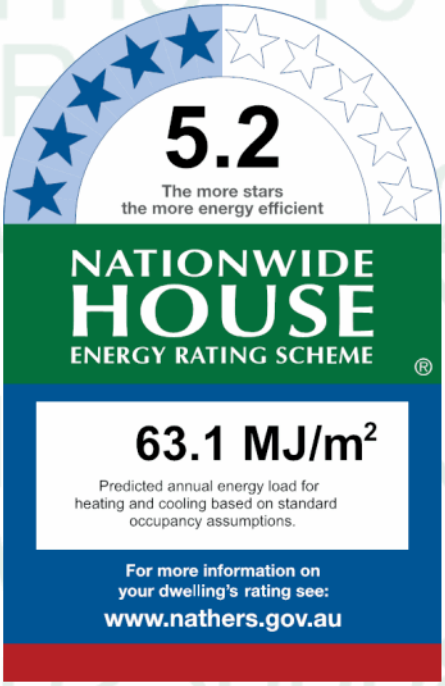
Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

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).

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626186

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH8, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*

Conditioned*	124.0
Unconditioned*	22.0
Total	147.0
Garage	18.0

Exposure type

Suburban

NatHERS climate zone

56

Thermal performance

Heating	Cooling
37.1	**26.0**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645
Assessor Accrediting Organisation	Design Matters National
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=uptjzRzgk.
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.

* 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?

Additional notes

I have modeled the shading in accordance with NatHERS principles

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Garage	ALM-006-03 A	n/a	1000	2400	n/a	00	NW	No
Ldy	ALM-005-03 A	n/a	2400	800	n/a	90	NW	No
Entry	ALM-006-03 A	n/a	390	1000	n/a	00	SE	No
Entry	ALM-006-03 A	n/a	1600	900	n/a	00	NW	No
Kitchen/Living	ALM-006-03 A	n/a	2500	4000	n/a	45	SE	No
Kitchen/Living	ALM-005-03 A	n/a	1650	800	n/a	90	SW	No
Kitchen/Living	ALM-006-03 A	n/a	1650	2400	n/a	45	SW	No
Kitchen/Living	ALM-006-03 A	n/a	2500	2700	n/a	60	NW	No
Bedroom 1	ALM-006-03 A	n/a	1650	2400	n/a	45	NW	No
Bedroom 1	ALM-005-03 A	n/a	1600	800	n/a	10	SW	No
ENS Bed 01	ALM-005-03 A	n/a	1600	800	n/a	90	SW	No
Bedroom 2	ALM-006-03 A	n/a	1650	2400	n/a	45	NW	No
Bedroom 03	ALM-006-03 A	n/a	1650	1320	n/a	45	SE	No
Family Room L1	ALM-006-03 A	n/a	2500	900	n/a	00	NW	No
Family Room L1	ALM-006-03 A	n/a	2500	4000	n/a	45	SE	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

* Refer to glossary.

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
Garage	2400	2700	90	SE
Entry	2400	1000	90	SE

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	EW-1	2800	2995	SE	2400	YES
Garage	EW-1	2800	2995	NW	100	NO
Ldy	EW-1	2800	1690	NW	100	NO
Entry	EW-1	2800	1395	NE	3200	YES
Entry	EW-1	2800	2100	SE	100	YES
Entry	EW-1	2800	1990	NW	100	NO
Kitchen/Living	EW-1	2800	1295	NE	1000	YES

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	5300	SE	1600	NO
Kitchen/Living	EW-1	2800	8800	SW	100	NO
Kitchen/Living	EW-1	2800	3695	NW	1200	NO
Bedroom 1	EW-2	2740	3995	NW	1400	NO
Bedroom 1	EW-2	2740	3895	SW	700	NO
ENS Bed 01	EW-2	2740	2290	SW	700	NO
Bedroom 2	EW-2	2740	3295	NW	800	NO
Bedroom 2	EW-2	2740	3695	NE	700	NO
Bedroom 03	EW-2	2740	3795	NE	700	NO
Bedroom 03	EW-2	2740	3195	SE	700	NO
Bath	EW-2	2740	695	SE	2000	YES
Family Room L1	EW-2	2740	1890	NW	800	NO
Family Room L1	EW-2	2740	1295	NE	4600	YES
Family Room L1	EW-2	2740	5300	SE	1900	NO
Family Room L1	EW-2	2740	2595	SW	700	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Stud, plasterboard		17.00	No Insulation
IW-2 - Cavity wall, direct fix plasterboard, single gap		17.00	Bulk Insulation, No Air Gap R1.5
IW-3 - Cavity wall, direct fix plasterboard, single gap		137.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage	Concrete Slab on Ground 200mm	18.00	None	No Insulation	Bare
Ldy	Concrete Slab on Ground 200mm	4.10	None	No Insulation	Ceramic Tiles 8mm
Entry	Concrete Slab on Ground 200mm	14.90	None	No Insulation	Cork Tiles or Parquetry 8mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
WC	Concrete Slab on Ground 200mm	2.10	None	No Insulation	Ceramic Tiles 8mm
Kitchen/Living	Concrete Slab on Ground 200mm	39.40	None	No Insulation	Cork Tiles or Parquetry 8mm
Bedroom 1/Entry	Timber Above Plasterboard 19mm	0.80		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 1/Kitchen/Living	Timber Above Plasterboard 19mm	13.70		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 01/Kitchen/Living	Timber Above Plasterboard 19mm	7.20		No Insulation	Ceramic Tiles 8mm
Bedroom 2/Garage	Timber Above Plasterboard 19mm	6.50		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Ldy	Timber Above Plasterboard 19mm	3.80		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Entry	Timber Above Plasterboard 19mm	1.10		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Garage	Timber Above Plasterboard 19mm	4.20		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Entry	Timber Above Plasterboard 19mm	2.50		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/WC	Timber Above Plasterboard 19mm	2.10		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03	Suspended Timber Floor 19mm	2.50	Open	No Insulation	Carpet+Rubber Underlay 18mm
Bath /Entry	Timber Above Plasterboard 19mm	2.50		No Insulation	Ceramic Tiles 8mm
Bath /Kitchen/Living	Timber Above Plasterboard 19mm	1.60		No Insulation	Ceramic Tiles 8mm
Family Room L1/Ldy	Timber Above Plasterboard 19mm	0.50		No Insulation	Cork Tiles or Parquetry 8mm
Family Room L1/Entry	Timber Above Plasterboard 19mm	7.90		No Insulation	Cork Tiles or Parquetry 8mm
Family Room L1/Kitchen/Living	Timber Above Plasterboard 19mm	3.60		No Insulation	Cork Tiles or Parquetry 8mm
Family Room L1/Kitchen/Living	Timber Above Plasterboard 19mm	12.30		No Insulation	Cork Tiles or Parquetry 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	No Insulation	No

* Refer to glossary.

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Ldy	Timber Above Plasterboard	No Insulation	No
Entry	Timber Above Plasterboard	No Insulation	No
WC	Timber Above Plasterboard	No Insulation	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 01	Plasterboard	Bulk Insulation R3.5	No
Bedroom 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 03	Plasterboard	Bulk Insulation R3.5	No
Bath	Plasterboard	Bulk Insulation R3.5	No
Family Room L1	Plasterboard	Bulk Insulation R3.5	No
Family Room L1	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Entry	8	Downlights - LED	150	Sealed
WC	1	Downlights - LED	150	Sealed
WC	1	Exhaust Fans	300	Sealed
Kitchen/Living	18	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Bedroom 1	5	Downlights - LED	150	Sealed
Bedroom 2	5	Downlights - LED	150	Sealed
Bedroom 03	5	Downlights - LED	150	Sealed
Bath	1	Downlights - LED	150	Sealed
Bath	1	Exhaust Fans	300	Sealed
Family Room L1	5	Downlights - LED	150	Sealed
Family Room L1	6	Downlights - LED	150	Sealed

Ceiling *fans*

* Refer to glossary.

Location	Quantity	Diameter (mm)
Kitchen/Living	1	900
Family Room L1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	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.

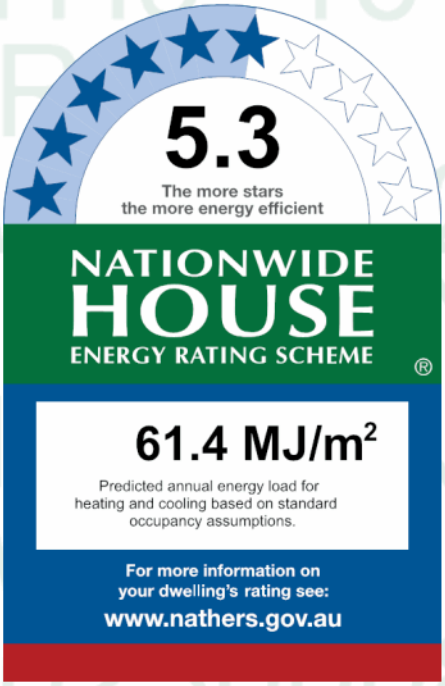
Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

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).

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626178

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH9, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	140.0
Unconditioned*	22.0
Total	162.0
Garage	18.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
35.4	**25.9**
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.

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645
Assessor Accrediting Organisation	Design Matters National
Declaration of interest	Declaration completed: no conflicts

Verification

To verify this certificate, scan the QR code or visit hstar.com.au/QR/Generate?p=xdHIRBJvW.
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
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Garage	ALM-006-03 A	n/a	1000	2400	n/a	00	NW	No
Ldy	ALM-005-03 A	n/a	2400	800	n/a	90	NW	No
Entry	ALM-006-03 A	n/a	1600	900	n/a	00	NW	No
Entry	ALM-006-03 A	n/a	2400	560	n/a	00	SE	No
Entry	ALM-006-03 A	n/a	365	1500	n/a	00	SE	No
Kitchen/Living	ALM-006-03 A	n/a	2500	2700	n/a	60	NW	No
Kitchen/Living	ALM-005-03 A	n/a	1650	800	n/a	90	NE	No
Kitchen/Living	ALM-006-03 A	n/a	1650	2400	n/a	45	NE	No
Kitchen/Living	ALM-006-03 A	n/a	2400	4000	n/a	45	SE	No
Bedroom 1	ALM-005-03 A	n/a	1600	800	n/a	10	NE	No
Bedroom 1	ALM-006-03 A	n/a	1650	2400	n/a	45	NW	No
ENS Bed 01	ALM-005-03 A	n/a	1600	800	n/a	90	NE	No
Bedroom 2	ALM-006-03 A	n/a	1650	2400	n/a	45	NW	No
Bedroom 03	ALM-006-03 A	n/a	1650	1320	n/a	45	SE	No
Stairs L1	ALM-006-03 A	n/a	2500	900	n/a	00	NW	No
Family Room L1	ALM-006-03 A	n/a	2500	4000	n/a	45	SE	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

* Refer to glossary.

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
Garage	2400	2700	90	SE
Entry	2400	820	90	SE

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	EW-1	2800	2995	NW	100	NO
Garage	EW-2	2800	2995	SE	3000	YES
Ldy	EW-1	2800	1690	NW	100	NO
Entry	EW-1	2800	1990	NW	100	NO
Entry	EW-1	2800	2995	SE	1300	YES
Entry	EW-1	2800	1395	SW	3200	YES

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-2	2800	4895	NW	1200	NO
Kitchen/Living	EW-1	2800	8800	NE	100	NO
Kitchen/Living	EW-1	2800	5600	SE	1700	NO
Kitchen/Living	EW-1	2800	1300	SW	1700	YES
Bedroom 1	EW-2	2740	3895	NE	700	NO
Bedroom 1	EW-2	2740	3195	NW	1300	NO
ENS Bed 01	EW-2	2740	1890	NE	700	NO
WIR Bed 01	EW-2	2740	1590	NW	700	NO
Bedroom 2	EW-2	2740	3695	SW	700	NO
Bedroom 2	EW-2	2740	3195	NW	700	NO
Bedroom 03	EW-2	2740	3295	SE	700	NO
Bedroom 03	EW-2	2740	3795	SW	700	NO
Bath	EW-2	2740	1095	SE	2000	YES
Stairs L1	EW-2	2740	1990	NW	700	NO
Family Room L1	EW-2	2740	2995	NE	700	NO
Family Room L1	EW-2	2740	5600	SE	1500	NO
Family Room L1	EW-2	2740	1295	SW	5100	YES

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		164.00	No insulation
IW-2 - Stud, plasterboard		17.00	No Insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage	Concrete Slab on Ground 200mm	18.00	None	No Insulation	Bare
Ldy	Concrete Slab on Ground 200mm	4.10	None	No Insulation	Ceramic Tiles 8mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Entry	Concrete Slab on Ground 200mm	17.60	None	No Insulation	Cork Tiles or Parquetry 8mm
WC	Concrete Slab on Ground 200mm	2.10	None	No Insulation	Ceramic Tiles 8mm
Kitchen/Living	Concrete Slab on Ground 200mm	46.10	None	No Insulation	Cork Tiles or Parquetry 8mm
Bedroom 1/Kitchen/Living	Timber Above Plasterboard 19mm	12.90		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 01/Kitchen/Living	Timber Above Plasterboard 19mm	7.00		No Insulation	Ceramic Tiles 8mm
WIR Bed 01/Kitchen/Living	Timber Above Plasterboard 19mm	4.20		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Garage	Timber Above Plasterboard 19mm	5.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Ldy	Timber Above Plasterboard 19mm	4.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Entry	Timber Above Plasterboard 19mm	1.70		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Garage	Timber Above Plasterboard 19mm	3.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Entry	Timber Above Plasterboard 19mm	4.10		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/WC	Timber Above Plasterboard 19mm	2.20		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03	Suspended Timber Floor 19mm	1.90	Open	No Insulation	Carpet+Rubber Underlay 18mm
Bath /Entry	Timber Above Plasterboard 19mm	3.00		No Insulation	Ceramic Tiles 8mm
Bath /Kitchen/Living	Timber Above Plasterboard 19mm	1.40		No Insulation	Ceramic Tiles 8mm
Stairs L1/Entry	Timber Above Plasterboard 19mm	8.70		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Kitchen/Living	Timber Above Plasterboard 19mm	3.80		No Insulation	Cork Tiles or Parquetry 8mm
Family Room L1/Kitchen/Living	Timber Above Plasterboard 19mm	15.40		No Insulation	Cork Tiles or Parquetry 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	No Insulation	No

* Refer to glossary.

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Ldy	Timber Above Plasterboard	No Insulation	No
Entry	Timber Above Plasterboard	No Insulation	No
WC	Timber Above Plasterboard	No Insulation	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 01	Plasterboard	Bulk Insulation R3.5	No
WIR Bed 01	Plasterboard	Bulk Insulation R3.5	No
Bedroom 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 03	Plasterboard	Bulk Insulation R3.5	No
Bath	Plasterboard	Bulk Insulation R3.5	No
Stairs L1	Plasterboard	Bulk Insulation R3.5	No
Family Room L1	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Entry	8	Downlights - LED	150	Sealed
WC	1	Downlights - LED	150	Sealed
WC	1	Exhaust Fans	300	Sealed
Kitchen/Living	18	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Bedroom 1	5	Downlights - LED	150	Sealed
Bedroom 2	5	Downlights - LED	150	Sealed
Bedroom 03	5	Downlights - LED	150	Sealed
Bath	1	Downlights - LED	150	Sealed
Bath	1	Exhaust Fans	300	Sealed
Stairs L1	5	Downlights - LED	150	Sealed
Family Room L1	6	Downlights - LED	150	Sealed

* Refer to glossary.

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium

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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

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Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626129

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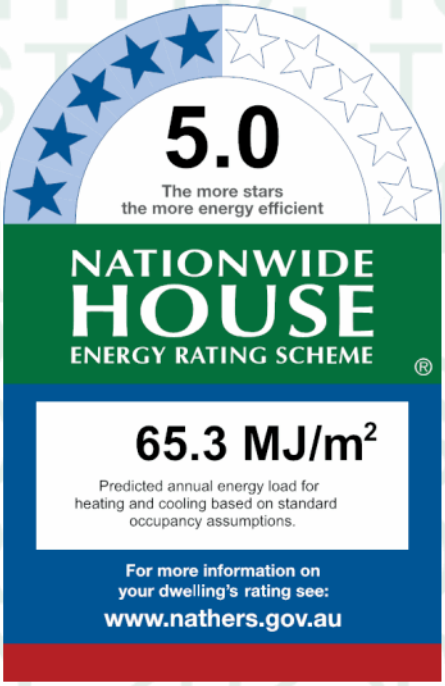

Property

Address	Unit TH10, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	140.0
Unconditioned*	22.0
Total	162.0
Garage	18.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
39.3	**25.9**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645

Assessor Accrediting Organisation
Design Matters National

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

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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
ALM-003-01 A	ALM-003-01 A Aluminium A DG Air Fill Clear-Clear	4.8	0.51	0.48	0.54
ALM-006-01 A	ALM-006-01 A Aluminium B DG Argon Fill Clear-Clear	4.5	0.61	0.58	0.64

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Garage	ALM-003-01 A	n/a	1000	1200	n/a	10	NW	No
Ldy	ALM-003-01 A	n/a	2400	800	n/a	90	NW	No
Entry	ALM-006-01 A	n/a	1600	900	n/a	00	NW	No
Entry	ALM-006-01 A	n/a	2400	560	n/a	00	SE	No
Entry	ALM-006-01 A	n/a	365	1500	n/a	00	SE	No
Kitchen/Living	ALM-006-01 A	n/a	2500	2700	n/a	60	NW	No
Kitchen/Living	ALM-003-01 A	n/a	1650	800	n/a	90	NE	No
Kitchen/Living	ALM-006-01 A	n/a	1650	2400	n/a	45	NE	No
Kitchen/Living	ALM-006-01 A	n/a	2400	4000	n/a	45	SE	No
Bedroom 1	ALM-003-01 A	n/a	1600	800	n/a	10	NE	No
Bedroom 1	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
ENS Bed 01	ALM-003-01 A	n/a	1600	800	n/a	90	NE	No
Bedroom 2	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
Bedroom 03	ALM-006-01 A	n/a	1650	1320	n/a	45	SE	No
Stairs L1	ALM-006-01 A	n/a	2500	900	n/a	00	NW	No
Family Room L1	ALM-006-01 A	n/a	2400	4000	n/a	45	SE	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

* Refer to glossary.

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
Garage	2400	2700	90	SE
Entry	2400	820	90	SE

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	EW-1	2800	2995	NW	100	NO
Garage	EW-1	2800	2995	SE	3000	YES
Garage	EW-2	2800	6100	SW	100	NO
Ldy	EW-1	2800	1690	NW	100	NO
Entry	EW-1	2800	1990	NW	100	NO
Entry	EW-1	2800	2995	SE	1400	YES
Entry	EW-1	2800	1395	SW	3100	YES

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	4895	NW	1200	NO
Kitchen/Living	EW-2	2800	8800	NE	100	NO
Kitchen/Living	EW-1	2800	5600	SE	1700	NO
Kitchen/Living	EW-1	2800	1300	SW	1800	YES
Bedroom 1	EW-2	2740	3895	NE	700	NO
Bedroom 1	EW-2	2740	3195	NW	1300	NO
ENS Bed 01	EW-2	2740	1890	NE	700	NO
WIR Bed 01	EW-2	2740	1590	NW	700	NO
Bedroom 2	EW-2	2740	3695	SW	700	NO
Bedroom 2	EW-2	2740	3195	NW	700	NO
Bedroom 03	EW-2	2740	3295	SE	700	NO
Bedroom 03	EW-2	2740	3795	SW	700	NO
Bath	EW-2	2740	1095	SE	2000	YES
Stairs L1	EW-2	2740	1990	NW	700	NO
Family Room L1	EW-2	2740	2995	NE	700	NO
Family Room L1	EW-2	2740	5600	SE	1500	NO
Family Room L1	EW-2	2740	1295	SW	5100	YES

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		17.00	Bulk Insulation, No Air Gap R1.5
IW-2 - Cavity wall, direct fix plasterboard, single gap		147.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage	Concrete Slab on Ground 200mm	18.00	None	No Insulation	Bare
Ldy	Concrete Slab on Ground 200mm	4.10	None	No Insulation	Ceramic Tiles 8mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Entry	Concrete Slab on Ground 200mm	17.40	None	No Insulation	Cork Tiles or Parquetry 8mm
WC	Concrete Slab on Ground 200mm	2.30	None	No Insulation	Ceramic Tiles 8mm
Kitchen/Living	Concrete Slab on Ground 200mm	46.10	None	No Insulation	Cork Tiles or Parquetry 8mm
Bedroom 1/Kitchen/Living	Timber Above Plasterboard 19mm	12.90		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 01/Kitchen/Living	Timber Above Plasterboard 19mm	7.00		No Insulation	Ceramic Tiles 8mm
WIR Bed 01/Kitchen/Living	Timber Above Plasterboard 19mm	4.20		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Garage	Timber Above Plasterboard 19mm	5.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Ldy	Timber Above Plasterboard 19mm	4.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Entry	Timber Above Plasterboard 19mm	1.70		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Garage	Timber Above Plasterboard 19mm	3.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Entry	Timber Above Plasterboard 19mm	3.90		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/WC	Timber Above Plasterboard 19mm	2.40		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03	Suspended Timber Floor 19mm	1.90	Open	No Insulation	Carpet+Rubber Underlay 18mm
Bath /Entry	Timber Above Plasterboard 19mm	3.00		No Insulation	Ceramic Tiles 8mm
Bath /Kitchen/Living	Timber Above Plasterboard 19mm	1.40		No Insulation	Ceramic Tiles 8mm
Stairs L1/Entry	Timber Above Plasterboard 19mm	8.70		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Kitchen/Living	Timber Above Plasterboard 19mm	3.80		No Insulation	Cork Tiles or Parquetry 8mm
Family Room L1/Kitchen/Living	Timber Above Plasterboard 19mm	15.40		No Insulation	Cork Tiles or Parquetry 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	No Insulation	No

* Refer to glossary.

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Ldy	Timber Above Plasterboard	No Insulation	No
Entry	Timber Above Plasterboard	No Insulation	No
WC	Timber Above Plasterboard	No Insulation	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 01	Plasterboard	Bulk Insulation R3.5	No
WIR Bed 01	Plasterboard	Bulk Insulation R3.5	No
Bedroom 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 03	Plasterboard	Bulk Insulation R3.5	No
Bath	Plasterboard	Bulk Insulation R3.5	No
Stairs L1	Plasterboard	Bulk Insulation R3.5	No
Family Room L1	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Entry	8	Downlights - LED	150	Sealed
WC	1	Downlights - LED	150	Sealed
WC	1	Exhaust Fans	300	Sealed
Kitchen/Living	18	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Bedroom 1	5	Downlights - LED	150	Sealed
Bedroom 2	5	Downlights - LED	150	Sealed
Bedroom 03	5	Downlights - LED	150	Sealed
Bath	1	Downlights - LED	150	Sealed
Bath	1	Exhaust Fans	300	Sealed
Stairs L1	5	Downlights - LED	150	Sealed
Family Room L1	6	Downlights - LED	150	Sealed

* Refer to glossary.

