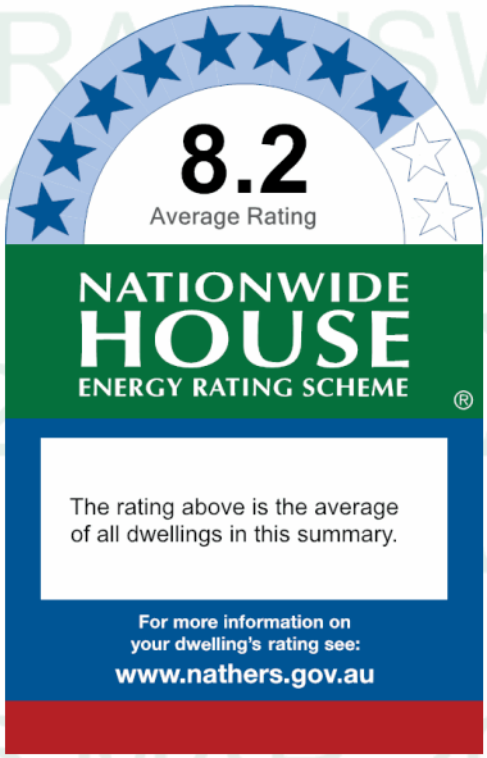
Nationwide House Energy Rating Scheme — Class 2 summary
NatHERS Certificate No. 0009284490

Generated on 06 Mar 2024 using BERS Pro v4.4.1.5 (3.21)



Property

Address 46 Chester Ave,
Maroubra , NSW , 2035

Lot/DP 270/36765

NatHERS climate zone 56

Accredited assessor

marc kiho

kiho building consulting

energy_rating@bigpond.com

0400 680 815

Accreditation No. 20094

Assessor Accrediting Organisation ABSA

Verification

To verify this certificate, scan the QR code or visit hstar.com.au/QR/Generate?p=YEPTjqLnm . 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
0009284423	G-01	25.1	5.3	30.4	7.6
0009284431	L1-01	5.4	10.6	16.1	8.8
0009284449	L1-02	4.1	9.1	13.2	9.1
0009284456	L1-03	27.2	9.7	36.9	7.2
0009284464	L2-01	10.3	10.8	21.2	8.4

National Construction Code (NCC) requirements

Continued Over

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
0009284472	L2-02	6.4	11.4	17.8	8.7
0009284480	L2-03	20.3	13.9	34.2	7.3
Average		14.11	10.11	24.26	8.16

Explanatory notes

About this ratings

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.

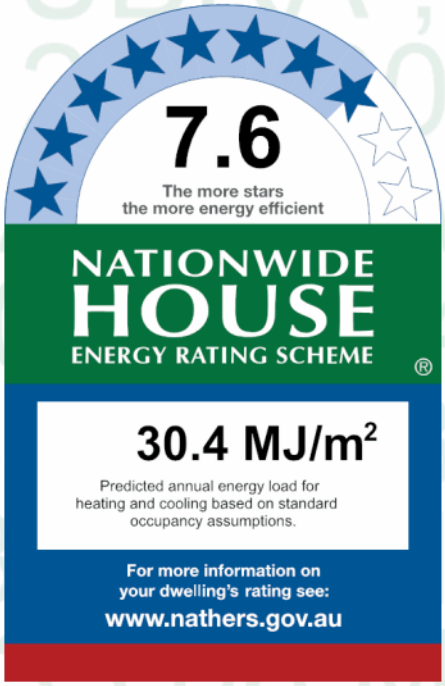
Any questions or concerns about this report should be directed to the assessor in the first instance. If the assessor is unable to address these questions or concerns, the AAO specified on the front of this certificate should be contacted.

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. 0009284423

Generated on 06 Mar 2024 using BERS Pro v4.4.1.5 (3.21)



Property

Address	Unit G-01, 46 Chester Ave, Maroubra , NSW , 2035
Lot/DP	270/36765
NCC Class*	2
Type	New Dwelling

Plans

Main plan	46 Chester Ave
Prepared by	IDG

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	49.0
Unconditioned*	5.0
Total	54.0
Garage	0.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
25.1	**5.3**
MJ/m^2	MJ/m^2

Accredited assessor

Name	marc kiho
Business name	kiho building consulting
Email	energy_rating@bigpond.com
Phone	0400 680 815
Accreditation No.	20094

Assessor Accrediting Organisation
ABSA

Declaration of interest Declaration completed: no conflicts

About the rating

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

Verification

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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-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
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

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-005-03 A	n/a	1500	1000	n/a	60	S	No
Kitchen/Living	ALM-006-03 A	n/a	1400	2100	n/a	50	E	No
Kitchen/Living	ALM-005-03 A	n/a	2300	1600	n/a	90	N	No
Kitchen/Living	ALM-005-03 A	n/a	2300	1000	n/a	60	E	No
Kitchen/Living	ALM-005-03 A	n/a	2300	1000	n/a	60	E	No
Bedroom 1	ALM-005-03 A	n/a	2300	1000	n/a	60	N	No
Unconditioned 1	ALM-005-03 A	n/a	1500	700	n/a	60	S	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	

* Refer to glossary.