Ceiling *fans*

Location	Quantity	Diameter (mm)
Kitchen/Living	1	900
Family Room L1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
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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.

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Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626087

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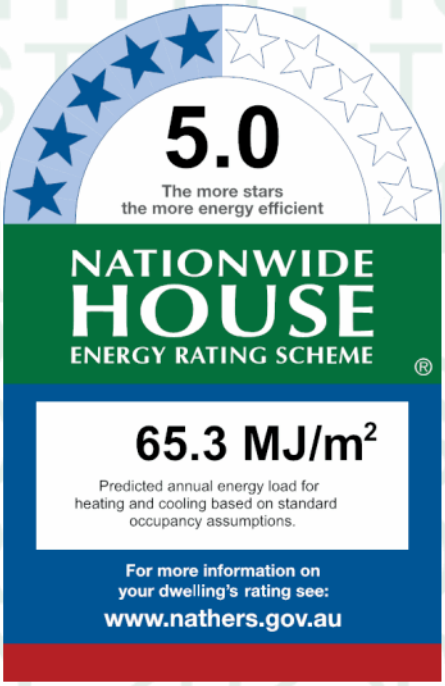

Property

Address	Unit TH11, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	140.0
Unconditioned*	22.0
Total	162.0
Garage	18.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
39.4	**25.9**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645
Assessor Accrediting Organisation	Design Matters National
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=nhFvcGmpy.
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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.

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

Windows

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

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

Additional notes

I have modeled the shading in accordance with NatHERS principles

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-003-01 A	ALM-003-01 A Aluminium A DG Air Fill Clear-Clear	4.8	0.51	0.48	0.54
ALM-006-01 A	ALM-006-01 A Aluminium B DG Argon Fill Clear-Clear	4.5	0.61	0.58	0.64

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Garage	ALM-003-01 A	n/a	1000	1200	n/a	10	NW	No
Ldy	ALM-003-01 A	n/a	2400	800	n/a	90	NW	No
Entry	ALM-006-01 A	n/a	1600	900	n/a	00	NW	No
Entry	ALM-006-01 A	n/a	2400	560	n/a	00	SE	No
Entry	ALM-006-01 A	n/a	365	1500	n/a	00	SE	No
Kitchen/Living	ALM-006-01 A	n/a	2500	2700	n/a	60	NW	No
Kitchen/Living	ALM-003-01 A	n/a	1650	800	n/a	90	NE	No
Kitchen/Living	ALM-006-01 A	n/a	1650	2400	n/a	45	NE	No
Kitchen/Living	ALM-006-01 A	n/a	2400	4000	n/a	45	SE	No
Bedroom 1	ALM-003-01 A	n/a	1600	800	n/a	10	NE	No
Bedroom 1	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
ENS Bed 01	ALM-003-01 A	n/a	1600	800	n/a	90	NE	No
Bedroom 2	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
Bedroom 03	ALM-006-01 A	n/a	1650	1320	n/a	45	SE	No
Stairs L1	ALM-006-01 A	n/a	2500	900	n/a	00	NW	No
Family Room L1	ALM-006-01 A	n/a	2400	4000	n/a	45	SE	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

* Refer to glossary.

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
Garage	2400	2700	90	SE
Entry	2400	820	90	SE

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	EW-1	2800	2995	NW	100	NO
Garage	EW-1	2800	2995	SE	3000	YES
Garage	EW-2	2800	6100	SW	100	NO
Ldy	EW-1	2800	1690	NW	100	NO
Entry	EW-1	2800	1990	NW	100	NO
Entry	EW-1	2800	2995	SE	1400	YES
Entry	EW-1	2800	1395	SW	3100	YES

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	4895	NW	1200	NO
Kitchen/Living	EW-2	2800	8800	NE	100	NO
Kitchen/Living	EW-1	2800	5600	SE	1700	NO
Kitchen/Living	EW-1	2800	1300	SW	1800	YES
Bedroom 1	EW-2	2740	3895	NE	700	NO
Bedroom 1	EW-2	2740	3195	NW	1300	NO
ENS Bed 01	EW-2	2740	1890	NE	700	NO
WIR Bed 01	EW-2	2740	1590	NW	700	NO
Bedroom 2	EW-2	2740	3695	SW	700	NO
Bedroom 2	EW-2	2740	3195	NW	700	NO
Bedroom 03	EW-2	2740	3295	SE	700	NO
Bedroom 03	EW-2	2740	3795	SW	700	NO
Bath	EW-2	2740	1095	SE	2000	YES
Stairs L1	EW-2	2740	1990	NW	700	NO
Family Room L1	EW-2	2740	2995	NE	700	NO
Family Room L1	EW-2	2740	5600	SE	1500	NO
Family Room L1	EW-2	2740	1295	SW	5100	YES

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		17.00	Bulk Insulation, No Air Gap R1.5
IW-2 - Cavity wall, direct fix plasterboard, single gap		147.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage	Concrete Slab on Ground 200mm	18.00	None	No Insulation	Bare
Ldy	Concrete Slab on Ground 200mm	4.10	None	No Insulation	Ceramic Tiles 8mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Entry	Concrete Slab on Ground 200mm	17.40	None	No Insulation	Cork Tiles or Parquetry 8mm
WC	Concrete Slab on Ground 200mm	2.30	None	No Insulation	Ceramic Tiles 8mm
Kitchen/Living	Concrete Slab on Ground 200mm	46.10	None	No Insulation	Cork Tiles or Parquetry 8mm
Bedroom 1/Kitchen/Living	Timber Above Plasterboard 19mm	12.90		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 01/Kitchen/Living	Timber Above Plasterboard 19mm	7.00		No Insulation	Ceramic Tiles 8mm
WIR Bed 01/Kitchen/Living	Timber Above Plasterboard 19mm	4.20		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Garage	Timber Above Plasterboard 19mm	5.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Ldy	Timber Above Plasterboard 19mm	4.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Entry	Timber Above Plasterboard 19mm	1.70		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Garage	Timber Above Plasterboard 19mm	3.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Entry	Timber Above Plasterboard 19mm	3.90		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/WC	Timber Above Plasterboard 19mm	2.40		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03	Suspended Timber Floor 19mm	1.90	Open	No Insulation	Carpet+Rubber Underlay 18mm
Bath /Entry	Timber Above Plasterboard 19mm	3.00		No Insulation	Ceramic Tiles 8mm
Bath /Kitchen/Living	Timber Above Plasterboard 19mm	1.40		No Insulation	Ceramic Tiles 8mm
Stairs L1/Entry	Timber Above Plasterboard 19mm	8.70		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Kitchen/Living	Timber Above Plasterboard 19mm	3.80		No Insulation	Cork Tiles or Parquetry 8mm
Family Room L1/Kitchen/Living	Timber Above Plasterboard 19mm	15.40		No Insulation	Cork Tiles or Parquetry 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	No Insulation	No

* Refer to glossary.

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Ldy	Timber Above Plasterboard	No Insulation	No
Entry	Timber Above Plasterboard	No Insulation	No
WC	Timber Above Plasterboard	No Insulation	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 01	Plasterboard	Bulk Insulation R3.5	No
WIR Bed 01	Plasterboard	Bulk Insulation R3.5	No
Bedroom 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 03	Plasterboard	Bulk Insulation R3.5	No
Bath	Plasterboard	Bulk Insulation R3.5	No
Stairs L1	Plasterboard	Bulk Insulation R3.5	No
Family Room L1	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Entry	8	Downlights - LED	150	Sealed
WC	1	Downlights - LED	150	Sealed
WC	1	Exhaust Fans	300	Sealed
Kitchen/Living	18	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Bedroom 1	5	Downlights - LED	150	Sealed
Bedroom 2	5	Downlights - LED	150	Sealed
Bedroom 03	5	Downlights - LED	150	Sealed
Bath	1	Downlights - LED	150	Sealed
Bath	1	Exhaust Fans	300	Sealed
Stairs L1	5	Downlights - LED	150	Sealed
Family Room L1	6	Downlights - LED	150	Sealed

* Refer to glossary.

Ceiling *fans*

Location	Quantity	Diameter (mm)
Kitchen/Living	1	900
Family Room L1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	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.

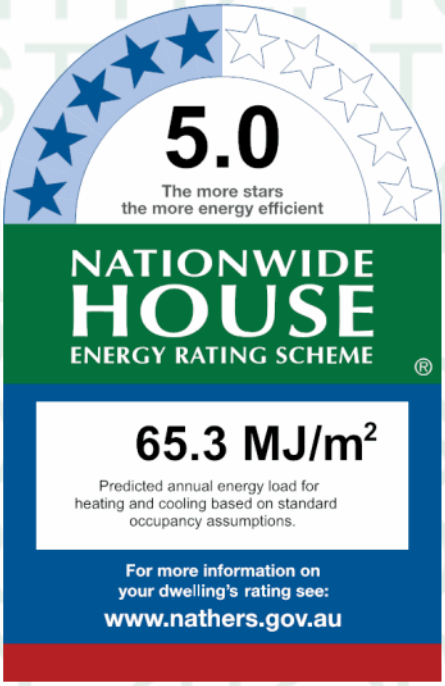
Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

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).

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626061

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH12, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	140.0
Unconditioned*	22.0
Total	162.0
Garage	18.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
39.4	**25.9**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645

Assessor Accrediting Organisation
Design Matters National

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.

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Window and glazed door *type and performance*

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				SHGC lower limit	SHGC upper limit
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ALM-006-01 A	ALM-006-01 A Aluminium B DG Argon Fill Clear-Clear	4.5	0.61	0.58	0.64

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Garage	ALM-003-01 A	n/a	1000	1200	n/a	10	NW	No
Ldy	ALM-003-01 A	n/a	2400	800	n/a	90	NW	No
Entry	ALM-006-01 A	n/a	1600	900	n/a	00	NW	No
Entry	ALM-006-01 A	n/a	2400	560	n/a	00	SE	No
Entry	ALM-006-01 A	n/a	365	1500	n/a	00	SE	No
Kitchen/Living	ALM-006-01 A	n/a	2500	2700	n/a	60	NW	No
Kitchen/Living	ALM-003-01 A	n/a	1650	800	n/a	90	NE	No
Kitchen/Living	ALM-006-01 A	n/a	1650	2400	n/a	45	NE	No
Kitchen/Living	ALM-006-01 A	n/a	2400	4000	n/a	45	SE	No
Bedroom 1	ALM-003-01 A	n/a	1600	800	n/a	10	NE	No
Bedroom 1	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
ENS Bed 01	ALM-003-01 A	n/a	1600	800	n/a	90	NE	No
Bedroom 2	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
Bedroom 03	ALM-006-01 A	n/a	1650	1320	n/a	45	SE	No
Stairs L1	ALM-006-01 A	n/a	2500	900	n/a	00	NW	No
Family Room L1	ALM-006-01 A	n/a	2400	4000	n/a	45	SE	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

* Refer to glossary.

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
Garage	2400	2700	90	SE
Entry	2400	820	90	SE

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	EW-1	2800	2995	NW	100	NO
Garage	EW-1	2800	2995	SE	3000	YES
Garage	EW-2	2800	6100	SW	100	NO
Ldy	EW-1	2800	1690	NW	100	NO
Entry	EW-1	2800	1990	NW	100	NO
Entry	EW-1	2800	2995	SE	1400	YES
Entry	EW-1	2800	1395	SW	3100	YES

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	4895	NW	1200	NO
Kitchen/Living	EW-2	2800	8800	NE	100	NO
Kitchen/Living	EW-1	2800	5600	SE	1700	NO
Kitchen/Living	EW-1	2800	1300	SW	1800	YES
Bedroom 1	EW-2	2740	3895	NE	700	NO
Bedroom 1	EW-2	2740	3195	NW	1300	NO
ENS Bed 01	EW-2	2740	1890	NE	700	NO
WIR Bed 01	EW-2	2740	1590	NW	700	NO
Bedroom 2	EW-2	2740	3695	SW	700	NO
Bedroom 2	EW-2	2740	3195	NW	700	NO
Bedroom 03	EW-2	2740	3295	SE	700	NO
Bedroom 03	EW-2	2740	3795	SW	700	NO
Bath	EW-2	2740	1095	SE	2000	YES
Stairs L1	EW-2	2740	1990	NW	700	NO
Family Room L1	EW-2	2740	2995	NE	700	NO
Family Room L1	EW-2	2740	5600	SE	1500	NO
Family Room L1	EW-2	2740	1295	SW	5100	YES

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		17.00	Bulk Insulation, No Air Gap R1.5
IW-2 - Cavity wall, direct fix plasterboard, single gap		147.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage	Concrete Slab on Ground 200mm	18.00	None	No Insulation	Bare
Ldy	Concrete Slab on Ground 200mm	4.10	None	No Insulation	Ceramic Tiles 8mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Entry	Concrete Slab on Ground 200mm	17.40	None	No Insulation	Cork Tiles or Parquetry 8mm
WC	Concrete Slab on Ground 200mm	2.30	None	No Insulation	Ceramic Tiles 8mm
Kitchen/Living	Concrete Slab on Ground 200mm	46.10	None	No Insulation	Cork Tiles or Parquetry 8mm
Bedroom 1/Kitchen/Living	Timber Above Plasterboard 19mm	12.90		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 01/Kitchen/Living	Timber Above Plasterboard 19mm	7.00		No Insulation	Ceramic Tiles 8mm
WIR Bed 01/Kitchen/Living	Timber Above Plasterboard 19mm	4.20		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Garage	Timber Above Plasterboard 19mm	5.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Ldy	Timber Above Plasterboard 19mm	4.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Entry	Timber Above Plasterboard 19mm	1.70		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Garage	Timber Above Plasterboard 19mm	3.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Entry	Timber Above Plasterboard 19mm	3.90		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/WC	Timber Above Plasterboard 19mm	2.40		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03	Suspended Timber Floor 19mm	1.90	Open	No Insulation	Carpet+Rubber Underlay 18mm
Bath /Entry	Timber Above Plasterboard 19mm	3.00		No Insulation	Ceramic Tiles 8mm
Bath /Kitchen/Living	Timber Above Plasterboard 19mm	1.40		No Insulation	Ceramic Tiles 8mm
Stairs L1/Entry	Timber Above Plasterboard 19mm	8.70		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Kitchen/Living	Timber Above Plasterboard 19mm	3.80		No Insulation	Cork Tiles or Parquetry 8mm
Family Room L1/Kitchen/Living	Timber Above Plasterboard 19mm	15.40		No Insulation	Cork Tiles or Parquetry 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	No Insulation	No

* Refer to glossary.

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Ldy	Timber Above Plasterboard	No Insulation	No
Entry	Timber Above Plasterboard	No Insulation	No
WC	Timber Above Plasterboard	No Insulation	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 01	Plasterboard	Bulk Insulation R3.5	No
WIR Bed 01	Plasterboard	Bulk Insulation R3.5	No
Bedroom 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 03	Plasterboard	Bulk Insulation R3.5	No
Bath	Plasterboard	Bulk Insulation R3.5	No
Stairs L1	Plasterboard	Bulk Insulation R3.5	No
Family Room L1	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Entry	8	Downlights - LED	150	Sealed
WC	1	Downlights - LED	150	Sealed
WC	1	Exhaust Fans	300	Sealed
Kitchen/Living	18	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Bedroom 1	5	Downlights - LED	150	Sealed
Bedroom 2	5	Downlights - LED	150	Sealed
Bedroom 03	5	Downlights - LED	150	Sealed
Bath	1	Downlights - LED	150	Sealed
Bath	1	Exhaust Fans	300	Sealed
Stairs L1	5	Downlights - LED	150	Sealed
Family Room L1	6	Downlights - LED	150	Sealed

* Refer to glossary.

Ceiling *fans*

Location	Quantity	Diameter (mm)
Kitchen/Living	1	900
Family Room L1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	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.

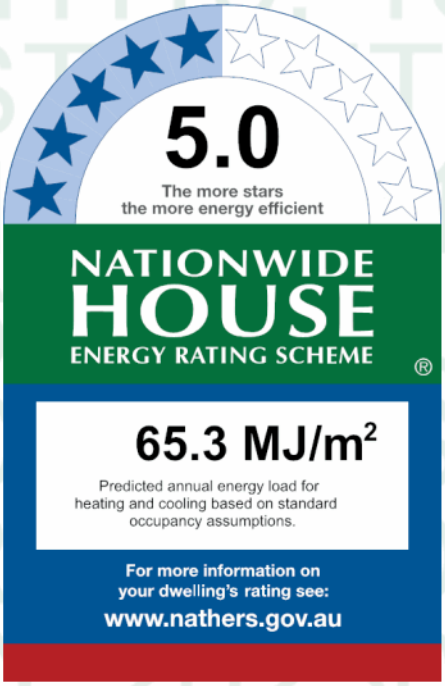
Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

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).

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626038

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH13, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	140.0
Unconditioned*	22.0
Total	162.0
Garage	18.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
39.4	**25.9**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645
Assessor Accrediting Organisation	Design Matters National
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=IHOrSSCPS.
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
ALM-003-01 A	ALM-003-01 A Aluminium A DG Air Fill Clear-Clear	4.8	0.51	0.48	0.54
ALM-006-01 A	ALM-006-01 A Aluminium B DG Argon Fill Clear-Clear	4.5	0.61	0.58	0.64

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Garage	ALM-003-01 A	n/a	1000	1200	n/a	10	NW	No
Ldy	ALM-003-01 A	n/a	2400	800	n/a	90	NW	No
Entry	ALM-006-01 A	n/a	1600	900	n/a	00	NW	No
Entry	ALM-006-01 A	n/a	2400	560	n/a	00	SE	No
Entry	ALM-006-01 A	n/a	365	1500	n/a	00	SE	No
Kitchen/Living	ALM-006-01 A	n/a	2500	2700	n/a	60	NW	No
Kitchen/Living	ALM-003-01 A	n/a	1650	800	n/a	90	NE	No
Kitchen/Living	ALM-006-01 A	n/a	1650	2400	n/a	45	NE	No
Kitchen/Living	ALM-006-01 A	n/a	2400	4000	n/a	45	SE	No
Bedroom 1	ALM-003-01 A	n/a	1600	800	n/a	10	NE	No
Bedroom 1	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
ENS Bed 01	ALM-003-01 A	n/a	1600	800	n/a	90	NE	No
Bedroom 2	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
Bedroom 03	ALM-006-01 A	n/a	1650	1320	n/a	45	SE	No
Stairs L1	ALM-006-01 A	n/a	2500	900	n/a	00	NW	No
Family Room L1	ALM-006-01 A	n/a	2400	4000	n/a	45	SE	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

* Refer to glossary.

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
Garage	2400	2700	90	SE
Entry	2400	820	90	SE

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	EW-1	2800	2995	NW	100	NO
Garage	EW-1	2800	2995	SE	3000	YES
Garage	EW-2	2800	6100	SW	100	NO
Ldy	EW-1	2800	1690	NW	100	NO
Entry	EW-1	2800	1990	NW	100	NO
Entry	EW-1	2800	2995	SE	1400	YES
Entry	EW-1	2800	1395	SW	3100	YES

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	4895	NW	1200	NO
Kitchen/Living	EW-2	2800	8800	NE	100	NO
Kitchen/Living	EW-1	2800	5600	SE	1700	NO
Kitchen/Living	EW-1	2800	1300	SW	1800	YES
Bedroom 1	EW-2	2740	3895	NE	700	NO
Bedroom 1	EW-2	2740	3195	NW	1300	NO
ENS Bed 01	EW-2	2740	1890	NE	700	NO
WIR Bed 01	EW-2	2740	1590	NW	700	NO
Bedroom 2	EW-2	2740	3695	SW	700	NO
Bedroom 2	EW-2	2740	3195	NW	700	NO
Bedroom 03	EW-2	2740	3295	SE	700	NO
Bedroom 03	EW-2	2740	3795	SW	700	NO
Bath	EW-2	2740	1095	SE	2000	YES
Stairs L1	EW-2	2740	1990	NW	700	NO
Family Room L1	EW-2	2740	2995	NE	700	NO
Family Room L1	EW-2	2740	5600	SE	1500	NO
Family Room L1	EW-2	2740	1295	SW	5100	YES

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		17.00	Bulk Insulation, No Air Gap R1.5
IW-2 - Cavity wall, direct fix plasterboard, single gap		147.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage	Concrete Slab on Ground 200mm	18.00	None	No Insulation	Bare
Ldy	Concrete Slab on Ground 200mm	4.10	None	No Insulation	Ceramic Tiles 8mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Entry	Concrete Slab on Ground 200mm	17.40	None	No Insulation	Cork Tiles or Parquetry 8mm
WC	Concrete Slab on Ground 200mm	2.30	None	No Insulation	Ceramic Tiles 8mm
Kitchen/Living	Concrete Slab on Ground 200mm	46.10	None	No Insulation	Cork Tiles or Parquetry 8mm
Bedroom 1/Kitchen/Living	Timber Above Plasterboard 19mm	12.90		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 01/Kitchen/Living	Timber Above Plasterboard 19mm	7.00		No Insulation	Ceramic Tiles 8mm
WIR Bed 01/Kitchen/Living	Timber Above Plasterboard 19mm	4.20		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Garage	Timber Above Plasterboard 19mm	5.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Ldy	Timber Above Plasterboard 19mm	4.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Entry	Timber Above Plasterboard 19mm	1.70		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Garage	Timber Above Plasterboard 19mm	3.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Entry	Timber Above Plasterboard 19mm	3.90		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/WC	Timber Above Plasterboard 19mm	2.40		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03	Suspended Timber Floor 19mm	1.90	Open	No Insulation	Carpet+Rubber Underlay 18mm
Bath /Entry	Timber Above Plasterboard 19mm	3.00		No Insulation	Ceramic Tiles 8mm
Bath /Kitchen/Living	Timber Above Plasterboard 19mm	1.40		No Insulation	Ceramic Tiles 8mm
Stairs L1/Entry	Timber Above Plasterboard 19mm	8.70		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Kitchen/Living	Timber Above Plasterboard 19mm	3.80		No Insulation	Cork Tiles or Parquetry 8mm
Family Room L1/Kitchen/Living	Timber Above Plasterboard 19mm	15.40		No Insulation	Cork Tiles or Parquetry 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	No Insulation	No

* Refer to glossary.

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Ldy	Timber Above Plasterboard	No Insulation	No
Entry	Timber Above Plasterboard	No Insulation	No
WC	Timber Above Plasterboard	No Insulation	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 01	Plasterboard	Bulk Insulation R3.5	No
WIR Bed 01	Plasterboard	Bulk Insulation R3.5	No
Bedroom 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 03	Plasterboard	Bulk Insulation R3.5	No
Bath	Plasterboard	Bulk Insulation R3.5	No
Stairs L1	Plasterboard	Bulk Insulation R3.5	No
Family Room L1	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Entry	8	Downlights - LED	150	Sealed
WC	1	Downlights - LED	150	Sealed
WC	1	Exhaust Fans	300	Sealed
Kitchen/Living	18	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Bedroom 1	5	Downlights - LED	150	Sealed
Bedroom 2	5	Downlights - LED	150	Sealed
Bedroom 03	5	Downlights - LED	150	Sealed
Bath	1	Downlights - LED	150	Sealed
Bath	1	Exhaust Fans	300	Sealed
Stairs L1	5	Downlights - LED	150	Sealed
Family Room L1	6	Downlights - LED	150	Sealed

* Refer to glossary.

Ceiling *fans*

Location	Quantity	Diameter (mm)
Kitchen/Living	1	900
Family Room L1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium

Explanatory notes

About this report

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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.

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Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008625998

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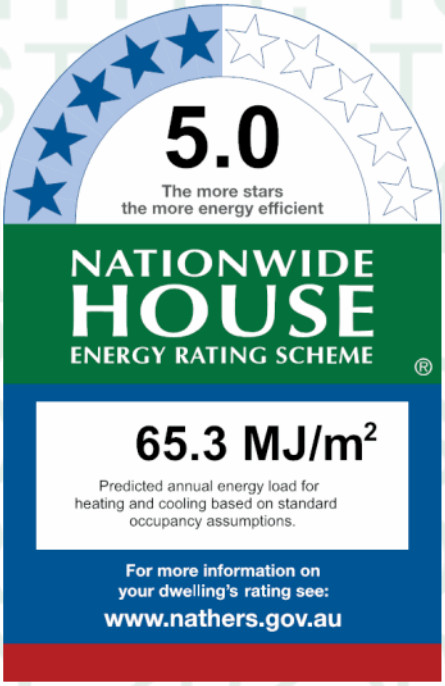

Property

Address	Unit TH14, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	140.0
Unconditioned*	22.0
Total	162.0
Garage	18.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
39.4	**25.9**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645
Assessor Accrediting Organisation	Design Matters National
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=xtkHohITC.
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
ALM-003-01 A	ALM-003-01 A Aluminium A DG Air Fill Clear-Clear	4.8	0.51	0.48	0.54
ALM-006-01 A	ALM-006-01 A Aluminium B DG Argon Fill Clear-Clear	4.5	0.61	0.58	0.64

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Garage	ALM-003-01 A	n/a	1000	1200	n/a	10	NW	No
Ldy	ALM-003-01 A	n/a	2400	800	n/a	90	NW	No
Entry	ALM-006-01 A	n/a	1600	900	n/a	00	NW	No
Entry	ALM-006-01 A	n/a	2400	560	n/a	00	SE	No
Entry	ALM-006-01 A	n/a	365	1500	n/a	00	SE	No
Kitchen/Living	ALM-006-01 A	n/a	2500	2700	n/a	60	NW	No
Kitchen/Living	ALM-003-01 A	n/a	1650	800	n/a	90	NE	No
Kitchen/Living	ALM-006-01 A	n/a	1650	2400	n/a	45	NE	No
Kitchen/Living	ALM-006-01 A	n/a	2400	4000	n/a	45	SE	No
Bedroom 1	ALM-003-01 A	n/a	1600	800	n/a	10	NE	No
Bedroom 1	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
ENS Bed 01	ALM-003-01 A	n/a	1600	800	n/a	90	NE	No
Bedroom 2	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
Bedroom 03	ALM-006-01 A	n/a	1650	1320	n/a	45	SE	No
Stairs L1	ALM-006-01 A	n/a	2500	900	n/a	00	NW	No
Family Room L1	ALM-006-01 A	n/a	2400	4000	n/a	45	SE	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

* Refer to glossary.

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
Garage	2400	2700	90	SE
Entry	2400	820	90	SE

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	EW-1	2800	2995	NW	100	NO
Garage	EW-1	2800	2995	SE	3000	YES
Garage	EW-2	2800	6100	SW	100	NO
Ldy	EW-1	2800	1690	NW	100	NO
Entry	EW-1	2800	1990	NW	100	NO
Entry	EW-1	2800	2995	SE	1400	YES
Entry	EW-1	2800	1395	SW	3100	YES

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	4895	NW	1200	NO
Kitchen/Living	EW-2	2800	8800	NE	100	NO
Kitchen/Living	EW-1	2800	5600	SE	1700	NO
Kitchen/Living	EW-1	2800	1300	SW	1800	YES
Bedroom 1	EW-2	2740	3895	NE	700	NO
Bedroom 1	EW-2	2740	3195	NW	1300	NO
ENS Bed 01	EW-2	2740	1890	NE	700	NO
WIR Bed 01	EW-2	2740	1590	NW	700	NO
Bedroom 2	EW-2	2740	3695	SW	700	NO
Bedroom 2	EW-2	2740	3195	NW	700	NO
Bedroom 03	EW-2	2740	3295	SE	700	NO
Bedroom 03	EW-2	2740	3795	SW	700	NO
Bath	EW-2	2740	1095	SE	2000	YES
Stairs L1	EW-2	2740	1990	NW	700	NO
Family Room L1	EW-2	2740	2995	NE	700	NO
Family Room L1	EW-2	2740	5600	SE	1500	NO
Family Room L1	EW-2	2740	1295	SW	5100	YES

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		17.00	Bulk Insulation, No Air Gap R1.5
IW-2 - Cavity wall, direct fix plasterboard, single gap		147.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage	Concrete Slab on Ground 200mm	18.00	None	No Insulation	Bare
Ldy	Concrete Slab on Ground 200mm	4.10	None	No Insulation	Ceramic Tiles 8mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Entry	Concrete Slab on Ground 200mm	17.40	None	No Insulation	Cork Tiles or Parquetry 8mm
WC	Concrete Slab on Ground 200mm	2.30	None	No Insulation	Ceramic Tiles 8mm
Kitchen/Living	Concrete Slab on Ground 200mm	46.10	None	No Insulation	Cork Tiles or Parquetry 8mm
Bedroom 1/Kitchen/Living	Timber Above Plasterboard 19mm	12.90		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 01/Kitchen/Living	Timber Above Plasterboard 19mm	7.00		No Insulation	Ceramic Tiles 8mm
WIR Bed 01/Kitchen/Living	Timber Above Plasterboard 19mm	4.20		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Garage	Timber Above Plasterboard 19mm	5.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Ldy	Timber Above Plasterboard 19mm	4.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Entry	Timber Above Plasterboard 19mm	1.70		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Garage	Timber Above Plasterboard 19mm	3.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Entry	Timber Above Plasterboard 19mm	3.90		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/WC	Timber Above Plasterboard 19mm	2.40		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03	Suspended Timber Floor 19mm	1.90	Open	No Insulation	Carpet+Rubber Underlay 18mm
Bath /Entry	Timber Above Plasterboard 19mm	3.00		No Insulation	Ceramic Tiles 8mm
Bath /Kitchen/Living	Timber Above Plasterboard 19mm	1.40		No Insulation	Ceramic Tiles 8mm
Stairs L1/Entry	Timber Above Plasterboard 19mm	8.70		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Kitchen/Living	Timber Above Plasterboard 19mm	3.80		No Insulation	Cork Tiles or Parquetry 8mm
Family Room L1/Kitchen/Living	Timber Above Plasterboard 19mm	15.40		No Insulation	Cork Tiles or Parquetry 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	No Insulation	No

* Refer to glossary.

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Ldy	Timber Above Plasterboard	No Insulation	No
Entry	Timber Above Plasterboard	No Insulation	No
WC	Timber Above Plasterboard	No Insulation	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 01	Plasterboard	Bulk Insulation R3.5	No
WIR Bed 01	Plasterboard	Bulk Insulation R3.5	No
Bedroom 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 03	Plasterboard	Bulk Insulation R3.5	No
Bath	Plasterboard	Bulk Insulation R3.5	No
Stairs L1	Plasterboard	Bulk Insulation R3.5	No
Family Room L1	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Entry	8	Downlights - LED	150	Sealed
WC	1	Downlights - LED	150	Sealed
WC	1	Exhaust Fans	300	Sealed
Kitchen/Living	18	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Bedroom 1	5	Downlights - LED	150	Sealed
Bedroom 2	5	Downlights - LED	150	Sealed
Bedroom 03	5	Downlights - LED	150	Sealed
Bath	1	Downlights - LED	150	Sealed
Bath	1	Exhaust Fans	300	Sealed
Stairs L1	5	Downlights - LED	150	Sealed
Family Room L1	6	Downlights - LED	150	Sealed

* Refer to glossary.

Ceiling *fans*

Location	Quantity	Diameter (mm)
Kitchen/Living	1	900
Family Room L1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
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Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008625972

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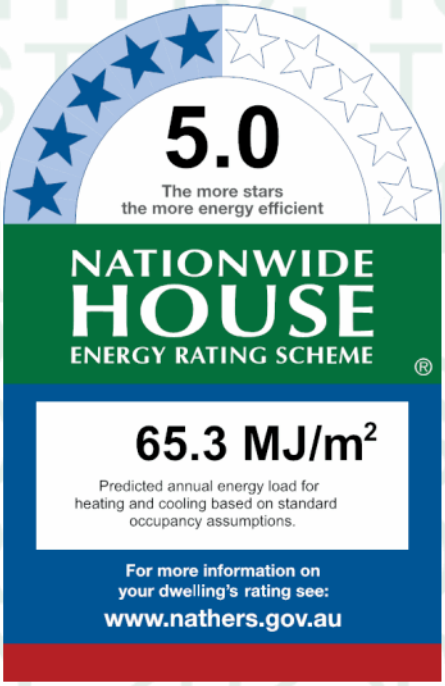

Property

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Prepared by	PBD Architects

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Exposure type
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NatHERS climate zone
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Thermal performance

Heating	Cooling
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MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645

Assessor Accrediting Organisation
Design Matters National

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.

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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.

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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.

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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.

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

Provisional* values

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

Additional notes

I have modeled the shading in accordance with NatHERS principles

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-003-01 A	ALM-003-01 A Aluminium A DG Air Fill Clear-Clear	4.8	0.51	0.48	0.54
ALM-006-01 A	ALM-006-01 A Aluminium B DG Argon Fill Clear-Clear	4.5	0.61	0.58	0.64

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Garage	ALM-003-01 A	n/a	1000	1200	n/a	10	NW	No
Ldy	ALM-003-01 A	n/a	2400	800	n/a	90	NW	No
Entry	ALM-006-01 A	n/a	1600	900	n/a	00	NW	No
Entry	ALM-006-01 A	n/a	2400	560	n/a	00	SE	No
Entry	ALM-006-01 A	n/a	365	1500	n/a	00	SE	No
Kitchen/Living	ALM-006-01 A	n/a	2500	2700	n/a	60	NW	No
Kitchen/Living	ALM-003-01 A	n/a	1650	800	n/a	90	NE	No
Kitchen/Living	ALM-006-01 A	n/a	1650	2400	n/a	45	NE	No
Kitchen/Living	ALM-006-01 A	n/a	2400	4000	n/a	45	SE	No
Bedroom 1	ALM-003-01 A	n/a	1600	800	n/a	10	NE	No
Bedroom 1	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
ENS Bed 01	ALM-003-01 A	n/a	1600	800	n/a	90	NE	No
Bedroom 2	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
Bedroom 03	ALM-006-01 A	n/a	1650	1320	n/a	45	SE	No
Stairs L1	ALM-006-01 A	n/a	2500	900	n/a	00	NW	No
Family Room L1	ALM-006-01 A	n/a	2400	4000	n/a	45	SE	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

* Refer to glossary.

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
Garage	2400	2700	90	SE
Entry	2400	820	90	SE

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	EW-1	2800	2995	NW	100	NO
Garage	EW-1	2800	2995	SE	3000	YES
Garage	EW-2	2800	6100	SW	100	NO
Ldy	EW-1	2800	1690	NW	100	NO
Entry	EW-1	2800	1990	NW	100	NO
Entry	EW-1	2800	2995	SE	1400	YES
Entry	EW-1	2800	1395	SW	3100	YES

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	4895	NW	1200	NO
Kitchen/Living	EW-2	2800	8800	NE	100	NO
Kitchen/Living	EW-1	2800	5600	SE	1700	NO
Kitchen/Living	EW-1	2800	1300	SW	1800	YES
Bedroom 1	EW-2	2740	3895	NE	700	NO
Bedroom 1	EW-2	2740	3195	NW	1300	NO
ENS Bed 01	EW-2	2740	1890	NE	700	NO
WIR Bed 01	EW-2	2740	1590	NW	700	NO
Bedroom 2	EW-2	2740	3695	SW	700	NO
Bedroom 2	EW-2	2740	3195	NW	700	NO
Bedroom 03	EW-2	2740	3295	SE	700	NO
Bedroom 03	EW-2	2740	3795	SW	700	NO
Bath	EW-2	2740	1095	SE	2000	YES
Stairs L1	EW-2	2740	1990	NW	700	NO
Family Room L1	EW-2	2740	2995	NE	700	NO
Family Room L1	EW-2	2740	5600	SE	1500	NO
Family Room L1	EW-2	2740	1295	SW	5100	YES

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		17.00	Bulk Insulation, No Air Gap R1.5
IW-2 - Cavity wall, direct fix plasterboard, single gap		147.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage	Concrete Slab on Ground 200mm	18.00	None	No Insulation	Bare
Ldy	Concrete Slab on Ground 200mm	4.10	None	No Insulation	Ceramic Tiles 8mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Entry	Concrete Slab on Ground 200mm	17.40	None	No Insulation	Cork Tiles or Parquetry 8mm
WC	Concrete Slab on Ground 200mm	2.30	None	No Insulation	Ceramic Tiles 8mm
Kitchen/Living	Concrete Slab on Ground 200mm	46.10	None	No Insulation	Cork Tiles or Parquetry 8mm
Bedroom 1/Kitchen/Living	Timber Above Plasterboard 19mm	12.90		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 01/Kitchen/Living	Timber Above Plasterboard 19mm	7.00		No Insulation	Ceramic Tiles 8mm
WIR Bed 01/Kitchen/Living	Timber Above Plasterboard 19mm	4.20		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Garage	Timber Above Plasterboard 19mm	5.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Ldy	Timber Above Plasterboard 19mm	4.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Entry	Timber Above Plasterboard 19mm	1.70		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Garage	Timber Above Plasterboard 19mm	3.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Entry	Timber Above Plasterboard 19mm	3.90		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/WC	Timber Above Plasterboard 19mm	2.40		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03	Suspended Timber Floor 19mm	1.90	Open	No Insulation	Carpet+Rubber Underlay 18mm
Bath /Entry	Timber Above Plasterboard 19mm	3.00		No Insulation	Ceramic Tiles 8mm
Bath /Kitchen/Living	Timber Above Plasterboard 19mm	1.40		No Insulation	Ceramic Tiles 8mm
Stairs L1/Entry	Timber Above Plasterboard 19mm	8.70		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Kitchen/Living	Timber Above Plasterboard 19mm	3.80		No Insulation	Cork Tiles or Parquetry 8mm
Family Room L1/Kitchen/Living	Timber Above Plasterboard 19mm	15.40		No Insulation	Cork Tiles or Parquetry 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	No Insulation	No

* Refer to glossary.

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Ldy	Timber Above Plasterboard	No Insulation	No
Entry	Timber Above Plasterboard	No Insulation	No
WC	Timber Above Plasterboard	No Insulation	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 01	Plasterboard	Bulk Insulation R3.5	No
WIR Bed 01	Plasterboard	Bulk Insulation R3.5	No
Bedroom 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 03	Plasterboard	Bulk Insulation R3.5	No
Bath	Plasterboard	Bulk Insulation R3.5	No
Stairs L1	Plasterboard	Bulk Insulation R3.5	No
Family Room L1	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Entry	8	Downlights - LED	150	Sealed
WC	1	Downlights - LED	150	Sealed
WC	1	Exhaust Fans	300	Sealed
Kitchen/Living	18	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Bedroom 1	5	Downlights - LED	150	Sealed
Bedroom 2	5	Downlights - LED	150	Sealed
Bedroom 03	5	Downlights - LED	150	Sealed
Bath	1	Downlights - LED	150	Sealed
Bath	1	Exhaust Fans	300	Sealed
Stairs L1	5	Downlights - LED	150	Sealed
Family Room L1	6	Downlights - LED	150	Sealed

* Refer to glossary.

Ceiling *fans*

Location	Quantity	Diameter (mm)
Kitchen/Living	1	900
Family Room L1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	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.

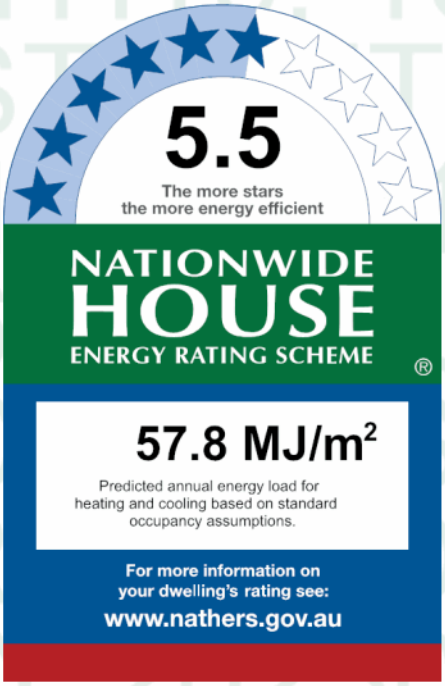
Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

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).

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626145

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH16, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*

Conditioned*	140.0
Unconditioned*	22.0
Total	162.0
Garage	18.0

Exposure type

Suburban

NatHERS climate zone

56

Thermal performance

Heating	Cooling
31.8	**26.0**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645

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Additional notes

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Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-006-01 A	ALM-006-01 A Aluminium B DG Argon Fill Clear-Clear	4.5	0.61	0.58	0.64
ALM-003-01 A	ALM-003-01 A Aluminium A DG Air Fill Clear-Clear	4.8	0.51	0.48	0.54

Custom* windows

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

Window and glazed door *schedule*

* Refer to glossary.

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Garage	ALM-006-01 A	n/a	1000	1300	n/a	00	NW	No
Ldy	ALM-003-01 A	n/a	2400	1000	n/a	90	NW	No
Entry	ALM-006-01 A	n/a	1600	900	n/a	00	NW	No
Entry	ALM-006-01 A	n/a	2400	560	n/a	00	SE	No
Entry	ALM-006-01 A	n/a	365	1500	n/a	00	SE	No
Kitchen/Living	ALM-006-01 A	n/a	2500	2700	n/a	60	NW	No
Kitchen/Living	ALM-006-01 A	n/a	2500	2400	n/a	45	NE	No
Kitchen/Living	ALM-006-01 A	n/a	2500	2400	n/a	45	NE	No
Kitchen/Living	ALM-006-01 A	n/a	2500	4000	n/a	45	SE	No
Bedroom 1	ALM-003-01 A	n/a	1600	800	n/a	10	NE	No
Bedroom 1	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
ENS Bed 01	ALM-003-01 A	n/a	1600	800	n/a	90	NE	No
Bedroom 2	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
Bedroom 03	ALM-006-01 A	n/a	1650	1320	n/a	45	SE	No
Family Room L1	ALM-006-01 A	n/a	2500	900	n/a	00	NW	No
Family Room L1	ALM-006-01 A	n/a	2500	4000	n/a	45	SE	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

* Refer to glossary.

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
Garage	2400	2700	90	SE
Entry	2400	820	90	SE

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	EW-1	2800	2995	NW	100	NO
Garage	EW-1	2800	2995	SE	3000	YES
Garage	EW-1	2800	6100	SW	100	NO
Ldy	EW-1	2800	1690	NW	100	NO
Entry	EW-1	2800	1990	NW	100	NO
Entry	EW-1	2800	2995	SE	1400	YES
Entry	EW-1	2800	1395	SW	3100	YES

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	4895	NW	1200	NO
Kitchen/Living	EW-1	2800	8800	NE	100	NO
Kitchen/Living	EW-1	2800	5600	SE	1700	NO
Kitchen/Living	EW-1	2800	1300	SW	1700	YES
Bedroom 1	EW-2	2740	3895	NE	700	NO
Bedroom 1	EW-2	2740	3195	NW	1300	NO
ENS Bed 01	EW-2	2740	1890	NE	700	NO
WIR Bed 01	EW-2	2740	1590	NW	700	NO
Bedroom 2	EW-2	2740	3695	SW	700	NO
Bedroom 2	EW-2	2740	3195	NW	700	NO
Bedroom 03	EW-2	2740	3295	SE	700	NO
Bedroom 03	EW-2	2740	3795	SW	700	NO
Bath	EW-2	2740	1095	SE	2000	YES
Family Room L1	EW-2	2740	1990	NW	700	NO
Family Room L1	EW-2	2740	2995	NE	700	NO
Family Room L1	EW-2	2740	5600	SE	1500	NO
Family Room L1	EW-2	2740	1295	SW	5100	YES

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		164.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage	Concrete Slab on Ground 200mm	18.00	None	No Insulation	Bare
Ldy	Concrete Slab on Ground 200mm	4.10	None	No Insulation	Ceramic Tiles 8mm
Entry	Concrete Slab on Ground 200mm	17.60	None	No Insulation	Cork Tiles or Parquetry 8mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
WC	Concrete Slab on Ground 200mm	2.10	None	No Insulation	Ceramic Tiles 8mm
Kitchen/Living	Concrete Slab on Ground 200mm	46.10	None	No Insulation	Cork Tiles or Parquetry 8mm
Bedroom 1/Kitchen/Living	Concrete Above Plasterboard 19mm	12.90		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 01/Kitchen/Living	Concrete Above Plasterboard 19mm	7.00		No Insulation	Ceramic Tiles 8mm
WIR Bed 01/Kitchen/Living	Concrete Above Plasterboard 19mm	4.20		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Garage	Concrete Above Plasterboard 19mm	5.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Ldy	Concrete Above Plasterboard 19mm	4.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Entry	Concrete Above Plasterboard 19mm	1.70		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Garage	Concrete Above Plasterboard 19mm	3.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Entry	Concrete Above Plasterboard 19mm	4.10		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/WC	Concrete Above Plasterboard 19mm	2.20		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03	Suspended Timber Floor 19mm	1.90	Open	No Insulation	Carpet+Rubber Underlay 18mm
Bath /Entry	Concrete Above Plasterboard 19mm	3.00		No Insulation	Ceramic Tiles 8mm
Bath /Kitchen/Living	Concrete Above Plasterboard 19mm	1.40		No Insulation	Ceramic Tiles 8mm
Family Room L1/Entry	Concrete Above Plasterboard 19mm	8.70		No Insulation	Cork Tiles or Parquetry 8mm
Family Room L1/Kitchen/Living	Concrete Above Plasterboard 19mm	3.80		No Insulation	Cork Tiles or Parquetry 8mm
Family Room L1/Kitchen/Living	Concrete Above Plasterboard 19mm	15.40		No Insulation	Cork Tiles or Parquetry 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Concrete Above Plasterboard	No Insulation	No
Ldy	Concrete Above Plasterboard	No Insulation	No
Entry	Concrete Above Plasterboard	No Insulation	No

* Refer to glossary.