Skylight *schedule*

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

External door *schedule*

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

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-1	Brick Veneer	0.50	Medium	Bulk Insulation R2.5	No
EW-2	Fibro 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	2700	6395	S	400	NO
Kitchen/Living	EW-1	2700	2595	N	200	NO
Kitchen/Living	EW-1	2700	3000	E	2800	YES
Kitchen/Living	EW-1	2700	2000	N	3200	YES
Kitchen/Living	EW-1	2700	4000	E	800	NO
Bedroom 1	EW-2	2700	2995	W	5800	NO
Bedroom 1	EW-1	2700	800	W	5800	NO
Bedroom 1	EW-1	2700	3395	N	200	NO
Unconditioned 1	EW-1	2700	2995	S	400	NO
Unconditioned 1	EW-2	2700	1800	W	2800	NO
Unconditioned 1	EW-2	2700	2995	N	5400	YES
Day Time 1	EW-1	2700	1590	S	400	NO
Day Time 1	EW-2	2700	1395	W	5800	YES

* Refer to glossary.
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Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		33.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab on Ground 100mm	31.60	None	No Insulation	Ceramic Tiles 8mm
Bedroom 1	Concrete Slab on Ground 100mm	12.60	None	No Insulation	Carpet+Rubber Underlay 18mm
Unconditioned 1	Concrete Slab on Ground 100mm	5.30	None	No Insulation	Ceramic Tiles 8mm
Day Time 1	Concrete Slab on Ground 100mm	4.80	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	Concrete, Plasterboard	No insulation	No
Bedroom 1	Concrete, Plasterboard	No insulation	No
Unconditioned 1	Concrete, Plasterboard	No insulation	No
Day Time 1	Concrete, Plasterboard	No insulation	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Living	4	Downlights - LED	0	Sealed
Kitchen/Living	1	Exhaust Fans	100	Sealed
Bedroom 1	2	Downlights - LED	0	Sealed
Unconditioned 1	1	Downlights - LED	0	Sealed
Unconditioned 1	1	Exhaust Fans	300	Sealed
Day Time 1	2	Downlights - LED	0	Sealed
Day Time 1	1	Exhaust Fans	100	Sealed

* Refer to glossary.

Ceiling *fans*

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

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
None Present			

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. 0009284431

Generated on 06 Mar 2024 using BERS Pro v4.4.1.5 (3.21)

Property

Address	Unit L1-01, 46 Chester Ave, Maroubra , NSW , 2035
Lot/DP	270/36765
NCC Class*	2
Type	New Dwelling

Plans

Main plan	46 Chester Ave
Prepared by	IDG

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	61.0
Unconditioned*	7.0
Total	67.0
Garage	0.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
5.4	**10.6**
MJ/m^2	MJ/m^2

Accredited assessor

Name	marc kiho
Business name	kiho building consulting
Email	energy_rating@bigpond.com
Phone	0400 680 815
Accreditation No.	20094
Assessor Accrediting Organisation	ABSA
Declaration of interest	Declaration completed: no conflicts

About the rating

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

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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-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
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

Custom* windows

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

* Refer to glossary.

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living	ALM-005-03 A	n/a	900	1000	n/a	20	S	No
Kitchen/Living	ALM-006-03 A	n/a	2700	3000	n/a	60	N	No
Kitchen/Living	ALM-005-03 A	n/a	1800	1000	n/a	10	E	No
Kitchen/Living	ALM-005-03 A	n/a	1800	1000	n/a	10	E	No
Bedroom 1	ALM-005-03 A	n/a	1800	1000	n/a	20	N	No
Bedroom 2	ALM-005-03 A	n/a	1800	1000	n/a	10	N	No
Unconditioned 1	ALM-005-03 A	n/a	900	1000	n/a	60	S	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	

* Refer to glossary.
Generated on 06 Mar 2024 using BERS Pro v4.4.1.5 (3.21) for Maroubra , NSW , 2035