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
WC	Concrete Above Plasterboard	No Insulation	No
Kitchen/Living	Concrete Above Plasterboard	No Insulation	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 01	Plasterboard	Bulk Insulation R3.5	No
WIR Bed 01	Plasterboard	Bulk Insulation R3.5	No
Bedroom 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 03	Plasterboard	Bulk Insulation R3.5	No
Bath	Plasterboard	Bulk Insulation R3.5	No
Family Room L1	Plasterboard	Bulk Insulation R3.5	No
Family Room L1	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Entry	8	Downlights - LED	150	Sealed
WC	1	Downlights - LED	150	Sealed
WC	1	Exhaust Fans	300	Sealed
Kitchen/Living	18	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Bedroom 1	5	Downlights - LED	150	Sealed
Bedroom 2	5	Downlights - LED	150	Sealed
Bedroom 03	5	Downlights - LED	150	Sealed
Bath	1	Downlights - LED	150	Sealed
Bath	1	Exhaust Fans	300	Sealed
Family Room L1	5	Downlights - LED	150	Sealed
Family Room L1	6	Downlights - LED	150	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
Kitchen/Living	1	900
Family Room L1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	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.

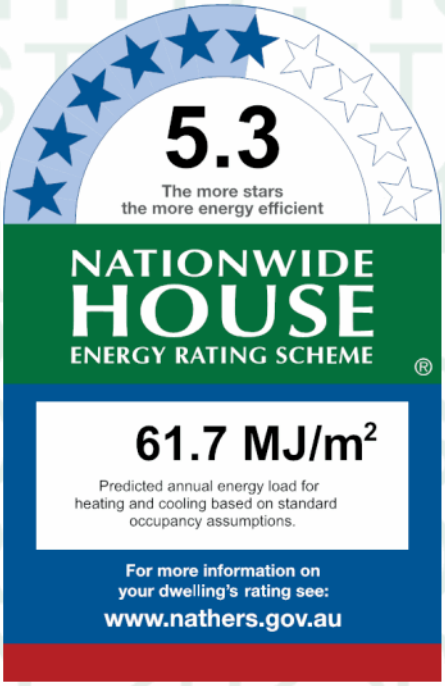
Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

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).

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626111

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH17, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	140.0
Unconditioned*	22.0
Total	162.0
Garage	18.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
36.7	**25.0**
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.

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645

Assessor Accrediting Organisation
Design Matters National

Declaration of interest Declaration completed: no conflicts

Verification

To verify this certificate, scan the QR code or visit hstar.com.au/QR/Generate?p=NgedbRNiv.
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
ALM-006-01 A	ALM-006-01 A Aluminium B DG Argon Fill Clear-Clear	4.5	0.61	0.58	0.64
ALM-003-01 A	ALM-003-01 A Aluminium A DG Air Fill Clear-Clear	4.8	0.51	0.48	0.54

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Garage	ALM-006-01 A	n/a	1000	2000	n/a	30	NW	No
Ldy	ALM-003-01 A	n/a	2400	1000	n/a	90	NW	No
Entry	ALM-006-01 A	n/a	2400	560	n/a	00	SE	No
Entry	ALM-006-01 A	n/a	365	1500	n/a	00	SE	No
Entry	ALM-006-01 A	n/a	1600	900	n/a	00	NW	No
Kitchen/Living	ALM-006-01 A	n/a	2500	4000	n/a	45	SE	No
Kitchen/Living	ALM-006-01 A	n/a	2500	2400	n/a	45	SW	No
Kitchen/Living	ALM-006-01 A	n/a	2500	2400	n/a	45	SW	No
Kitchen/Living	ALM-006-01 A	n/a	2500	2700	n/a	60	NW	No
Bedroom 1	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
Bedroom 1	ALM-003-01 A	n/a	1600	800	n/a	10	SW	No
ENS Bed 01	ALM-003-01 A	n/a	1600	800	n/a	90	SW	No
Bedroom 2	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
Bedroom 03	ALM-006-01 A	n/a	1650	1320	n/a	45	SE	No
Stairs L1	ALM-006-01 A	n/a	2500	900	n/a	00	NW	No
Family Room L1	ALM-006-01 A	n/a	2500	4000	n/a	45	SE	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

* Refer to glossary.

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
Garage	2400	2700	90	SE
Entry	2400	820	90	SE

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	EW-1	2800	6100	NE	100	NO
Garage	EW-1	2800	2995	SE	3000	YES
Garage	EW-1	2800	2995	NW	100	NO
Ldy	EW-1	2800	1690	NW	100	NO
Entry	EW-1	2800	1395	NE	3100	YES
Entry	EW-1	2800	2995	SE	1300	YES
Entry	EW-1	2800	1990	NW	100	NO

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	1300	NE	1700	YES
Kitchen/Living	EW-1	2800	5600	SE	1700	NO
Kitchen/Living	EW-1	2800	8800	SW	100	NO
Kitchen/Living	EW-1	2800	4895	NW	1200	NO
Bedroom 1	EW-2	2740	3195	NW	1300	NO
Bedroom 1	EW-2	2740	3895	SW	700	NO
ENS Bed 01	EW-2	2740	1890	SW	700	NO
WIR Bed 01	EW-2	2740	1590	NW	700	NO
Bedroom 2	EW-2	2740	3195	NW	700	NO
Bedroom 2	EW-2	2740	3695	NE	700	NO
Bedroom 03	EW-2	2740	3795	NE	700	NO
Bedroom 03	EW-2	2740	3295	SE	700	NO
Bath	EW-2	2740	1095	SE	2000	YES
Stairs L1	EW-2	2740	1990	NW	700	NO
Family Room L1	EW-2	2740	1295	NE	5100	YES
Family Room L1	EW-2	2740	5600	SE	1500	NO
Family Room L1	EW-2	2740	2995	SW	700	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		17.00	Bulk Insulation, No Air Gap R1.5
IW-2 - Cavity wall, direct fix plasterboard, single gap		147.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage	Concrete Slab on Ground 200mm	18.00	None	No Insulation	Bare
Ldy	Concrete Slab on Ground 200mm	4.10	None	No Insulation	Ceramic Tiles 8mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Entry	Concrete Slab on Ground 200mm	17.60	None	No Insulation	Cork Tiles or Parquetry 8mm
WC	Concrete Slab on Ground 200mm	2.10	None	No Insulation	Ceramic Tiles 8mm
Kitchen/Living	Concrete Slab on Ground 200mm	46.10	None	No Insulation	Cork Tiles or Parquetry 8mm
Bedroom 1/Kitchen/Living	Concrete Above Plasterboard 19mm	12.90		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 01/Kitchen/Living	Concrete Above Plasterboard 19mm	7.00		No Insulation	Ceramic Tiles 8mm
WIR Bed 01/Kitchen/Living	Concrete Above Plasterboard 19mm	4.20		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Garage	Concrete Above Plasterboard 19mm	5.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Ldy	Concrete Above Plasterboard 19mm	4.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Entry	Concrete Above Plasterboard 19mm	1.70		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Garage	Concrete Above Plasterboard 19mm	3.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Entry	Concrete Above Plasterboard 19mm	4.10		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/WC	Concrete Above Plasterboard 19mm	2.20		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03	Suspended Timber Floor 19mm	1.90	Open	No Insulation	Carpet+Rubber Underlay 18mm
Bath /Entry	Concrete Above Plasterboard 19mm	3.00		No Insulation	Ceramic Tiles 8mm
Bath /Kitchen/Living	Concrete Above Plasterboard 19mm	1.40		No Insulation	Ceramic Tiles 8mm
Stairs L1/Entry	Concrete Above Plasterboard 19mm	8.70		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Kitchen/Living	Concrete Above Plasterboard 19mm	3.80		No Insulation	Cork Tiles or Parquetry 8mm
Family Room L1/Kitchen/Living	Concrete Above Plasterboard 19mm	15.40		No Insulation	Cork Tiles or Parquetry 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Concrete Above Plasterboard	No Insulation	No

* Refer to glossary.

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Ldy	Concrete Above Plasterboard	No Insulation	No
Entry	Concrete Above Plasterboard	No Insulation	No
WC	Concrete Above Plasterboard	No Insulation	No
Kitchen/Living	Concrete Above Plasterboard	No Insulation	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 01	Plasterboard	Bulk Insulation R3.5	No
WIR Bed 01	Plasterboard	Bulk Insulation R3.5	No
Bedroom 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 03	Plasterboard	Bulk Insulation R3.5	No
Bath	Plasterboard	Bulk Insulation R3.5	No
Stairs L1	Plasterboard	Bulk Insulation R3.5	No
Family Room L1	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Entry	8	Downlights - LED	150	Sealed
WC	1	Downlights - LED	150	Sealed
WC	1	Exhaust Fans	300	Sealed
Kitchen/Living	18	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Bedroom 1	5	Downlights - LED	150	Sealed
Bedroom 2	5	Downlights - LED	150	Sealed
Bedroom 03	5	Downlights - LED	150	Sealed
Bath	1	Downlights - LED	150	Sealed
Bath	1	Exhaust Fans	300	Sealed
Stairs L1	5	Downlights - LED	150	Sealed
Family Room L1	6	Downlights - LED	150	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
Kitchen/Living	1	900
Family Room L1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium

Explanatory notes

About this report

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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.

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Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626095

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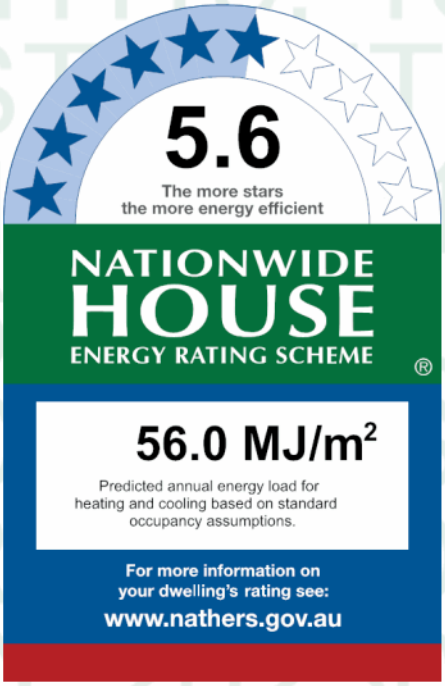

Property

Address	Unit TH18, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	140.0
Unconditioned*	22.0
Total	162.0
Garage	18.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
30.0	**26.0**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645
Assessor Accrediting Organisation	Design Matters National
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=IzouoYOQp.
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
ALM-006-01 A	ALM-006-01 A Aluminium B DG Argon Fill Clear-Clear	4.5	0.61	0.58	0.64
ALM-003-01 A	ALM-003-01 A Aluminium A DG Air Fill Clear-Clear	4.8	0.51	0.48	0.54

Custom* windows

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

Window and glazed door *schedule*

* Refer to glossary.

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Garage	ALM-006-01 A	n/a	1000	1300	n/a	00	NW	No
Ldy	ALM-003-01 A	n/a	2400	1000	n/a	90	NW	No
Entry	ALM-006-01 A	n/a	1600	900	n/a	00	NW	No
Entry	ALM-006-01 A	n/a	2400	560	n/a	00	SE	No
Entry	ALM-006-01 A	n/a	365	1500	n/a	00	SE	No
Kitchen/Living	ALM-006-01 A	n/a	2500	2700	n/a	60	NW	No
Kitchen/Living	ALM-006-01 A	n/a	2500	2400	n/a	45	NE	No
Kitchen/Living	ALM-006-01 A	n/a	2500	2400	n/a	45	NE	No
Kitchen/Living	ALM-006-01 A	n/a	2400	4000	n/a	45	SE	No
Bedroom 1	ALM-003-01 A	n/a	1600	800	n/a	10	NE	No
Bedroom 1	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
ENS Bed 01	ALM-003-01 A	n/a	1600	800	n/a	90	NE	No
Bedroom 2	ALM-006-01 A	n/a	1650	2400	n/a	45	NW	No
Bedroom 03	ALM-006-01 A	n/a	1650	1320	n/a	45	SE	No
Stairs L1	ALM-006-01 A	n/a	2500	900	n/a	00	NW	No
Family Room L1	ALM-006-01 A	n/a	2500	4000	n/a	45	SE	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

* Refer to glossary.

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
Garage	2400	2700	90	SE
Entry	2400	820	90	SE

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	EW-1	2800	2995	NW	100	NO
Garage	EW-1	2800	2995	SE	3000	YES
Garage	EW-1	2800	6100	SW	100	NO
Ldy	EW-1	2800	1690	NW	100	NO
Entry	EW-1	2800	1990	NW	100	NO
Entry	EW-1	2800	2995	SE	1400	YES
Entry	EW-1	2800	1395	SW	3100	YES

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	4895	NW	1200	NO
Kitchen/Living	EW-2	2800	8800	NE	100	NO
Kitchen/Living	EW-1	2800	5600	SE	1700	NO
Kitchen/Living	EW-1	2800	1300	SW	1700	YES
Bedroom 1	EW-2	2740	3895	NE	700	NO
Bedroom 1	EW-2	2740	3195	NW	1300	NO
ENS Bed 01	EW-2	2740	1890	NE	700	NO
WIR Bed 01	EW-2	2740	1590	NW	700	NO
Bedroom 2	EW-2	2740	3695	SW	700	NO
Bedroom 2	EW-2	2740	3195	NW	700	NO
Bedroom 03	EW-2	2740	3295	SE	700	NO
Bedroom 03	EW-2	2740	3795	SW	700	NO
Bath	EW-2	2740	1095	SE	2000	YES
Stairs L1	EW-2	2740	1990	NW	700	NO
Family Room L1	EW-2	2740	2995	NE	700	NO
Family Room L1	EW-2	2740	5600	SE	1500	NO
Family Room L1	EW-2	2740	1295	SW	5100	YES

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		164.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage	Concrete Slab on Ground 200mm	18.00	None	No Insulation	Bare
Ldy	Concrete Slab on Ground 200mm	4.10	None	No Insulation	Ceramic Tiles 8mm
Entry	Concrete Slab on Ground 200mm	17.60	None	No Insulation	Cork Tiles or Parquetry 8mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
WC	Concrete Slab on Ground 200mm	2.10	None	No Insulation	Ceramic Tiles 8mm
Kitchen/Living	Concrete Slab on Ground 200mm	46.10	None	No Insulation	Cork Tiles or Parquetry 8mm
Bedroom 1/Kitchen/Living	Concrete Above Plasterboard 19mm	12.90		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 01/Kitchen/Living	Concrete Above Plasterboard 19mm	7.00		No Insulation	Ceramic Tiles 8mm
WIR Bed 01/Kitchen/Living	Concrete Above Plasterboard 19mm	4.20		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Garage	Concrete Above Plasterboard 19mm	5.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Ldy	Concrete Above Plasterboard 19mm	4.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Entry	Concrete Above Plasterboard 19mm	1.70		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Garage	Concrete Above Plasterboard 19mm	3.30		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/Entry	Concrete Above Plasterboard 19mm	4.10		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03/WC	Concrete Above Plasterboard 19mm	2.20		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 03	Suspended Timber Floor 19mm	1.90	Open	No Insulation	Carpet+Rubber Underlay 18mm
Bath /Entry	Concrete Above Plasterboard 19mm	3.00		No Insulation	Ceramic Tiles 8mm
Bath /Kitchen/Living	Concrete Above Plasterboard 19mm	1.40		No Insulation	Ceramic Tiles 8mm
Stairs L1/Entry	Concrete Above Plasterboard 19mm	8.70		No Insulation	Cork Tiles or Parquetry 8mm
Stairs L1/Kitchen/Living	Concrete Above Plasterboard 19mm	3.80		No Insulation	Cork Tiles or Parquetry 8mm
Family Room L1/Kitchen/Living	Concrete Above Plasterboard 19mm	15.40		No Insulation	Cork Tiles or Parquetry 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Concrete Above Plasterboard	No Insulation	No
Ldy	Concrete Above Plasterboard	No Insulation	No
Entry	Concrete Above Plasterboard	No Insulation	No

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Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
WC	Concrete Above Plasterboard	No Insulation	No
Kitchen/Living	Concrete Above Plasterboard	No Insulation	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 01	Plasterboard	Bulk Insulation R3.5	No
WIR Bed 01	Plasterboard	Bulk Insulation R3.5	No
Bedroom 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 03	Plasterboard	Bulk Insulation R3.5	No
Bath	Plasterboard	Bulk Insulation R3.5	No
Stairs L1	Plasterboard	Bulk Insulation R3.5	No
Family Room L1	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Entry	8	Downlights - LED	150	Sealed
WC	1	Downlights - LED	150	Sealed
WC	1	Exhaust Fans	300	Sealed
Kitchen/Living	18	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Bedroom 1	5	Downlights - LED	150	Sealed
Bedroom 2	5	Downlights - LED	150	Sealed
Bedroom 03	5	Downlights - LED	150	Sealed
Bath	1	Downlights - LED	150	Sealed
Bath	1	Exhaust Fans	300	Sealed
Stairs L1	5	Downlights - LED	150	Sealed
Family Room L1	6	Downlights - LED	150	Sealed

Ceiling *fans*

* Refer to glossary.

Location	Quantity	Diameter (mm)
Kitchen/Living	1	900
Family Room L1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
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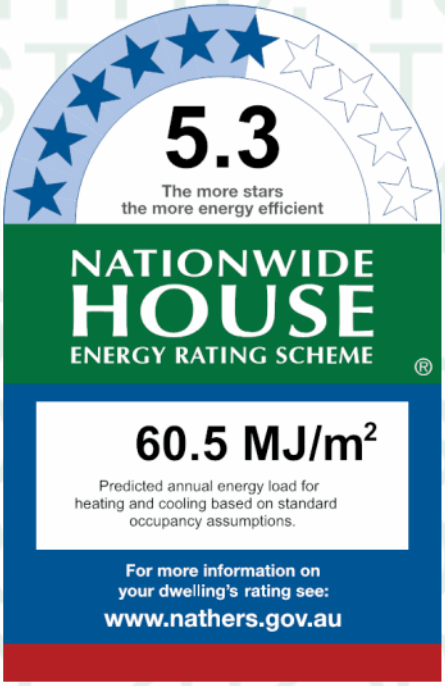
Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626046

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH19, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	161.0
Unconditioned*	40.0
Total	201.0
Garage	36.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
34.8	**25.6**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645

Assessor Accrediting Organisation
Design Matters National

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.

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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.

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

Ceiling penetrations*

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

Windows

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

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

Additional notes

I have modeled the shading in accordance with NatHERS principles

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living	ALM-006-03 A	n/a	2500	2890	n/a	60	SE	No
Enrty/hallway	ALM-006-03 A	n/a	2500	2400	n/a	45	NE	No
Enrty/hallway	ALM-006-03 A	n/a	2500	3200	n/a	45	SE	No
Living	ALM-006-03 A	n/a	2500	2380	n/a	45	NW	No
Living	ALM-006-03 A	n/a	2500	2400	n/a	45	NE	No
Family/Guest	ALM-006-03 A	n/a	1580	2000	n/a	45	SE	No
Family/Guest	ALM-005-03 A	n/a	1400	1460	n/a	45	SE	Yes
Bed 2	ALM-006-03 A	n/a	2500	3180	n/a	45	SE	No
Bed 2	ALM-005-03 A	n/a	1600	900	n/a	10	NE	No
Bedroom 1	ALM-006-03 A	n/a	2500	2900	n/a	60	NW	No
ENS Bed 1	ALM-006-03 A	n/a	800	1700	n/a	45	SW	No
Bath 1	ALM-005-03 A	n/a	650	1120	n/a	90	NW	Yes
Bedroom 3	ALM-005-03 A	n/a	1450	2400	n/a	10	NW	No
Bedroom 3	ALM-005-03 A	n/a	1600	900	n/a	10	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
No Data Available					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight *type and performance*

* Refer to glossary.

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
Enrty/hallway	2040	980	90	SE
Enrty/hallway	2040	820	90	NW
Garage	2300	4800	90	NW

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	6295	SW	100	NO
Kitchen/Living	EW-1	2800	395	SE	925	YES
Kitchen/Living	EW-1	2800	800	NE	6400	YES
Kitchen/Living	EW-1	2800	4200	SE	175	NO
Enrty/hallway	EW-1	2800	800	SW	6400	YES
Enrty/hallway	EW-1	2800	3795	NE	0	NO
Enrty/hallway	EW-1	2800	4300	SE	1500	NO

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Living	EW-1	2800	1100	SW	7700	YES
Living	EW-1	2800	3000	NW	0	NO
Living	EW-1	2800	4195	NE	0	NO
Enrty/hallway	EW-1	2800	1690	SE	925	YES
Enrty/hallway	EW-1	2800	1790	NW	1300	YES
Stairs lower	EW-1	2800	1990	NE	0	NO
Garage	EW-1	2800	6195	SW	100	NO
Garage	EW-1	2800	5800	NW	0	NO
Garage	EW-1	2800	3600	NE	0	YES
Family/Guest	EW-1	2740	3795	SW	600	NO
Family/Guest	EW-2	2740	4395	SE	700	NO
Bed 2	EW-1	2740	4795	SE	1700	NO
Bed 2	EW-1	2740	3795	NE	800	NO
Bedroom 1	EW-1	2740	4400	NW	1700	NO
Bedroom 1	EW-1	2740	700	NE	5600	YES
Bedroom 1	EW-1	2740	3695	SW	600	NO
ENS Bed 1	EW-1	2740	3190	SW	600	NO
Bath 1	EW-1	2740	1790	NW	1300	YES
Bedroom 3	EW-1	2740	2995	NW	1300	NO
Bedroom 3	EW-1	2740	4095	NE	800	NO
Stairs upper	EW-1	2740	2090	NE	800	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		203.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab on Ground 200mm	28.20	None	No Insulation	Cork Tiles or Parquetry 8mm
Enrty/hallway	Concrete Slab on Ground 200mm	16.00	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	11.20	None	No Insulation	Cork Tiles or Parquetry 8mm
Enrty/hallway	Concrete Slab on Ground 200mm	14.20	None	No Insulation	Cork Tiles or Parquetry 8mm
Ldy	Concrete Slab on Ground 200mm	2.00	None	No Insulation	Ceramic Tiles 8mm
PWD	Concrete Slab on Ground 200mm	2.70	None	No Insulation	Ceramic Tiles 8mm
Stairs lower	Concrete Slab on Ground 200mm	3.70	None	No Insulation	Cork Tiles or Parquetry 8mm
Garage	Concrete Slab on Ground 200mm	35.60	None	No Insulation	Bare
Family/Guest/Kitchen/Living	Timber Above Plasterboard 19mm	11.60		No Insulation	Carpet+Rubber Underlay 18mm
Family/Guest/Enrty/hallway	Timber Above Plasterboard 19mm	3.50		No Insulation	Carpet+Rubber Underlay 18mm
Family/Guest	Suspended Timber Floor 19mm	1.20	Open	No Insulation	Carpet+Rubber Underlay 18mm
Bed 2/Enrty/hallway	Timber Above Plasterboard 19mm	14.30		No Insulation	Carpet+Rubber Underlay 18mm
Bed 2/Enrty/hallway	Timber Above Plasterboard 19mm	0.80		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 1/Garage	Timber Above Plasterboard 19mm	17.00		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 1/Kitchen/Living	Timber Above Plasterboard 19mm	5.70		No Insulation	Ceramic Tiles 8mm
ENS Bed 1/Garage	Timber Above Plasterboard 19mm	1.90		No Insulation	Ceramic Tiles 8mm
WIR Bed 1/Kitchen/Living	Timber Above Plasterboard 19mm	1.70		No Insulation	Carpet+Rubber Underlay 18mm
WIR Bed 1/Enrty/hallway	Timber Above Plasterboard 19mm	0.70		No Insulation	Carpet+Rubber Underlay 18mm
WIR Bed 1/Ldy	Timber Above Plasterboard 19mm	1.60		No Insulation	Carpet+Rubber Underlay 18mm
Bath 1/Enrty/hallway	Timber Above Plasterboard 19mm	3.00		No Insulation	Ceramic Tiles 8mm
Bath 1	Suspended Timber Floor 19mm	1.80	Open	No Insulation	Ceramic Tiles 8mm
Bedroom 3/Living	Timber Above Plasterboard 19mm	11.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3/PWD	Timber Above Plasterboard 19mm	0.90		No Insulation	Carpet+Rubber Underlay 18mm

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Stairs upper/Enrty/hallway	Timber Above Plasterboard 19mm	1.60		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Enrty/hallway	Timber Above Plasterboard 19mm	6.20		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/PWD	Timber Above Plasterboard 19mm	2.00		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Stairs lower	Timber Above Plasterboard 19mm	3.90		No Insulation	Cork Tiles or Parquetry 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Enrty/hallway	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Enrty/hallway	Timber Above Plasterboard	No Insulation	No
Ldy	Timber Above Plasterboard	No Insulation	No
PWD	Timber Above Plasterboard	No Insulation	No
Stairs lower	Timber Above Plasterboard	No Insulation	No
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	No Insulation	No
Family/Guest	Plasterboard	Bulk Insulation R3.5	No
Bed 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 1	Plasterboard	Bulk Insulation R3.5	No
WIR Bed 1	Plasterboard	Bulk Insulation R3.5	No
Bath 1	Plasterboard	Bulk Insulation R3.5	No
Bedroom 3	Plasterboard	Bulk Insulation R3.5	No
Stairs upper	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Kitchen/Living	12	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Enrty/hallway	5	Downlights - LED	150	Sealed
Living	5	Downlights - LED	150	Sealed
Enrty/hallway	5	Downlights - LED	150	Sealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
PWD	1	Downlights - LED	150	Sealed
PWD	1	Exhaust Fans	300	Sealed
Stairs lower	1	Downlights - LED	150	Sealed
Family/Guest	5	Downlights - LED	150	Sealed
Bed 2	5	Downlights - LED	150	Sealed
Bedroom 1	6	Downlights - LED	150	Sealed
ENS Bed 1	3	Downlights - LED	150	Sealed
ENS Bed 1	1	Exhaust Fans	300	Sealed
WIR Bed 1	2	Downlights - LED	150	Sealed
Bath 1	2	Downlights - LED	150	Sealed
Bath 1	1	Exhaust Fans	300	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed
Stairs upper	5	Downlights - LED	150	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
Living	1	900
Family/Guest	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	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.

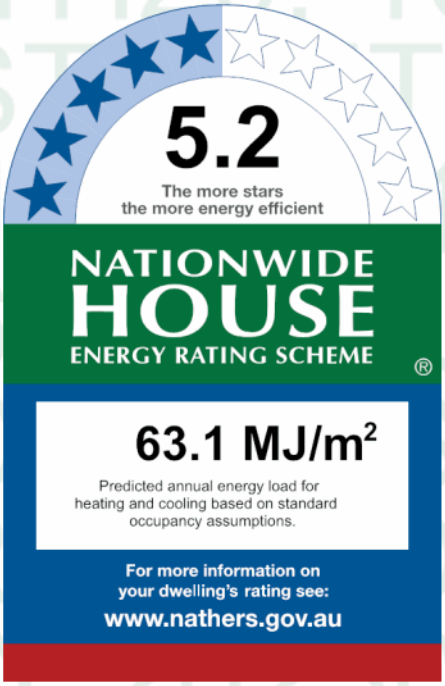
Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

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).

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626020

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH20, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	178.0
Unconditioned*	37.0
Total	215.0
Garage	34.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
39.1	**23.9**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645

Assessor Accrediting Organisation
Design Matters National

Declaration of interest Declaration completed: no conflicts

About the rating

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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.

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

Provisional* values

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

Additional notes

I have modeled the shading in accordance with NatHERS principles

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living	ALM-006-03 A	n/a	2500	4000	n/a	45	SE	No
Family room GF	ALM-006-03 A	n/a	2500	2400	n/a	45	NE	No
Family room GF	ALM-006-03 A	n/a	2500	2600	n/a	45	SE	No
Living	ALM-006-03 A	n/a	2500	2800	n/a	45	NW	No
Family room GF	ALM-006-03 A	n/a	2400	900	n/a	00	SE	No
Family room GF	ALM-006-03 A	n/a	360	1860	n/a	00	SE	No
Family room GF	ALM-006-03 A	n/a	330	1000	n/a	00	NW	No
Family/Guest	ALM-006-03 A	n/a	1580	2000	n/a	45	SE	No
Family/Guest	ALM-005-03 A	n/a	1400	1460	n/a	10	SE	No
Bed 2	ALM-006-03 A	n/a	2500	3180	n/a	45	SE	No
Bed 2	ALM-005-03 A	n/a	1600	900	n/a	10	NE	No
Bedroom 1	ALM-006-03 A	n/a	2500	2900	n/a	60	NW	No
ENS Bed 1	ALM-005-03 A	n/a	800	1700	n/a	90	SW	No
Bath 1	ALM-005-03 A	n/a	1345	970	n/a	10	NW	Yes
Bedroom 3	ALM-005-03 A	n/a	1450	2800	n/a	10	NW	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

* Refer to glossary.

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
Family room GF	2400	1000	90	SE
Family room GF	2400	1000	90	NW
Garage	2300	4800	90	NW

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	6295	SW	0	NO
Kitchen/Living	EW-2	2800	4500	SE	900	NO
Family room GF	EW-2	2800	600	SW	2600	YES
Family room GF	EW-2	2800	4895	NE	0	NO
Family room GF	EW-2	2800	4200	SE	1400	NO
Living	EW-2	2800	4195	NW	200	NO

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Living	EW-2	2800	4495	NE	0	NO
Family room GF	EW-2	2800	2790	SE	0	YES
Family room GF	EW-2	2800	1590	NW	200	YES
Garage	EW-2	2800	5995	SW	0	NO
Garage	EW-2	2800	5700	NW	0	NO
Garage	EW-2	2800	3500	NE	0	YES
Family/Guest	EW-2	2740	3795	SW	700	NO
Family/Guest	EW-2	2740	4495	SE	800	NO
Bed 2	EW-2	2740	4200	SE	1700	NO
Bed 2	EW-2	2740	295	SW	6800	YES
Bed 2	EW-2	2740	5495	NE	800	NO
Bedroom 1	EW-2	2740	4500	NW	1900	NO
Bedroom 1	EW-2	2740	1400	NE	0	YES
Bedroom 1	EW-2	2740	3395	SW	700	NO
ENS Bed 1	EW-2	2740	3190	SW	700	NO
Bath 1	EW-2	2740	1990	NW	700	YES
Bedroom 3	EW-2	2740	3795	NW	700	NO
Bedroom 3	EW-2	2740	4095	NE	800	NO
Bath L1	EW-1	2740	300	SE	500	YES
Bath L1	EW-1	2740	300	SW	6500	YES
Bath L1	EW-1	2740	1295	SE	800	YES

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		213.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab on Ground 200mm	27.90	None	No Insulation	Cork Tiles or Parquetry 8mm
Family room GF	Concrete Slab on Ground 200mm	18.60	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	16.90	None	No Insulation	Cork Tiles or Parquetry 8mm
Family room GF	Concrete Slab on Ground 200mm	18.30	None	No Insulation	Cork Tiles or Parquetry 8mm
Ldy	Concrete Slab on Ground 200mm	2.20	None	No Insulation	Ceramic Tiles 8mm
Stairs lower	Concrete Slab on Ground 200mm	2.80	None	No Insulation	Cork Tiles or Parquetry 8mm
Garage	Concrete Slab on Ground 200mm	33.80	None	No Insulation	Bare
Family/Guest/Kitchen/Living	Timber Above Plasterboard 200mm	12.30		No Insulation	Carpet+Rubber Underlay 18mm
Family/Guest/Family room GF	Timber Above Plasterboard 200mm	4.50		No Insulation	Carpet+Rubber Underlay 18mm
Bed 2/Family room GF	Timber Above Plasterboard 19mm	16.50		No Insulation	Carpet+Rubber Underlay 18mm
Bed 2/Living	Timber Above Plasterboard 19mm	0.60		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 1/Garage	Timber Above Plasterboard 19mm	16.00		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 1/Kitchen/Living	Timber Above Plasterboard 19mm	5.90		No Insulation	Ceramic Tiles 8mm
ENS Bed 1/Garage	Timber Above Plasterboard 19mm	1.90		No Insulation	Ceramic Tiles 8mm
WIR Bed 1/Kitchen/Living	Timber Above Plasterboard 19mm	1.70		No Insulation	Carpet+Rubber Underlay 18mm
WIR Bed 1/Ldy	Timber Above Plasterboard 19mm	1.90		No Insulation	Carpet+Rubber Underlay 18mm
Bath 1/Living	Timber Above Plasterboard 19mm	0.60		No Insulation	Ceramic Tiles 8mm
Bath 1/Family room GF	Timber Above Plasterboard 19mm	2.50		No Insulation	Ceramic Tiles 8mm
Bedroom 3/Living	Timber Above Plasterboard 19mm	11.70		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3	Suspended Timber Floor 19mm	0.70	Totally Open	No Insulation	Carpet+Rubber Underlay 18mm
Stairs upper/Family room GF	Timber Above Plasterboard 19mm	0.50		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Living	Timber Above Plasterboard 19mm	3.80		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Family room GF	Timber Above Plasterboard 19mm	6.50		No Insulation	Cork Tiles or Parquetry 8mm

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Stairs upper/Stairs lower	Timber Above Plasterboard 19mm	3.00		No Insulation	Cork Tiles or Parquetry 8mm
Bath L1/Family room GF	Timber Above Plasterboard 19mm	1.50		No Insulation	Ceramic Tiles 8mm
Bath L1/Family room GF	Timber Above Plasterboard 19mm	4.20		No Insulation	Ceramic Tiles 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Family room GF	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Family room GF	Timber Above Plasterboard	No Insulation	No
Ldy	Timber Above Plasterboard	No Insulation	No
Stairs lower	Timber Above Plasterboard	No Insulation	No
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	No Insulation	No
Family/Guest	Plasterboard	Bulk Insulation R3.5	No
Bed 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 1	Plasterboard	Bulk Insulation R3.5	No
WIR Bed 1	Plasterboard	Bulk Insulation R3.5	No
Bath 1	Plasterboard	Bulk Insulation R3.5	No
Bedroom 3	Plasterboard	Bulk Insulation R3.5	No
Stairs upper	Plasterboard	Bulk Insulation R3.5	No
Bath L1	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Kitchen/Living	11	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Family room GF	5	Downlights - LED	150	Sealed
Living	5	Downlights - LED	150	Sealed
Family room GF	8	Downlights - LED	150	Sealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Stairs lower	1	Downlights - LED	150	Sealed
Family/Guest	5	Downlights - LED	150	Sealed
Bed 2	5	Downlights - LED	150	Sealed
Bedroom 1	6	Downlights - LED	150	Sealed
ENS Bed 1	3	Downlights - LED	150	Sealed
ENS Bed 1	1	Exhaust Fans	300	Sealed
WIR Bed 1	2	Downlights - LED	150	Sealed
Bath 1	2	Downlights - LED	150	Sealed
Bath 1	1	Exhaust Fans	300	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed
Stairs upper	5	Downlights - LED	150	Sealed
Bath L1	2	Downlights - LED	150	Sealed
Bath L1	1	Exhaust Fans	300	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	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.

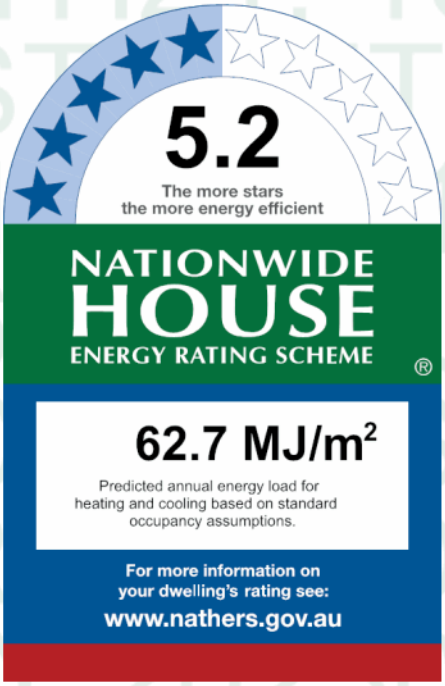
Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

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).

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008625980

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH21, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	178.0
Unconditioned*	37.0
Total	215.0
Garage	34.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
39.2	**23.5**
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.

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645

Assessor Accrediting Organisation
Design Matters National

Declaration of interest Declaration completed: no conflicts

Verification

To verify this certificate, scan the QR code or visit hstar.com.au/QR/Generate?p=mHScUNhEP.
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
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living	ALM-006-03 A	n/a	2500	4000	n/a	45	SE	No
Family room GF	ALM-006-03 A	n/a	2500	2400	n/a	45	NE	No
Family room GF	ALM-006-03 A	n/a	2500	2600	n/a	45	SE	No
Living	ALM-006-03 A	n/a	2500	2800	n/a	45	NW	No
Family room GF	ALM-006-03 A	n/a	2400	900	n/a	00	SE	No
Family room GF	ALM-006-03 A	n/a	360	1860	n/a	00	SE	No
Family room GF	ALM-006-03 A	n/a	330	1000	n/a	00	NW	No
Family/Guest	ALM-006-03 A	n/a	1580	2000	n/a	45	SE	No
Family/Guest	ALM-005-03 A	n/a	1400	1460	n/a	10	SE	No
Bed 2	ALM-006-03 A	n/a	2500	3180	n/a	45	SE	No
Bed 2	ALM-005-03 A	n/a	1600	900	n/a	10	NE	No
Bedroom 1	ALM-006-03 A	n/a	2500	2900	n/a	60	NW	No
ENS Bed 1	ALM-005-03 A	n/a	800	1700	n/a	90	SW	No
Bath 1	ALM-005-03 A	n/a	1345	970	n/a	10	NW	Yes
Bedroom 3	ALM-005-03 A	n/a	1450	2800	n/a	10	NW	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

* Refer to glossary.

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
Family room GF	2400	1000	90	SE
Family room GF	2400	1000	90	NW
Garage	2300	4800	90	NW

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	6295	SW	0	NO
Kitchen/Living	EW-2	2800	4500	SE	900	NO
Family room GF	EW-2	2800	600	SW	2600	YES
Family room GF	EW-2	2800	4895	NE	0	NO
Family room GF	EW-2	2800	4200	SE	1400	NO
Living	EW-2	2800	4195	NW	200	NO

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Living	EW-2	2800	4495	NE	0	NO
Family room GF	EW-2	2800	2790	SE	0	YES
Family room GF	EW-2	2800	1590	NW	200	YES
Garage	EW-2	2800	5995	SW	0	NO
Garage	EW-2	2800	5700	NW	0	NO
Garage	EW-2	2800	3500	NE	0	YES
Family/Guest	EW-2	2740	3795	SW	700	NO
Family/Guest	EW-2	2740	4495	SE	800	NO
Bed 2	EW-2	2740	4200	SE	1700	NO
Bed 2	EW-2	2740	295	SW	6800	YES
Bed 2	EW-2	2740	5495	NE	800	NO
Bedroom 1	EW-2	2740	4500	NW	1900	NO
Bedroom 1	EW-2	2740	1400	NE	0	YES
Bedroom 1	EW-2	2740	3395	SW	700	NO
ENS Bed 1	EW-2	2740	3190	SW	700	NO
Bath 1	EW-2	2740	1990	NW	700	YES
Bedroom 3	EW-2	2740	3795	NW	700	NO
Bedroom 3	EW-2	2740	4095	NE	800	NO
Bath L1	EW-1	2740	300	SE	500	YES
Bath L1	EW-1	2740	300	SW	6500	YES
Bath L1	EW-1	2740	1295	SE	800	YES

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		213.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab on Ground 200mm	27.90	None	No Insulation	Cork Tiles or Parquetry 8mm
Family room GF	Concrete Slab on Ground 200mm	18.60	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	16.90	None	No Insulation	Cork Tiles or Parquetry 8mm
Family room GF	Concrete Slab on Ground 200mm	18.30	None	No Insulation	Cork Tiles or Parquetry 8mm
Ldy	Concrete Slab on Ground 200mm	2.20	None	No Insulation	Ceramic Tiles 8mm
Stairs lower	Concrete Slab on Ground 200mm	2.80	None	No Insulation	Cork Tiles or Parquetry 8mm
Garage	Concrete Slab on Ground 200mm	33.80	None	No Insulation	Bare
Family/Guest/Kitchen/Living	Timber Above Plasterboard 200mm	12.30		No Insulation	Carpet+Rubber Underlay 18mm
Family/Guest/Family room GF	Timber Above Plasterboard 200mm	4.50		No Insulation	Carpet+Rubber Underlay 18mm
Bed 2/Family room GF	Timber Above Plasterboard 19mm	16.50		No Insulation	Carpet+Rubber Underlay 18mm
Bed 2/Living	Timber Above Plasterboard 19mm	0.60		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 1/Garage	Timber Above Plasterboard 19mm	16.00		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 1/Kitchen/Living	Timber Above Plasterboard 19mm	5.90		No Insulation	Ceramic Tiles 8mm
ENS Bed 1/Garage	Timber Above Plasterboard 19mm	1.90		No Insulation	Ceramic Tiles 8mm
WIR Bed 1/Kitchen/Living	Timber Above Plasterboard 19mm	1.70		No Insulation	Carpet+Rubber Underlay 18mm
WIR Bed 1/Ldy	Timber Above Plasterboard 19mm	1.90		No Insulation	Carpet+Rubber Underlay 18mm
Bath 1/Living	Timber Above Plasterboard 19mm	0.60		No Insulation	Ceramic Tiles 8mm
Bath 1/Family room GF	Timber Above Plasterboard 19mm	2.50		No Insulation	Ceramic Tiles 8mm
Bedroom 3/Living	Timber Above Plasterboard 19mm	11.70		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3	Suspended Timber Floor 19mm	0.70	Totally Open	No Insulation	Carpet+Rubber Underlay 18mm
Stairs upper/Family room GF	Timber Above Plasterboard 19mm	0.50		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Living	Timber Above Plasterboard 19mm	3.80		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Family room GF	Timber Above Plasterboard 19mm	6.50		No Insulation	Cork Tiles or Parquetry 8mm

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Stairs upper/Stairs lower	Timber Above Plasterboard 19mm	3.00		No Insulation	Cork Tiles or Parquetry 8mm
Bath L1/Family room GF	Timber Above Plasterboard 19mm	1.50		No Insulation	Ceramic Tiles 8mm
Bath L1/Family room GF	Timber Above Plasterboard 19mm	4.20		No Insulation	Ceramic Tiles 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Family room GF	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Family room GF	Timber Above Plasterboard	No Insulation	No
Ldy	Timber Above Plasterboard	No Insulation	No
Stairs lower	Timber Above Plasterboard	No Insulation	No
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	No Insulation	No
Family/Guest	Plasterboard	Bulk Insulation R3.5	No
Bed 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 1	Plasterboard	Bulk Insulation R3.5	No
WIR Bed 1	Plasterboard	Bulk Insulation R3.5	No
Bath 1	Plasterboard	Bulk Insulation R3.5	No
Bedroom 3	Plasterboard	Bulk Insulation R3.5	No
Stairs upper	Plasterboard	Bulk Insulation R3.5	No
Bath L1	Plasterboard	Bulk Insulation R3.5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Kitchen/Living	11	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Family room GF	5	Downlights - LED	150	Sealed
Living	5	Downlights - LED	150	Sealed
Family room GF	8	Downlights - LED	150	Sealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed
Stairs lower	1	Downlights - LED	150	Sealed
Family/Guest	5	Downlights - LED	150	Sealed
Bed 2	5	Downlights - LED	150	Sealed
Bedroom 1	6	Downlights - LED	150	Sealed
ENS Bed 1	3	Downlights - LED	150	Sealed
ENS Bed 1	1	Exhaust Fans	300	Sealed
WIR Bed 1	2	Downlights - LED	150	Sealed
Bath 1	2	Downlights - LED	150	Sealed
Bath 1	1	Exhaust Fans	300	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed
Stairs upper	5	Downlights - LED	150	Sealed
Bath L1	2	Downlights - LED	150	Sealed
Bath L1	1	Exhaust Fans	300	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	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.

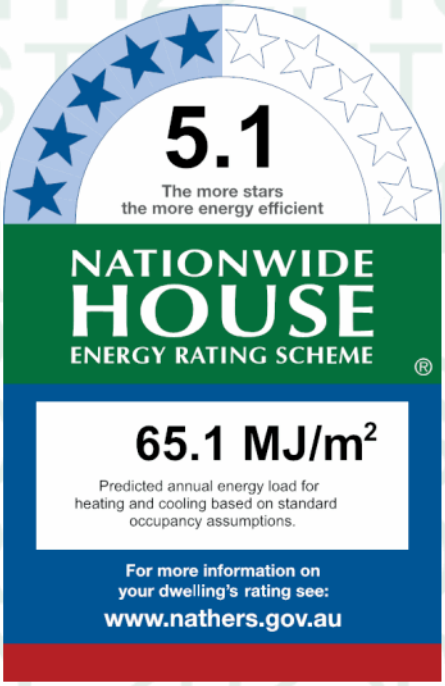
Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

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).

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008625964

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH22, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	160.0
Unconditioned*	40.0
Total	201.0
Garage	36.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
40.0	**25.1**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645

Assessor Accrediting Organisation
Design Matters National

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=VPnkaMTtU.
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
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living	ALM-006-03 A	n/a	2500	3700	n/a	45	SE	No
Family room GF	ALM-005-03 A	n/a	2200	900	n/a	60	NE	No
Family room GF	ALM-006-03 A	n/a	2400	2800	n/a	45	SE	No
Living	ALM-006-03 A	n/a	2500	2800	n/a	45	NW	No
Living	ALM-006-03 A	n/a	2400	600	n/a	00	SE	No
Living	ALM-006-03 A	n/a	365	1560	n/a	00	SE	No
Family/Guest	ALM-005-03 A	n/a	1580	2000	n/a	10	SE	No
Family/Guest	ALM-005-03 A	n/a	1400	1460	n/a	10	SE	Yes
Bed 2	ALM-006-03 A	n/a	2500	3180	n/a	45	SE	No
Bed 2	ALM-005-03 A	n/a	1600	900	n/a	10	NE	No
Bedroom 1	ALM-006-03 A	n/a	2500	2900	n/a	60	NW	No
ENS Bed 1	ALM-005-03 A	n/a	800	1700	n/a	10	SW	No
Bath 1	ALM-005-03 A	n/a	650	1120	n/a	10	NW	Yes
Bedroom 3	ALM-005-03 A	n/a	1450	2400	n/a	10	NW	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight *type and performance*

* Refer to glossary.

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
Living	2400	980	90	SE
Living	2400	820	90	NW
Garage	2300	4800	90	NW

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	4695	SW	0	NO
Kitchen/Living	EW-1	2800	895	SE	700	NO
Kitchen/Living	EW-1	2800	4200	SE	700	NO
Family room GF	EW-1	2800	500	SW	1600	YES
Family room GF	EW-1	2800	4295	NE	0	NO
Family room GF	EW-1	2800	3800	SE	1500	NO
Living	EW-1	2800	3395	NW	900	NO

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Living	EW-1	2800	4095	NE	0	NO
Living	EW-1	2800	990	NE	0	NO
Living	EW-1	2800	1690	SE	0	YES
Living	EW-1	2800	1390	NW	900	YES
Garage	EW-1	2800	6195	SW	0	NO
Garage	EW-1	2800	5800	NW	0	NO
Garage	EW-1	2800	3600	NE	0	YES
Family/Guest	EW-1	2740	3795	SW	800	NO
Family/Guest	EW-1	2740	5395	SE	700	YES
Bed 2	EW-1	2740	3800	SE	1600	NO
Bed 2	EW-2	2740	500	SW	6200	YES
Bed 2	EW-1	2740	4295	NE	700	NO
Bedroom 1	EW-1	2740	4400	NW	2000	NO
Bedroom 1	EW-2	2740	600	NE	5500	YES
Bedroom 1	EW-1	2740	3295	SW	800	NO
ENS Bed 1	EW-1	2740	3190	SW	800	NO
Bath 1	EW-1	2740	1790	NW	600	YES
Bedroom 3	EW-1	2740	2995	NW	600	NO
Bedroom 3	EW-1	2740	3795	NE	700	NO
Stairs upper	EW-1	2740	2090	NE	700	NO
Ldy	EW-1	2800	1590	SW	0	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		179.00	No insulation
IW-2 - Cavity wall, direct fix plasterboard, single gap		24.00	Bulk Insulation, No Air Gap R1.5

Floor *type*

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab on Ground 200mm	23.50	None	No Insulation	Cork Tiles or Parquetry 8mm
Family room GF	Concrete Slab on Ground 200mm	16.00	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	13.30	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	19.50	None	No Insulation	Cork Tiles or Parquetry 8mm
PWD	Concrete Slab on Ground 200mm	2.60	None	No Insulation	Ceramic Tiles 8mm
Garage	Concrete Slab on Ground 200mm	35.60	None	No Insulation	Bare
Family/Guest/Kitchen/Living	Timber Above Plasterboard 19mm	13.80		No Insulation	Carpet+Rubber Underlay 18mm
Family/Guest/Living	Timber Above Plasterboard 19mm	5.10		No Insulation	Carpet+Rubber Underlay 18mm
Bed 2/Family room GF	Timber Above Plasterboard 19mm	15.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 1/Living	Timber Above Plasterboard 19mm	0.60		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 1/Garage	Timber Above Plasterboard 19mm	15.20		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 1/Kitchen/Living	Timber Above Plasterboard 19mm	2.00		No Insulation	Ceramic Tiles 8mm
ENS Bed 1/PWD	Timber Above Plasterboard 19mm	2.30		No Insulation	Ceramic Tiles 8mm
ENS Bed 1/Garage	Timber Above Plasterboard 19mm	1.90		No Insulation	Ceramic Tiles 8mm
ENS Bed 1/Ldy	Timber Above Plasterboard 19mm	1.40		No Insulation	Ceramic Tiles 8mm
WIR Bed 1/Kitchen/Living	Timber Above Plasterboard 19mm	1.20		No Insulation	Carpet+Rubber Underlay 18mm
WIR Bed 1/Living	Timber Above Plasterboard 19mm	2.40		No Insulation	Carpet+Rubber Underlay 18mm
Bath 1/Living	Timber Above Plasterboard 19mm	0.70		No Insulation	Ceramic Tiles 8mm
Bath 1/Living	Timber Above Plasterboard 19mm	2.60		No Insulation	Ceramic Tiles 8mm
Bath 1	Suspended Timber Floor 19mm	1.30	Totally Open	No Insulation	Ceramic Tiles 8mm
Bedroom 3/Living	Timber Above Plasterboard 19mm	8.80		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3	Suspended Timber Floor 19mm	2.30	Totally Open	No Insulation	Carpet+Rubber Underlay 18mm
Stairs upper/Family room GF	Timber Above Plasterboard 19mm	1.00		No Insulation	Cork Tiles or Parquetry 8mm

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Stairs upper/Living	Timber Above Plasterboard 19mm	3.60		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Living	Timber Above Plasterboard 19mm	8.90		No Insulation	Cork Tiles or Parquetry 8mm
Ldy	Concrete Slab on Ground 200mm	3.40	None	No Insulation	Ceramic Tiles 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Family room GF	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
PWD	Timber Above Plasterboard	No Insulation	No
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	No Insulation	No
Family/Guest	Plasterboard	Bulk Insulation R3.5	No
Bed 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 1	Plasterboard	Bulk Insulation R3.5	No
WIR Bed 1	Plasterboard	Bulk Insulation R3.5	No
Bath 1	Plasterboard	Bulk Insulation R3.5	No
Bedroom 3	Plasterboard	Bulk Insulation R3.5	No
Stairs upper	Plasterboard	Bulk Insulation R3.5	No
Ldy	Plasterboard	Bulk Insulation R3.5	No
Ldy	Timber Above Plasterboard	No Insulation	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Kitchen/Living	8	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Family room GF	5	Downlights - LED	150	Sealed
Living	5	Downlights - LED	150	Sealed
Living	8	Downlights - LED	150	Sealed
PWD	1	Downlights - LED	150	Sealed
PWD	1	Exhaust Fans	300	Sealed
Family/Guest	8	Downlights - LED	150	Sealed
Bed 2	5	Downlights - LED	150	Sealed
Bedroom 1	6	Downlights - LED	150	Sealed
ENS Bed 1	3	Downlights - LED	150	Sealed
ENS Bed 1	1	Exhaust Fans	300	Sealed
WIR Bed 1	2	Downlights - LED	150	Sealed
Bath 1	2	Downlights - LED	150	Sealed
Bath 1	1	Exhaust Fans	300	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed
Stairs upper	5	Downlights - LED	150	Sealed
Ldy	1	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
Living	1	900
Family/Guest	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium

Explanatory notes

About this report

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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.

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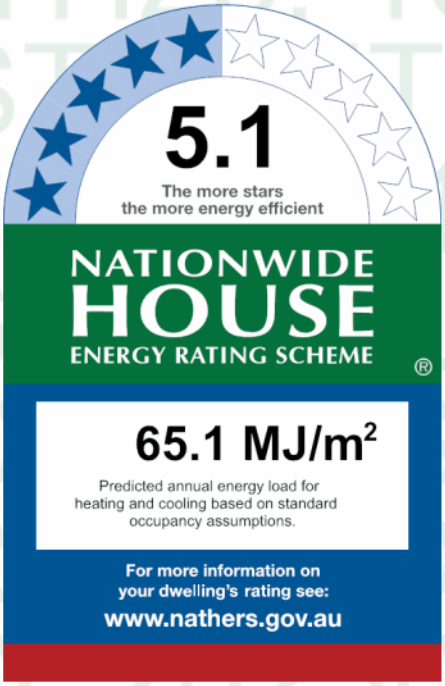
Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626137

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH23, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*

Conditioned*	161.0
Unconditioned*	40.0
Total	201.0
Garage	36.0

Exposure type

Suburban

NatHERS climate zone

56

Thermal performance

Heating	Cooling
39.9	**25.2**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645

Assessor Accrediting Organisation

Design Matters National

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=prfnsVbeT.
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
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living	ALM-006-03 A	n/a	2400	3700	n/a	45	SE	No
Family room GF	ALM-005-03 A	n/a	2200	900	n/a	60	NE	No
Family room GF	ALM-006-03 A	n/a	2400	2800	n/a	45	SE	No
Living	ALM-006-03 A	n/a	2500	2800	n/a	45	NW	No
Living	ALM-006-03 A	n/a	2400	600	n/a	00	SE	No
Living	ALM-006-03 A	n/a	300	1560	n/a	00	SE	No
Family/Guest	ALM-005-03 A	n/a	1580	2600	n/a	10	SE	No
Family/Guest	ALM-005-03 A	n/a	1400	1500	n/a	10	SE	Yes
Bed 2	ALM-006-03 A	n/a	2500	3180	n/a	45	SE	No
Bed 2	ALM-005-03 A	n/a	1600	900	n/a	10	NE	No
Bedroom 1	ALM-006-03 A	n/a	2500	2900	n/a	60	NW	No
ENS Bed 1	ALM-005-03 A	n/a	800	1700	n/a	10	SW	No
Bath 1	ALM-005-03 A	n/a	650	1120	n/a	10	NW	Yes
Bedroom 3	ALM-005-03 A	n/a	1450	2400	n/a	10	NW	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight *type and performance*

Skylight ID	Skylight description
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
Living	2400	980	90	SE
Living	2400	820	90	NW
Garage	2300	4800	90	NW

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	3895	SW	0	NO
Kitchen/Living	EW-1	2800	895	SE	500	NO
Kitchen/Living	EW-1	2800	4200	SE	500	NO
Family room GF	EW-1	2800	500	SW	1900	YES
Family room GF	EW-1	2800	4295	NE	0	NO
Family room GF	EW-1	2800	3800	SE	1300	NO
Living	EW-1	2800	3395	NW	1000	NO

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Living	EW-1	2800	4095	NE	0	NO
Living	EW-1	2800	990	NE	0	NO
Living	EW-2	2800	1690	SE	0	YES
Living	EW-1	2800	1390	NW	1000	YES
Garage	EW-1	2800	6195	SW	0	NO
Garage	EW-1	2800	5800	NW	0	NO
Garage	EW-1	2800	3600	NE	0	YES
Family/Guest	EW-1	2740	3795	SW	800	NO
Family/Guest	EW-1	2740	5395	SE	600	YES
Bed 2	EW-1	2740	3800	SE	1600	NO
Bed 2	EW-1	2740	500	SW	6200	YES
Bed 2	EW-1	2740	4295	NE	700	NO
Bedroom 1	EW-1	2740	4400	NW	2000	NO
Bedroom 1	EW-1	2740	600	NE	5500	YES
Bedroom 1	EW-1	2740	3295	SW	800	NO
ENS Bed 1	EW-1	2740	3190	SW	800	NO
Bath 1	EW-1	2740	1790	NW	600	YES
Bedroom 3	EW-1	2740	2995	NW	600	NO
Bedroom 3	EW-1	2740	3795	NE	700	NO
Stairs upper	EW-1	2740	2090	NE	700	NO
Ldy	EW-1	2800	2390	SW	0	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		181.00	No insulation
IW-2 - Cavity wall, direct fix plasterboard, single gap		24.00	Bulk Insulation, No Air Gap R2

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab on Ground 200mm	19.50	None	No Insulation	Cork Tiles or Parquetry 8mm
Family room GF	Concrete Slab on Ground 200mm	16.00	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	13.30	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	18.00	None	No Insulation	Cork Tiles or Parquetry 8mm
Bath GF	Concrete Slab on Ground 200mm	6.30	None	No Insulation	Ceramic Tiles 8mm
Garage	Concrete Slab on Ground 200mm	35.60	None	No Insulation	Bare
Family/Guest/Kitchen/Living	Timber Above Plasterboard 19mm	13.80		No Insulation	Carpet+Rubber Underlay 18mm
Family/Guest/Living	Timber Above Plasterboard 19mm	5.10		No Insulation	Carpet+Rubber Underlay 18mm
Bed 2/Family room GF	Timber Above Plasterboard 19mm	15.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 1/Garage	Timber Above Plasterboard 19mm	15.20		Bulk Insulation R2.5	Carpet+Rubber Underlay 18mm
ENS Bed 1/Bath GF	Timber Above Plasterboard 19mm	3.40		No Insulation	Ceramic Tiles 8mm
ENS Bed 1/Garage	Timber Above Plasterboard 19mm	1.90		Bulk Insulation R2.5	Ceramic Tiles 8mm
ENS Bed 1/Ldy	Timber Above Plasterboard 19mm	2.10		No Insulation	Ceramic Tiles 8mm
WIR Bed 1/Living	Timber Above Plasterboard 19mm	1.30		No Insulation	Carpet+Rubber Underlay 18mm
WIR Bed 1/Bath GF	Timber Above Plasterboard 19mm	2.60		No Insulation	Carpet+Rubber Underlay 18mm
Bath 1/Living	Timber Above Plasterboard 19mm	0.70		No Insulation	Ceramic Tiles 8mm
Bath 1/Living	Timber Above Plasterboard 19mm	2.60		No Insulation	Ceramic Tiles 8mm
Bath 1	Suspended Timber Floor 19mm	1.30	Very Open	No Insulation	Ceramic Tiles 8mm
Bedroom 3/Living	Timber Above Plasterboard 19mm	8.80		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3	Suspended Timber Floor 19mm	2.30	Very Open	No Insulation	Carpet+Rubber Underlay 18mm
Stairs upper/Family room GF	Timber Above Plasterboard 19mm	1.00		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Living	Timber Above Plasterboard 19mm	3.60		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Living	Timber Above Plasterboard 19mm	8.90		No Insulation	Cork Tiles or Parquetry 8mm

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Ldy	Concrete Slab on Ground 200mm	5.20	None	No Insulation	Ceramic Tiles 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Family room GF	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Bath GF	Timber Above Plasterboard	No Insulation	No
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	Bulk Insulation R2.5	No
Family/Guest	Plasterboard	Bulk Insulation R4	No
Bed 2	Plasterboard	Bulk Insulation R4	No
Bedroom 1	Plasterboard	Bulk Insulation R4	No
ENS Bed 1	Plasterboard	Bulk Insulation R4	No
WIR Bed 1	Plasterboard	Bulk Insulation R4	No
Bath 1	Plasterboard	Bulk Insulation R4	No
Bedroom 3	Plasterboard	Bulk Insulation R4	No
Stairs upper	Plasterboard	Bulk Insulation R4	No
Ldy	Plasterboard	Bulk Insulation R3.5	No
Ldy	Timber Above Plasterboard	No Insulation	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Kitchen/Living	8	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Family room GF	5	Downlights - LED	150	Sealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Living	5	Downlights - LED	150	Sealed
Living	8	Downlights - LED	150	Sealed
Bath GF	2	Downlights - LED	150	Sealed
Bath GF	1	Exhaust Fans	300	Sealed
Family/Guest	8	Downlights - LED	150	Sealed
Bed 2	5	Downlights - LED	150	Sealed
Bedroom 1	6	Downlights - LED	150	Sealed
ENS Bed 1	3	Downlights - LED	150	Sealed
ENS Bed 1	1	Exhaust Fans	300	Sealed
WIR Bed 1	2	Downlights - LED	150	Sealed
Bath 1	2	Downlights - LED	150	Sealed
Bath 1	1	Exhaust Fans	300	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed
Stairs upper	5	Downlights - LED	150	Sealed
Ldy	2	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
Living	1	900
Family/Guest	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium

Explanatory notes

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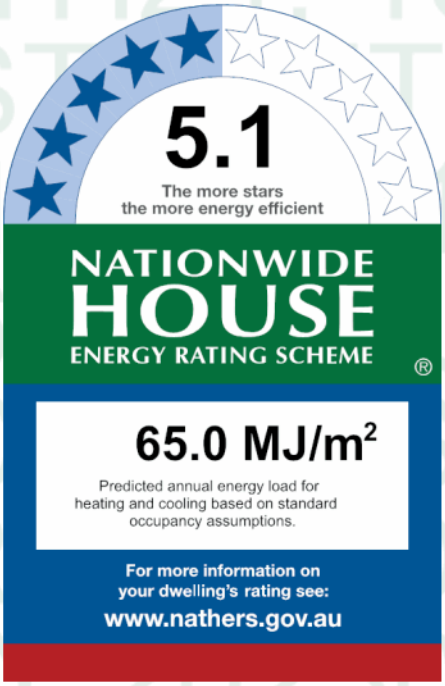
Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626103

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH24, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*

Conditioned*	161.0
Unconditioned*	40.0
Total	201.0
Garage	36.0

Exposure type

Suburban

NatHERS climate zone

56

Thermal performance

Heating	Cooling
39.9	**25.0**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645

Assessor Accrediting Organisation

Design Matters National

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.

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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.

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

Windows

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

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

Additional notes

I have modeled the shading in accordance with NatHERS principles

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living	ALM-006-03 A	n/a	2400	3700	n/a	45	SE	No
Family room GF	ALM-005-03 A	n/a	2200	900	n/a	60	NE	No
Family room GF	ALM-006-03 A	n/a	2400	2800	n/a	45	SE	No
Living	ALM-006-03 A	n/a	2500	2800	n/a	45	NW	No
Living	ALM-006-03 A	n/a	2400	600	n/a	00	SE	No
Living	ALM-006-03 A	n/a	300	1560	n/a	00	SE	No
Family/Guest	ALM-005-03 A	n/a	1580	2600	n/a	10	SE	No
Family/Guest	ALM-005-03 A	n/a	1400	1500	n/a	10	SE	Yes
Bed 2	ALM-006-03 A	n/a	2500	3180	n/a	45	SE	No
Bed 2	ALM-005-03 A	n/a	1600	900	n/a	10	NE	No
Bedroom 1	ALM-006-03 A	n/a	2500	2900	n/a	60	NW	No
ENS Bed 1	ALM-005-03 A	n/a	800	1700	n/a	10	SW	No
Bath 1	ALM-005-03 A	n/a	650	1120	n/a	10	NW	Yes
Bedroom 3	ALM-005-03 A	n/a	1450	2400	n/a	10	NW	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight *type and performance*

Skylight ID	Skylight description
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
Living	2400	980	90	SE
Living	2400	820	90	NW
Garage	2300	4800	90	NW

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	3895	SW	0	NO
Kitchen/Living	EW-1	2800	895	SE	500	NO
Kitchen/Living	EW-1	2800	4200	SE	500	NO
Family room GF	EW-1	2800	500	SW	1900	YES
Family room GF	EW-1	2800	4295	NE	0	NO
Family room GF	EW-1	2800	3800	SE	1300	NO
Living	EW-1	2800	3395	NW	1000	NO

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Living	EW-1	2800	4095	NE	0	NO
Living	EW-1	2800	990	NE	0	NO
Living	EW-2	2800	1690	SE	0	YES
Living	EW-1	2800	1390	NW	1000	YES
Garage	EW-1	2800	6195	SW	0	NO
Garage	EW-1	2800	5800	NW	0	NO
Garage	EW-1	2800	3600	NE	0	YES
Family/Guest	EW-1	2740	3795	SW	800	NO
Family/Guest	EW-1	2740	5395	SE	600	YES
Bed 2	EW-1	2740	3800	SE	1600	NO
Bed 2	EW-1	2740	500	SW	6200	YES
Bed 2	EW-1	2740	4295	NE	700	NO
Bedroom 1	EW-1	2740	4400	NW	2000	NO
Bedroom 1	EW-1	2740	600	NE	5500	YES
Bedroom 1	EW-1	2740	3295	SW	800	NO
ENS Bed 1	EW-1	2740	3190	SW	800	NO
Bath 1	EW-1	2740	1790	NW	600	YES
Bedroom 3	EW-1	2740	2995	NW	600	NO
Bedroom 3	EW-1	2740	3795	NE	700	NO
Stairs upper	EW-1	2740	2090	NE	700	NO
Ldy	EW-1	2800	2390	SW	0	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		181.00	No insulation
IW-2 - Cavity wall, direct fix plasterboard, single gap		24.00	Bulk Insulation, No Air Gap R2

Floor *type*

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab on Ground 200mm	19.50	None	No Insulation	Cork Tiles or Parquetry 8mm
Family room GF	Concrete Slab on Ground 200mm	16.00	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	13.30	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	18.00	None	No Insulation	Cork Tiles or Parquetry 8mm
Bath GF	Concrete Slab on Ground 200mm	6.30	None	No Insulation	Ceramic Tiles 8mm
Garage	Concrete Slab on Ground 200mm	35.60	None	No Insulation	Bare
Family/Guest/Kitchen/Living	Timber Above Plasterboard 19mm	13.80		No Insulation	Carpet+Rubber Underlay 18mm
Family/Guest/Living	Timber Above Plasterboard 19mm	5.10		No Insulation	Carpet+Rubber Underlay 18mm
Bed 2/Family room GF	Timber Above Plasterboard 19mm	15.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 1/Garage	Timber Above Plasterboard 19mm	15.20		Bulk Insulation R2.5	Carpet+Rubber Underlay 18mm
ENS Bed 1/Bath GF	Timber Above Plasterboard 19mm	3.40		No Insulation	Ceramic Tiles 8mm
ENS Bed 1/Garage	Timber Above Plasterboard 19mm	1.90		Bulk Insulation R2.5	Ceramic Tiles 8mm
ENS Bed 1/Ldy	Timber Above Plasterboard 19mm	2.10		No Insulation	Ceramic Tiles 8mm
WIR Bed 1/Living	Timber Above Plasterboard 19mm	1.30		No Insulation	Carpet+Rubber Underlay 18mm
WIR Bed 1/Bath GF	Timber Above Plasterboard 19mm	2.60		No Insulation	Carpet+Rubber Underlay 18mm
Bath 1/Living	Timber Above Plasterboard 19mm	0.70		No Insulation	Ceramic Tiles 8mm
Bath 1/Living	Timber Above Plasterboard 19mm	2.60		No Insulation	Ceramic Tiles 8mm
Bath 1	Suspended Timber Floor 19mm	1.30	Very Open	No Insulation	Ceramic Tiles 8mm
Bedroom 3/Living	Timber Above Plasterboard 19mm	8.80		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3	Suspended Timber Floor 19mm	2.30	Very Open	No Insulation	Carpet+Rubber Underlay 18mm
Stairs upper/Family room GF	Timber Above Plasterboard 19mm	1.00		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Living	Timber Above Plasterboard 19mm	3.60		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Living	Timber Above Plasterboard 19mm	8.90		No Insulation	Cork Tiles or Parquetry 8mm

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Ldy	Concrete Slab on Ground 200mm	5.20	None	No Insulation	Ceramic Tiles 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Family room GF	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Bath GF	Timber Above Plasterboard	No Insulation	No
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	Bulk Insulation R2.5	No
Family/Guest	Plasterboard	Bulk Insulation R4	No
Bed 2	Plasterboard	Bulk Insulation R4	No
Bedroom 1	Plasterboard	Bulk Insulation R4	No
ENS Bed 1	Plasterboard	Bulk Insulation R4	No
WIR Bed 1	Plasterboard	Bulk Insulation R4	No
Bath 1	Plasterboard	Bulk Insulation R4	No
Bedroom 3	Plasterboard	Bulk Insulation R4	No
Stairs upper	Plasterboard	Bulk Insulation R4	No
Ldy	Plasterboard	Bulk Insulation R3.5	No
Ldy	Timber Above Plasterboard	No Insulation	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Kitchen/Living	8	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Family room GF	5	Downlights - LED	150	Sealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Living	5	Downlights - LED	150	Sealed
Living	8	Downlights - LED	150	Sealed
Bath GF	2	Downlights - LED	150	Sealed
Bath GF	1	Exhaust Fans	300	Sealed
Family/Guest	8	Downlights - LED	150	Sealed
Bed 2	5	Downlights - LED	150	Sealed
Bedroom 1	6	Downlights - LED	150	Sealed
ENS Bed 1	3	Downlights - LED	150	Sealed
ENS Bed 1	1	Exhaust Fans	300	Sealed
WIR Bed 1	2	Downlights - LED	150	Sealed
Bath 1	2	Downlights - LED	150	Sealed
Bath 1	1	Exhaust Fans	300	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed
Stairs upper	5	Downlights - LED	150	Sealed
Ldy	2	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
Living	1	900
Family/Guest	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	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).

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626079

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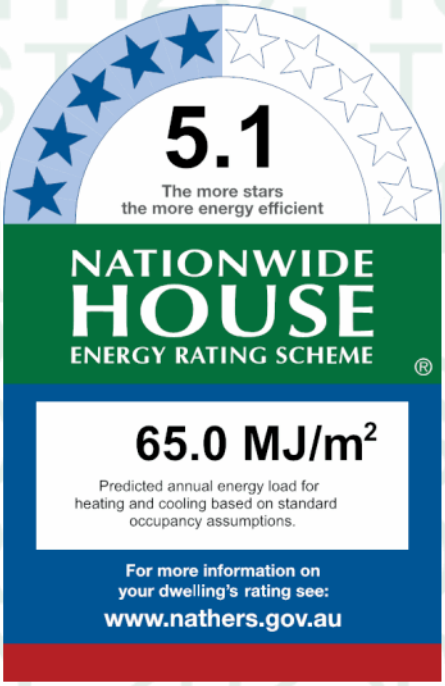

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Prepared by	PBD Architects

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MJ/m^2	MJ/m^2

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Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

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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.

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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.

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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".

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Additional notes

I have modeled the shading in accordance with NatHERS principles

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living	ALM-006-03 A	n/a	2400	3700	n/a	45	SE	No
Family room GF	ALM-005-03 A	n/a	2200	900	n/a	60	NE	No
Family room GF	ALM-006-03 A	n/a	2400	2800	n/a	45	SE	No
Living	ALM-006-03 A	n/a	2500	2800	n/a	45	NW	No
Living	ALM-006-03 A	n/a	2400	600	n/a	00	SE	No
Living	ALM-006-03 A	n/a	300	1560	n/a	00	SE	No
Family/Guest	ALM-005-03 A	n/a	1580	2600	n/a	10	SE	No
Family/Guest	ALM-005-03 A	n/a	1400	1500	n/a	10	SE	Yes
Bed 2	ALM-006-03 A	n/a	2500	3180	n/a	45	SE	No
Bed 2	ALM-005-03 A	n/a	1600	900	n/a	10	NE	No
Bedroom 1	ALM-006-03 A	n/a	2500	2900	n/a	60	NW	No
ENS Bed 1	ALM-005-03 A	n/a	800	1700	n/a	10	SW	No
Bath 1	ALM-005-03 A	n/a	650	1120	n/a	10	NW	Yes
Bedroom 3	ALM-005-03 A	n/a	1450	2400	n/a	10	NW	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight *type and performance*

* Refer to glossary.

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
Living	2400	980	90	SE
Living	2400	820	90	NW
Garage	2300	4800	90	NW

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	3895	SW	0	NO
Kitchen/Living	EW-1	2800	895	SE	500	NO
Kitchen/Living	EW-1	2800	4200	SE	500	NO
Family room GF	EW-1	2800	500	SW	1900	YES
Family room GF	EW-1	2800	4295	NE	0	NO
Family room GF	EW-1	2800	3800	SE	1300	NO
Living	EW-1	2800	3395	NW	1000	NO

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Living	EW-1	2800	4095	NE	0	NO
Living	EW-1	2800	990	NE	0	NO
Living	EW-2	2800	1690	SE	0	YES
Living	EW-1	2800	1390	NW	1000	YES
Garage	EW-1	2800	6195	SW	0	NO
Garage	EW-1	2800	5800	NW	0	NO
Garage	EW-1	2800	3600	NE	0	YES
Family/Guest	EW-1	2740	3795	SW	800	NO
Family/Guest	EW-1	2740	5395	SE	600	YES
Bed 2	EW-1	2740	3800	SE	1600	NO
Bed 2	EW-1	2740	500	SW	6200	YES
Bed 2	EW-1	2740	4295	NE	700	NO
Bedroom 1	EW-1	2740	4400	NW	2000	NO
Bedroom 1	EW-1	2740	600	NE	5500	YES
Bedroom 1	EW-1	2740	3295	SW	800	NO
ENS Bed 1	EW-1	2740	3190	SW	800	NO
Bath 1	EW-1	2740	1790	NW	600	YES
Bedroom 3	EW-1	2740	2995	NW	600	NO
Bedroom 3	EW-1	2740	3795	NE	700	NO
Stairs upper	EW-1	2740	2090	NE	700	NO
Ldy	EW-1	2800	2390	SW	0	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		181.00	No insulation
IW-2 - Cavity wall, direct fix plasterboard, single gap		24.00	Bulk Insulation, No Air Gap R2

Floor *type*

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab on Ground 200mm	19.50	None	No Insulation	Cork Tiles or Parquetry 8mm
Family room GF	Concrete Slab on Ground 200mm	16.00	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	13.30	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	18.00	None	No Insulation	Cork Tiles or Parquetry 8mm
Bath GF	Concrete Slab on Ground 200mm	6.30	None	No Insulation	Ceramic Tiles 8mm
Garage	Concrete Slab on Ground 200mm	35.60	None	No Insulation	Bare
Family/Guest/Kitchen/Living	Timber Above Plasterboard 19mm	13.80		No Insulation	Carpet+Rubber Underlay 18mm
Family/Guest/Living	Timber Above Plasterboard 19mm	5.10		No Insulation	Carpet+Rubber Underlay 18mm
Bed 2/Family room GF	Timber Above Plasterboard 19mm	15.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 1/Garage	Timber Above Plasterboard 19mm	15.20		Bulk Insulation R2.5	Carpet+Rubber Underlay 18mm
ENS Bed 1/Bath GF	Timber Above Plasterboard 19mm	3.40		No Insulation	Ceramic Tiles 8mm
ENS Bed 1/Garage	Timber Above Plasterboard 19mm	1.90		Bulk Insulation R2.5	Ceramic Tiles 8mm
ENS Bed 1/Ldy	Timber Above Plasterboard 19mm	2.10		No Insulation	Ceramic Tiles 8mm
WIR Bed 1/Living	Timber Above Plasterboard 19mm	1.30		No Insulation	Carpet+Rubber Underlay 18mm
WIR Bed 1/Bath GF	Timber Above Plasterboard 19mm	2.60		No Insulation	Carpet+Rubber Underlay 18mm
Bath 1/Living	Timber Above Plasterboard 19mm	0.70		No Insulation	Ceramic Tiles 8mm
Bath 1/Living	Timber Above Plasterboard 19mm	2.60		No Insulation	Ceramic Tiles 8mm
Bath 1	Suspended Timber Floor 19mm	1.30	Very Open	No Insulation	Ceramic Tiles 8mm
Bedroom 3/Living	Timber Above Plasterboard 19mm	8.80		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3	Suspended Timber Floor 19mm	2.30	Very Open	No Insulation	Carpet+Rubber Underlay 18mm
Stairs upper/Family room GF	Timber Above Plasterboard 19mm	1.00		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Living	Timber Above Plasterboard 19mm	3.60		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Living	Timber Above Plasterboard 19mm	8.90		No Insulation	Cork Tiles or Parquetry 8mm

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Ldy	Concrete Slab on Ground 200mm	5.20	None	No Insulation	Ceramic Tiles 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Family room GF	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Bath GF	Timber Above Plasterboard	No Insulation	No
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	Bulk Insulation R2.5	No
Family/Guest	Plasterboard	Bulk Insulation R4	No
Bed 2	Plasterboard	Bulk Insulation R4	No
Bedroom 1	Plasterboard	Bulk Insulation R4	No
ENS Bed 1	Plasterboard	Bulk Insulation R4	No
WIR Bed 1	Plasterboard	Bulk Insulation R4	No
Bath 1	Plasterboard	Bulk Insulation R4	No
Bedroom 3	Plasterboard	Bulk Insulation R4	No
Stairs upper	Plasterboard	Bulk Insulation R4	No
Ldy	Plasterboard	Bulk Insulation R3.5	No
Ldy	Timber Above Plasterboard	No Insulation	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Kitchen/Living	8	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Family room GF	5	Downlights - LED	150	Sealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Living	5	Downlights - LED	150	Sealed
Living	8	Downlights - LED	150	Sealed
Bath GF	2	Downlights - LED	150	Sealed
Bath GF	1	Exhaust Fans	300	Sealed
Family/Guest	8	Downlights - LED	150	Sealed
Bed 2	5	Downlights - LED	150	Sealed
Bedroom 1	6	Downlights - LED	150	Sealed
ENS Bed 1	3	Downlights - LED	150	Sealed
ENS Bed 1	1	Exhaust Fans	300	Sealed
WIR Bed 1	2	Downlights - LED	150	Sealed
Bath 1	2	Downlights - LED	150	Sealed
Bath 1	1	Exhaust Fans	300	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed
Stairs upper	5	Downlights - LED	150	Sealed
Ldy	2	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
Living	1	900
Family/Guest	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	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.

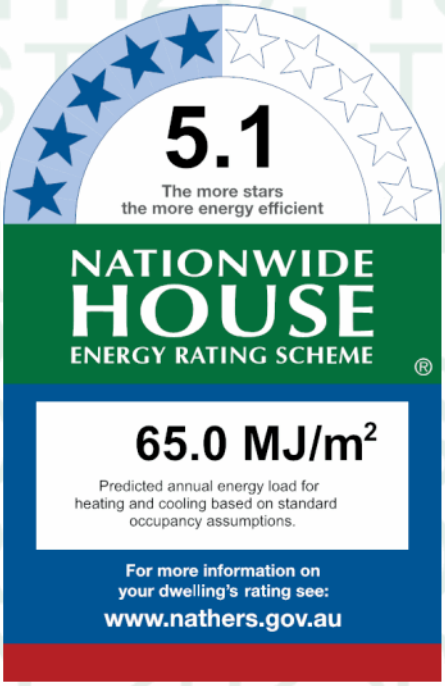
Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

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).

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626053

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH26, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	161.0
Unconditioned*	40.0
Total	201.0
Garage	36.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
39.9	**25.0**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645
Assessor Accrediting Organisation	Design Matters National
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=zNrUxzqBu.
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
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living	ALM-006-03 A	n/a	2400	3700	n/a	45	SE	No
Family room GF	ALM-005-03 A	n/a	2200	900	n/a	60	NE	No
Family room GF	ALM-006-03 A	n/a	2400	2800	n/a	45	SE	No
Living	ALM-006-03 A	n/a	2500	2800	n/a	45	NW	No
Living	ALM-006-03 A	n/a	2400	600	n/a	00	SE	No
Living	ALM-006-03 A	n/a	300	1560	n/a	00	SE	No
Family/Guest	ALM-005-03 A	n/a	1580	2600	n/a	10	SE	No
Family/Guest	ALM-005-03 A	n/a	1400	1500	n/a	10	SE	Yes
Bed 2	ALM-006-03 A	n/a	2500	3180	n/a	45	SE	No
Bed 2	ALM-005-03 A	n/a	1600	900	n/a	10	NE	No
Bedroom 1	ALM-006-03 A	n/a	2500	2900	n/a	60	NW	No
ENS Bed 1	ALM-005-03 A	n/a	800	1700	n/a	10	SW	No
Bath 1	ALM-005-03 A	n/a	650	1120	n/a	10	NW	Yes
Bedroom 3	ALM-005-03 A	n/a	1450	2400	n/a	10	NW	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight *type and performance*

* Refer to glossary.

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
Living	2400	980	90	SE
Living	2400	820	90	NW
Garage	2300	4800	90	NW

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	3895	SW	0	NO
Kitchen/Living	EW-1	2800	895	SE	500	NO
Kitchen/Living	EW-1	2800	4200	SE	500	NO
Family room GF	EW-1	2800	500	SW	1900	YES
Family room GF	EW-1	2800	4295	NE	0	NO
Family room GF	EW-1	2800	3800	SE	1300	NO
Living	EW-1	2800	3395	NW	1000	NO

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Living	EW-1	2800	4095	NE	0	NO
Living	EW-1	2800	990	NE	0	NO
Living	EW-2	2800	1690	SE	0	YES
Living	EW-1	2800	1390	NW	1000	YES
Garage	EW-1	2800	6195	SW	0	NO
Garage	EW-1	2800	5800	NW	0	NO
Garage	EW-1	2800	3600	NE	0	YES
Family/Guest	EW-1	2740	3795	SW	800	NO
Family/Guest	EW-1	2740	5395	SE	600	YES
Bed 2	EW-1	2740	3800	SE	1600	NO
Bed 2	EW-1	2740	500	SW	6200	YES
Bed 2	EW-1	2740	4295	NE	700	NO
Bedroom 1	EW-1	2740	4400	NW	2000	NO
Bedroom 1	EW-1	2740	600	NE	5500	YES
Bedroom 1	EW-1	2740	3295	SW	800	NO
ENS Bed 1	EW-1	2740	3190	SW	800	NO
Bath 1	EW-1	2740	1790	NW	600	YES
Bedroom 3	EW-1	2740	2995	NW	600	NO
Bedroom 3	EW-1	2740	3795	NE	700	NO
Stairs upper	EW-1	2740	2090	NE	700	NO
Ldy	EW-1	2800	2390	SW	0	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		181.00	No insulation
IW-2 - Cavity wall, direct fix plasterboard, single gap		24.00	Bulk Insulation, No Air Gap R2

Floor *type*

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab on Ground 200mm	19.50	None	No Insulation	Cork Tiles or Parquetry 8mm
Family room GF	Concrete Slab on Ground 200mm	16.00	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	13.30	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	18.00	None	No Insulation	Cork Tiles or Parquetry 8mm
Bath GF	Concrete Slab on Ground 200mm	6.30	None	No Insulation	Ceramic Tiles 8mm
Garage	Concrete Slab on Ground 200mm	35.60	None	No Insulation	Bare
Family/Guest/Kitchen/Living	Timber Above Plasterboard 19mm	13.80		No Insulation	Carpet+Rubber Underlay 18mm
Family/Guest/Living	Timber Above Plasterboard 19mm	5.10		No Insulation	Carpet+Rubber Underlay 18mm
Bed 2/Family room GF	Timber Above Plasterboard 19mm	15.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 1/Garage	Timber Above Plasterboard 19mm	15.20		Bulk Insulation R2.5	Carpet+Rubber Underlay 18mm
ENS Bed 1/Bath GF	Timber Above Plasterboard 19mm	3.40		No Insulation	Ceramic Tiles 8mm
ENS Bed 1/Garage	Timber Above Plasterboard 19mm	1.90		Bulk Insulation R2.5	Ceramic Tiles 8mm
ENS Bed 1/Ldy	Timber Above Plasterboard 19mm	2.10		No Insulation	Ceramic Tiles 8mm
WIR Bed 1/Living	Timber Above Plasterboard 19mm	1.30		No Insulation	Carpet+Rubber Underlay 18mm
WIR Bed 1/Bath GF	Timber Above Plasterboard 19mm	2.60		No Insulation	Carpet+Rubber Underlay 18mm
Bath 1/Living	Timber Above Plasterboard 19mm	0.70		No Insulation	Ceramic Tiles 8mm
Bath 1/Living	Timber Above Plasterboard 19mm	2.60		No Insulation	Ceramic Tiles 8mm
Bath 1	Suspended Timber Floor 19mm	1.30	Very Open	No Insulation	Ceramic Tiles 8mm
Bedroom 3/Living	Timber Above Plasterboard 19mm	8.80		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3	Suspended Timber Floor 19mm	2.30	Very Open	No Insulation	Carpet+Rubber Underlay 18mm
Stairs upper/Family room GF	Timber Above Plasterboard 19mm	1.00		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Living	Timber Above Plasterboard 19mm	3.60		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Living	Timber Above Plasterboard 19mm	8.90		No Insulation	Cork Tiles or Parquetry 8mm

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Ldy	Concrete Slab on Ground 200mm	5.20	None	No Insulation	Ceramic Tiles 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Family room GF	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Bath GF	Timber Above Plasterboard	No Insulation	No
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	Bulk Insulation R2.5	No
Family/Guest	Plasterboard	Bulk Insulation R4	No
Bed 2	Plasterboard	Bulk Insulation R4	No
Bedroom 1	Plasterboard	Bulk Insulation R4	No
ENS Bed 1	Plasterboard	Bulk Insulation R4	No
WIR Bed 1	Plasterboard	Bulk Insulation R4	No
Bath 1	Plasterboard	Bulk Insulation R4	No
Bedroom 3	Plasterboard	Bulk Insulation R4	No
Stairs upper	Plasterboard	Bulk Insulation R4	No
Ldy	Plasterboard	Bulk Insulation R3.5	No
Ldy	Timber Above Plasterboard	No Insulation	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Kitchen/Living	8	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Family room GF	5	Downlights - LED	150	Sealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Living	5	Downlights - LED	150	Sealed
Living	8	Downlights - LED	150	Sealed
Bath GF	2	Downlights - LED	150	Sealed
Bath GF	1	Exhaust Fans	300	Sealed
Family/Guest	8	Downlights - LED	150	Sealed
Bed 2	5	Downlights - LED	150	Sealed
Bedroom 1	6	Downlights - LED	150	Sealed
ENS Bed 1	3	Downlights - LED	150	Sealed
ENS Bed 1	1	Exhaust Fans	300	Sealed
WIR Bed 1	2	Downlights - LED	150	Sealed
Bath 1	2	Downlights - LED	150	Sealed
Bath 1	1	Exhaust Fans	300	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed
Stairs upper	5	Downlights - LED	150	Sealed
Ldy	2	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
Living	1	900
Family/Guest	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	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).

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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.

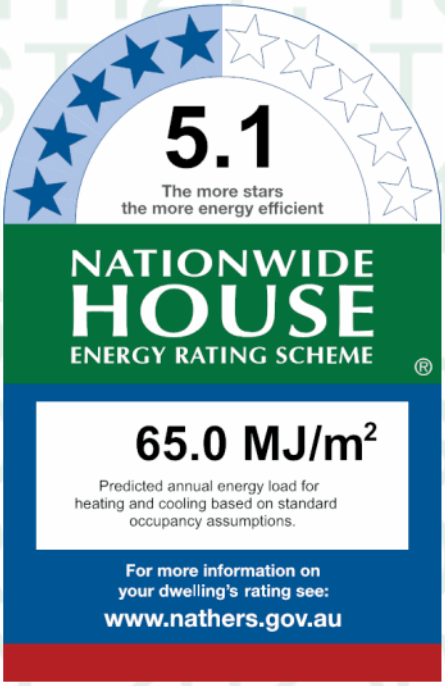
Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

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).

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626012

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH27, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	161.0
Unconditioned*	40.0
Total	201.0
Garage	36.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
39.9	**25.0**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645

Assessor Accrediting Organisation
Design Matters National

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=dSydWQlxm.
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
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living	ALM-006-03 A	n/a	2400	3700	n/a	45	SE	No
Family room GF	ALM-005-03 A	n/a	2200	900	n/a	60	NE	No
Family room GF	ALM-006-03 A	n/a	2400	2800	n/a	45	SE	No
Living	ALM-006-03 A	n/a	2500	2800	n/a	45	NW	No
Living	ALM-006-03 A	n/a	2400	600	n/a	00	SE	No
Living	ALM-006-03 A	n/a	300	1560	n/a	00	SE	No
Family/Guest	ALM-005-03 A	n/a	1580	2600	n/a	10	SE	No
Family/Guest	ALM-005-03 A	n/a	1400	1500	n/a	10	SE	Yes
Bed 2	ALM-006-03 A	n/a	2500	3180	n/a	45	SE	No
Bed 2	ALM-005-03 A	n/a	1600	900	n/a	10	NE	No
Bedroom 1	ALM-006-03 A	n/a	2500	2900	n/a	60	NW	No
ENS Bed 1	ALM-005-03 A	n/a	800	1700	n/a	10	SW	No
Bath 1	ALM-005-03 A	n/a	650	1120	n/a	10	NW	Yes
Bedroom 3	ALM-005-03 A	n/a	1450	2400	n/a	10	NW	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight *type and performance*

* Refer to glossary.

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
Living	2400	980	90	SE
Living	2400	820	90	NW
Garage	2300	4800	90	NW

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	3895	SW	0	NO
Kitchen/Living	EW-1	2800	895	SE	500	NO
Kitchen/Living	EW-1	2800	4200	SE	500	NO
Family room GF	EW-1	2800	500	SW	1900	YES
Family room GF	EW-1	2800	4295	NE	0	NO
Family room GF	EW-1	2800	3800	SE	1300	NO
Living	EW-1	2800	3395	NW	1000	NO

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Living	EW-1	2800	4095	NE	0	NO
Living	EW-1	2800	990	NE	0	NO
Living	EW-2	2800	1690	SE	0	YES
Living	EW-1	2800	1390	NW	1000	YES
Garage	EW-1	2800	6195	SW	0	NO
Garage	EW-1	2800	5800	NW	0	NO
Garage	EW-1	2800	3600	NE	0	YES
Family/Guest	EW-1	2740	3795	SW	800	NO
Family/Guest	EW-1	2740	5395	SE	600	YES
Bed 2	EW-1	2740	3800	SE	1600	NO
Bed 2	EW-1	2740	500	SW	6200	YES
Bed 2	EW-1	2740	4295	NE	700	NO
Bedroom 1	EW-1	2740	4400	NW	2000	NO
Bedroom 1	EW-1	2740	600	NE	5500	YES
Bedroom 1	EW-1	2740	3295	SW	800	NO
ENS Bed 1	EW-1	2740	3190	SW	800	NO
Bath 1	EW-1	2740	1790	NW	600	YES
Bedroom 3	EW-1	2740	2995	NW	600	NO
Bedroom 3	EW-1	2740	3795	NE	700	NO
Stairs upper	EW-1	2740	2090	NE	700	NO
Ldy	EW-1	2800	2390	SW	0	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		181.00	No insulation
IW-2 - Cavity wall, direct fix plasterboard, single gap		24.00	Bulk Insulation, No Air Gap R2

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab on Ground 200mm	19.50	None	No Insulation	Cork Tiles or Parquetry 8mm
Family room GF	Concrete Slab on Ground 200mm	16.00	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	13.30	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	18.00	None	No Insulation	Cork Tiles or Parquetry 8mm
Bath GF	Concrete Slab on Ground 200mm	6.30	None	No Insulation	Ceramic Tiles 8mm
Garage	Concrete Slab on Ground 200mm	35.60	None	No Insulation	Bare
Family/Guest/Kitchen/Living	Timber Above Plasterboard 19mm	13.80		No Insulation	Carpet+Rubber Underlay 18mm
Family/Guest/Living	Timber Above Plasterboard 19mm	5.10		No Insulation	Carpet+Rubber Underlay 18mm
Bed 2/Family room GF	Timber Above Plasterboard 19mm	15.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 1/Garage	Timber Above Plasterboard 19mm	15.20		Bulk Insulation R2.5	Carpet+Rubber Underlay 18mm
ENS Bed 1/Bath GF	Timber Above Plasterboard 19mm	3.40		No Insulation	Ceramic Tiles 8mm
ENS Bed 1/Garage	Timber Above Plasterboard 19mm	1.90		Bulk Insulation R2.5	Ceramic Tiles 8mm
ENS Bed 1/Ldy	Timber Above Plasterboard 19mm	2.10		No Insulation	Ceramic Tiles 8mm
WIR Bed 1/Living	Timber Above Plasterboard 19mm	1.30		No Insulation	Carpet+Rubber Underlay 18mm
WIR Bed 1/Bath GF	Timber Above Plasterboard 19mm	2.60		No Insulation	Carpet+Rubber Underlay 18mm
Bath 1/Living	Timber Above Plasterboard 19mm	0.70		No Insulation	Ceramic Tiles 8mm
Bath 1/Living	Timber Above Plasterboard 19mm	2.60		No Insulation	Ceramic Tiles 8mm
Bath 1	Suspended Timber Floor 19mm	1.30	Very Open	No Insulation	Ceramic Tiles 8mm
Bedroom 3/Living	Timber Above Plasterboard 19mm	8.80		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3	Suspended Timber Floor 19mm	2.30	Very Open	No Insulation	Carpet+Rubber Underlay 18mm
Stairs upper/Family room GF	Timber Above Plasterboard 19mm	1.00		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Living	Timber Above Plasterboard 19mm	3.60		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Living	Timber Above Plasterboard 19mm	8.90		No Insulation	Cork Tiles or Parquetry 8mm

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Ldy	Concrete Slab on Ground 200mm	5.20	None	No Insulation	Ceramic Tiles 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Family room GF	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Bath GF	Timber Above Plasterboard	No Insulation	No
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	Bulk Insulation R2.5	No
Family/Guest	Plasterboard	Bulk Insulation R4	No
Bed 2	Plasterboard	Bulk Insulation R4	No
Bedroom 1	Plasterboard	Bulk Insulation R4	No
ENS Bed 1	Plasterboard	Bulk Insulation R4	No
WIR Bed 1	Plasterboard	Bulk Insulation R4	No
Bath 1	Plasterboard	Bulk Insulation R4	No
Bedroom 3	Plasterboard	Bulk Insulation R4	No
Stairs upper	Plasterboard	Bulk Insulation R4	No
Ldy	Plasterboard	Bulk Insulation R3.5	No
Ldy	Timber Above Plasterboard	No Insulation	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Kitchen/Living	8	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Family room GF	5	Downlights - LED	150	Sealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Living	5	Downlights - LED	150	Sealed
Living	8	Downlights - LED	150	Sealed
Bath GF	2	Downlights - LED	150	Sealed
Bath GF	1	Exhaust Fans	300	Sealed
Family/Guest	8	Downlights - LED	150	Sealed
Bed 2	5	Downlights - LED	150	Sealed
Bedroom 1	6	Downlights - LED	150	Sealed
ENS Bed 1	3	Downlights - LED	150	Sealed
ENS Bed 1	1	Exhaust Fans	300	Sealed
WIR Bed 1	2	Downlights - LED	150	Sealed
Bath 1	2	Downlights - LED	150	Sealed
Bath 1	1	Exhaust Fans	300	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed
Stairs upper	5	Downlights - LED	150	Sealed
Ldy	2	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
Living	1	900
Family/Guest	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium

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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.

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Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008626004

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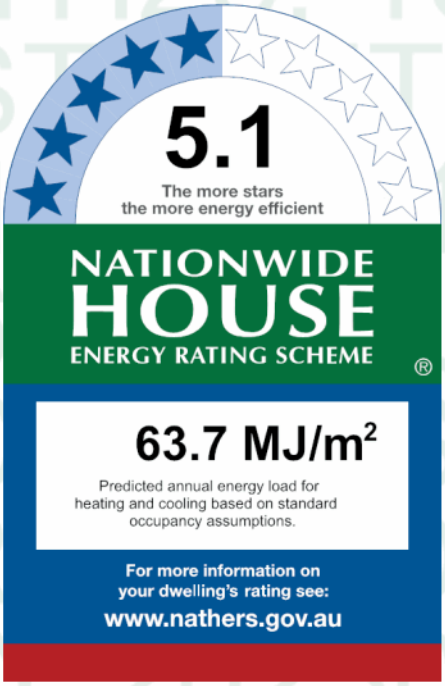

Property

Address	Unit TH28, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	160.0
Unconditioned*	40.0
Total	200.0
Garage	36.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
38.2	**25.5**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645

Assessor Accrediting Organisation
Design Matters National

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=DSCUqAOnH.
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
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living	ALM-006-03 A	n/a	2500	3700	n/a	45	SE	No
Family room GF	ALM-005-03 A	n/a	2200	900	n/a	60	NE	No
Family room GF	ALM-006-03 A	n/a	2500	3200	n/a	45	SE	No
Living	ALM-006-03 A	n/a	2500	2800	n/a	45	NW	No
Living	ALM-006-03 A	n/a	2400	600	n/a	00	SE	No
Living	ALM-006-03 A	n/a	365	1560	n/a	00	SE	No
Family/Guest	ALM-005-03 A	n/a	1580	2000	n/a	10	SE	No
Family/Guest	ALM-005-03 A	n/a	1400	1460	n/a	10	SE	Yes
Bed 2	ALM-006-03 A	n/a	2500	3180	n/a	45	SE	No
Bed 2	ALM-005-03 A	n/a	1600	900	n/a	10	NE	No
Bedroom 1	ALM-006-03 A	n/a	2500	2900	n/a	60	NW	No
ENS Bed 1	ALM-005-03 A	n/a	800	1700	n/a	10	SW	No
Bath 1	ALM-005-03 A	n/a	650	1120	n/a	10	NW	Yes
Bedroom 3	ALM-005-03 A	n/a	1450	2400	n/a	10	NW	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight *type and performance*

Skylight ID	Skylight description
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
Living	2400	980	90	SE
Living	2400	820	90	NW
Garage	2300	4800	90	NW

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	895	SE	700	NO
Kitchen/Living	EW-1	2800	4200	SE	700	NO
Family room GF	EW-1	2800	500	SW	1600	YES
Family room GF	EW-1	2800	4295	NE	0	NO
Family room GF	EW-1	2800	3800	SE	1500	NO
Living	EW-1	2800	3395	NW	900	NO
Living	EW-1	2800	4095	NE	0	NO

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Living	EW-1	2800	990	NE	0	NO
Living	EW-1	2800	1690	SE	0	YES
Living	EW-1	2800	1390	NW	900	YES
Garage	EW-1	2800	5800	NW	0	NO
Garage	EW-1	2800	3600	NE	0	YES
Family/Guest	EW-1	2740	3795	SW	800	NO
Family/Guest	EW-1	2740	5395	SE	700	YES
Bed 2	EW-1	2740	3800	SE	1600	NO
Bed 2	EW-1	2740	500	SW	6200	YES
Bed 2	EW-1	2740	4295	NE	700	NO
Bedroom 1	EW-1	2740	4400	NW	2000	NO
Bedroom 1	EW-2	2740	600	NE	5500	YES
Bedroom 1	EW-1	2740	3295	SW	800	NO
ENS Bed 1	EW-1	2740	3190	SW	800	NO
Bath 1	EW-1	2740	1790	NW	700	YES
Bedroom 3	EW-1	2740	2995	NW	700	NO
Bedroom 3	EW-1	2740	3795	NE	700	NO
Stairs upper	EW-1	2740	2090	NE	700	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Stud, plasterboard		35.00	No Insulation
IW-2 - Cavity wall, direct fix plasterboard, single gap		181.00	No insulation
IW-3 - Cavity wall, direct fix plasterboard, single gap		24.00	Bulk Insulation, No Air Gap R1.5

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab on Ground 200mm	19.50	None	No Insulation	Cork Tiles or Parquetry 8mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Family room GF	Concrete Slab on Ground 200mm	16.00	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	13.40	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	17.90	None	No Insulation	Cork Tiles or Parquetry 8mm
Bath GF	Concrete Slab on Ground 200mm	6.30	None	No Insulation	Ceramic Tiles 8mm
Garage	Concrete Slab on Ground 200mm	35.60	None	No Insulation	Bare
Family/Guest/Kitchen/Living	Timber Above Plasterboard 19mm	13.80		No Insulation	Carpet+Rubber Underlay 18mm
Family/Guest/Living	Timber Above Plasterboard 19mm	5.10		No Insulation	Carpet+Rubber Underlay 18mm
Bed 2/Family room GF	Timber Above Plasterboard 19mm	15.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 1/Garage	Timber Above Plasterboard 19mm	15.20		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 1/Bath GF	Timber Above Plasterboard 19mm	3.40		No Insulation	Ceramic Tiles 8mm
ENS Bed 1/Garage	Timber Above Plasterboard 19mm	1.90		No Insulation	Ceramic Tiles 8mm
ENS Bed 1/Ldy	Timber Above Plasterboard 19mm	2.10		No Insulation	Ceramic Tiles 8mm
WIR Bed 1/Living	Timber Above Plasterboard 19mm	1.30		No Insulation	Carpet+Rubber Underlay 18mm
WIR Bed 1/Bath GF	Timber Above Plasterboard 19mm	2.60		No Insulation	Carpet+Rubber Underlay 18mm
Bath 1/Living	Timber Above Plasterboard 19mm	0.70		No Insulation	Ceramic Tiles 8mm
Bath 1/Living	Timber Above Plasterboard 19mm	2.60		No Insulation	Ceramic Tiles 8mm
Bath 1	Suspended Timber Floor 19mm	1.30	Totally Open	No Insulation	Ceramic Tiles 8mm
Bedroom 3/Living	Timber Above Plasterboard 19mm	8.80		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3	Suspended Timber Floor 19mm	2.30	Totally Open	No Insulation	Carpet+Rubber Underlay 18mm
Stairs upper/Family room GF	Timber Above Plasterboard 19mm	1.00		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Living	Timber Above Plasterboard 19mm	3.70		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Living	Timber Above Plasterboard 19mm	8.80		No Insulation	Cork Tiles or Parquetry 8mm
Ldy	Concrete Slab on Ground 200mm	5.20	None	No Insulation	Ceramic Tiles 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Family room GF	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Bath GF	Timber Above Plasterboard	No Insulation	No
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	No Insulation	No
Family/Guest	Plasterboard	Bulk Insulation R3.5	No
Bed 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 1	Plasterboard	Bulk Insulation R3.5	No
WIR Bed 1	Plasterboard	Bulk Insulation R3.5	No
Bath 1	Plasterboard	Bulk Insulation R3.5	No
Bedroom 3	Plasterboard	Bulk Insulation R3.5	No
Stairs upper	Plasterboard	Bulk Insulation R3.5	No
Ldy	Plasterboard	Bulk Insulation R3.5	No
Ldy	Timber Above Plasterboard	No Insulation	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Kitchen/Living	8	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Family room GF	5	Downlights - LED	150	Sealed
Living	5	Downlights - LED	150	Sealed
Living	8	Downlights - LED	150	Sealed
Bath GF	2	Downlights - LED	150	Sealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Bath GF	1	Exhaust Fans	300	Sealed
Family/Guest	8	Downlights - LED	150	Sealed
Bed 2	5	Downlights - LED	150	Sealed
Bedroom 1	6	Downlights - LED	150	Sealed
ENS Bed 1	3	Downlights - LED	150	Sealed
ENS Bed 1	1	Exhaust Fans	300	Sealed
WIR Bed 1	2	Downlights - LED	150	Sealed
Bath 1	2	Downlights - LED	150	Sealed
Bath 1	1	Exhaust Fans	300	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed
Stairs upper	5	Downlights - LED	150	Sealed
Ldy	2	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
Living	1	900
Family/Guest	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	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.

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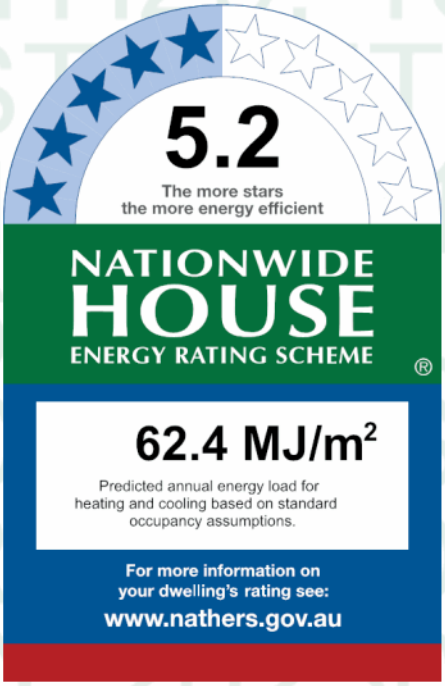
Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0008625956

Generated on 08 May 2023 using BERS Pro v4.4.1.5d (3.21)



Property

Address	Unit TH29, 16 16 Macpherson Street , Warriewood , NSW , 2102
Lot/DP	4/553816
NCC Class*	1A
Type	New Dwelling

Plans

Main plan	2235
Prepared by	PBD Architects

Construction and environment

Assessed floor area (m^2)*

Conditioned*	160.0
Unconditioned*	40.0
Total	200.0
Garage	36.0

Exposure type

Suburban

NatHERS climate zone

56

Thermal performance

Heating	Cooling
37.3	**25.2**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Dean Gorman
Business name	Greenview Consulting Pty Ltd
Email	dean@greenview.net.au
Phone	8544 1683
Accreditation No.	DMN/13/1645

Assessor Accrediting Organisation

Design Matters National

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=ADyqAcKxr.
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
ALM-006-03 A	ALM-006-03 A Aluminium B DG Argon Fill High Solar Gain low-E -Clear	4.1	0.52	0.49	0.55
ALM-005-03 A	ALM-005-03 A Aluminium A DG Argon Fill High Solar Gain low-E -Clear	4.1	0.47	0.45	0.49

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living	ALM-006-03 A	n/a	2500	3700	n/a	45	SE	No
Family room GF	ALM-006-03 A	n/a	2500	3200	n/a	45	SE	No
Family room GF	ALM-005-03 A	n/a	2200	900	n/a	60	SW	No
Living	ALM-006-03 A	n/a	2500	2800	n/a	45	NW	No
Living	ALM-006-03 A	n/a	2400	600	n/a	00	SE	No
Living	ALM-006-03 A	n/a	365	1560	n/a	00	SE	No
Family/Guest	ALM-005-03 A	n/a	1580	2000	n/a	10	SE	No
Family/Guest	ALM-005-03 A	n/a	1400	1460	n/a	10	SE	Yes
Bed 2	ALM-005-03 A	n/a	1600	900	n/a	10	SW	No
Bed 2	ALM-006-03 A	n/a	2500	3180	n/a	45	SE	No
Bedroom 1	ALM-006-03 A	n/a	2500	2900	n/a	60	NW	No
ENS Bed 1	ALM-005-03 A	n/a	800	1700	n/a	10	NE	No
Bath 1	ALM-005-03 A	n/a	650	1120	n/a	10	NW	Yes
Bedroom 3	ALM-005-03 A	n/a	1450	2400	n/a	10	NW	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight *type and performance*

Skylight ID	Skylight description
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
Living	2400	820	90	NW
Living	2400	980	90	SE
Garage	2300	4800	90	NW

External wall *type*

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

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2800	4200	SE	700	NO
Kitchen/Living	EW-1	2800	895	SE	700	NO
Family room GF	EW-1	2800	3800	SE	1500	NO
Family room GF	EW-1	2800	4295	SW	0	NO
Family room GF	EW-1	2800	500	NE	1600	YES
Living	EW-1	2800	4095	SW	0	NO
Living	EW-1	2800	3395	NW	900	NO

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Living	EW-1	2800	1390	NW	900	YES
Living	EW-1	2800	1690	SE	0	YES
Living	EW-1	2800	990	SW	0	NO
Garage	EW-1	2800	3600	SW	0	YES
Garage	EW-1	2800	5800	NW	0	NO
Family/Guest	EW-1	2740	5395	SE	700	YES
Family/Guest	EW-1	2740	3795	NE	800	NO
Bed 2	EW-1	2740	4295	SW	700	NO
Bed 2	EW-1	2740	500	NE	6200	YES
Bed 2	EW-1	2740	3800	SE	1600	NO
Bedroom 1	EW-1	2740	3295	NE	800	NO
Bedroom 1	EW-2	2740	600	SW	5500	YES
Bedroom 1	EW-1	2740	4400	NW	2000	NO
ENS Bed 1	EW-1	2740	3190	NE	800	NO
Bath 1	EW-1	2740	1790	NW	700	YES
Bedroom 3	EW-1	2740	3795	SW	700	NO
Bedroom 3	EW-1	2740	2995	NW	700	NO
Stairs upper	EW-1	2740	2090	SW	700	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		181.00	No insulation
IW-2 - Stud, plasterboard		35.00	No Insulation
IW-3 - Cavity wall, direct fix plasterboard, single gap		24.00	Bulk Insulation, No Air Gap R1.5

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab on Ground 200mm	19.50	None	No Insulation	Cork Tiles or Parquetry 8mm

* Refer to glossary.

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Family room GF	Concrete Slab on Ground 200mm	16.00	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	13.40	None	No Insulation	Cork Tiles or Parquetry 8mm
Living	Concrete Slab on Ground 200mm	17.90	None	No Insulation	Cork Tiles or Parquetry 8mm
Bath GF	Concrete Slab on Ground 200mm	6.30	None	No Insulation	Ceramic Tiles 8mm
Garage	Concrete Slab on Ground 200mm	35.60	None	No Insulation	Bare
Family/Guest/Kitchen/Living	Timber Above Plasterboard 19mm	13.80		No Insulation	Carpet+Rubber Underlay 18mm
Family/Guest/Living	Timber Above Plasterboard 19mm	5.00		No Insulation	Carpet+Rubber Underlay 18mm
Bed 2/Family room GF	Timber Above Plasterboard 19mm	15.00		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 1/Garage	Timber Above Plasterboard 19mm	15.20		No Insulation	Carpet+Rubber Underlay 18mm
ENS Bed 1/Bath GF	Timber Above Plasterboard 19mm	3.40		No Insulation	Ceramic Tiles 8mm
ENS Bed 1/Garage	Timber Above Plasterboard 19mm	1.90		No Insulation	Ceramic Tiles 8mm
ENS Bed 1/Ldy	Timber Above Plasterboard 19mm	2.00		No Insulation	Ceramic Tiles 8mm
WIR Bed 1/Living	Timber Above Plasterboard 19mm	1.30		No Insulation	Carpet+Rubber Underlay 18mm
WIR Bed 1/Bath GF	Timber Above Plasterboard 19mm	2.60		No Insulation	Carpet+Rubber Underlay 18mm
Bath 1/Living	Timber Above Plasterboard 19mm	0.70		No Insulation	Ceramic Tiles 8mm
Bath 1/Living	Timber Above Plasterboard 19mm	2.60		No Insulation	Ceramic Tiles 8mm
Bath 1	Suspended Timber Floor 19mm	1.30	Totally Open	No Insulation	Ceramic Tiles 8mm
Bedroom 3/Living	Timber Above Plasterboard 19mm	8.80		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3	Suspended Timber Floor 19mm	2.30	Totally Open	No Insulation	Carpet+Rubber Underlay 18mm
Stairs upper/Family room GF	Timber Above Plasterboard 19mm	1.00		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Living	Timber Above Plasterboard 19mm	3.70		No Insulation	Cork Tiles or Parquetry 8mm
Stairs upper/Living	Timber Above Plasterboard 19mm	8.80		No Insulation	Cork Tiles or Parquetry 8mm
Ldy	Concrete Slab on Ground 200mm	5.20	None	No Insulation	Ceramic Tiles 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Family room GF	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Living	Timber Above Plasterboard	No Insulation	No
Bath GF	Timber Above Plasterboard	No Insulation	No
Garage	Plasterboard	Bulk Insulation R3.5	No
Garage	Timber Above Plasterboard	No Insulation	No
Family/Guest	Plasterboard	Bulk Insulation R3.5	No
Bed 2	Plasterboard	Bulk Insulation R3.5	No
Bedroom 1	Plasterboard	Bulk Insulation R3.5	No
ENS Bed 1	Plasterboard	Bulk Insulation R3.5	No
WIR Bed 1	Plasterboard	Bulk Insulation R3.5	No
Bath 1	Plasterboard	Bulk Insulation R3.5	No
Bedroom 3	Plasterboard	Bulk Insulation R3.5	No
Stairs upper	Plasterboard	Bulk Insulation R3.5	No
Ldy	Plasterboard	Bulk Insulation R3.5	No
Ldy	Timber Above Plasterboard	No Insulation	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Kitchen/Living	8	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Family room GF	5	Downlights - LED	150	Sealed
Living	5	Downlights - LED	150	Sealed
Living	8	Downlights - LED	150	Sealed
Bath GF	2	Downlights - LED	150	Sealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Bath GF	1	Exhaust Fans	300	Sealed
Family/Guest	8	Downlights - LED	150	Sealed
Bed 2	5	Downlights - LED	150	Sealed
Bedroom 1	6	Downlights - LED	150	Sealed
ENS Bed 1	3	Downlights - LED	150	Sealed
ENS Bed 1	1	Exhaust Fans	300	Sealed
WIR Bed 1	2	Downlights - LED	150	Sealed
Bath 1	2	Downlights - LED	150	Sealed
Bath 1	1	Exhaust Fans	300	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed
Stairs upper	5	Downlights - LED	150	Sealed
Ldy	2	Downlights - LED	150	Sealed
Ldy	1	Exhaust Fans	300	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
Living	1	900
Family/Guest	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	0.50	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.8	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).