Skylight *schedule*

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

External door *schedule*

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

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-1	Brick Veneer	0.50	Medium	Bulk Insulation R2.5	No
EW-2	Fibro 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	2700	8195	S	400	NO
Kitchen/Living	EW-1	2700	3400	N	4000	YES
Kitchen/Living	EW-1	2700	3800	E	400	NO
Bedroom 1	EW-1	2700	2400	W	1400	YES
Bedroom 1	EW-1	2700	3795	N	400	NO
Bedroom 2	EW-1	2700	2995	N	400	NO
Bedroom 2	EW-1	2700	3595	E	3800	YES
Unconditioned 1	EW-1	2700	3195	S	400	NO
Unconditioned 1	EW-2	2700	2395	W	200	NO
Day Time 1	EW-2	2700	2595	W	200	NO
Day Time 1	EW-1	2700	1195	N	2800	YES

* Refer to glossary.
Generated on 06 Mar 2024 using BERS Pro v4.4.1.5 (3.21) for Maroubra , NSW , 2035

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		53.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab, Unit Below 150mm	30.80	None	No Insulation	Ceramic Tiles 8mm
Bedroom 1	Concrete Slab, Unit Below 150mm	11.90	None	No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2	Concrete Slab, Unit Below 150mm	11.90	None	No Insulation	Carpet+Rubber Underlay 18mm
Unconditioned 1	Concrete Slab, Unit Below 150mm	6.90	None	No Insulation	Ceramic Tiles 8mm
Day Time 1	Concrete Slab, Unit Below 150mm	6.10	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	Concrete, Plasterboard	No insulation	No
Bedroom 1	Concrete, Plasterboard	No insulation	No
Bedroom 2	Concrete, Plasterboard	No insulation	No
Unconditioned 1	Concrete, Plasterboard	No insulation	No
Day Time 1	Concrete, Plasterboard	No insulation	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Living	4	Downlights - LED	0	Sealed
Kitchen/Living	1	Exhaust Fans	100	Sealed
Bedroom 1	2	Downlights - LED	0	Sealed
Bedroom 2	2	Downlights - LED	0	Sealed
Unconditioned 1	2	Downlights - LED	0	Sealed
Unconditioned 1	1	Exhaust Fans	300	Sealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Day Time 1	1	Downlights - LED	0	Sealed

Ceiling *fans*

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

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
None Present			

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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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. 0009284449

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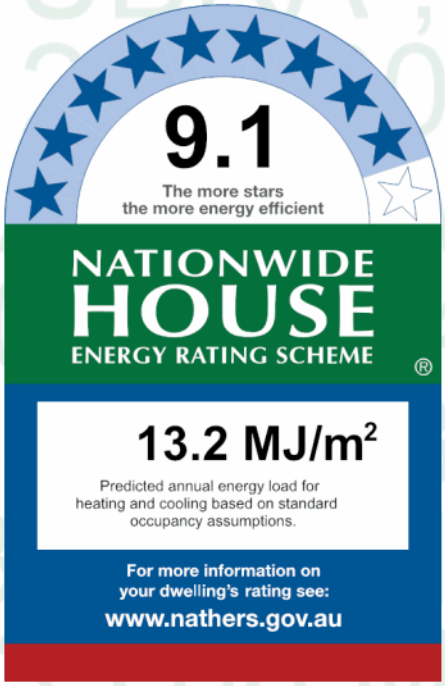

Property

Address	Unit L1-02, 46 Chester Ave, Maroubra , NSW , 2035
Lot/DP	270/36765
NCC Class*	2
Type	New Dwelling

Plans

Main plan	46 Chester Ave
Prepared by	IDG

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	47.0
Unconditioned*	7.0
Total	54.0
Garage	0.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
4.1 MJ/m^2	9.1 MJ/m^2

Accredited assessor

Name	marc kiho
Business name	kiho building consulting
Email	energy_rating@bigpond.com
Phone	0400 680 815
Accreditation No.	20094

Assessor Accrediting Organisation
ABSA

Declaration of interest Declaration completed: no conflicts

About the rating

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

Verification

To verify this certificate, scan the QR code or visit hstar.com.au/QR/Generate?p=TDsBnjGWY.
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					

* Refer to glossary.
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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	2700	3000	n/a	60	W	No
Kitchen/Living	ALM-005-03 A	n/a	900	1000	n/a	20	N	No
Kitchen/Living	ALM-005-03 A	n/a	1800	1000	n/a	10	N	Yes
Kitchen/Living	ALM-005-03 A	n/a	1800	1000	n/a	10	N	Yes
Bedroom 1	ALM-005-03 A	n/a	1800	1000	n/a	10	N	No
Unconditioned 1	ALM-005-03 A	n/a	900	1000	n/a	20	N	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	

* Refer to glossary.

Skylight *schedule*

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

External door *schedule*

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

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-1	Brick Veneer	0.50	Medium	Bulk Insulation R2.5	No
EW-2	Fibro 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	2700	4200	W	2800	NO
Kitchen/Living	EW-1	2700	5995	N	400	NO
Bedroom 1	EW-1	2700	4590	N	400	NO
Unconditioned 1	EW-1	2700	2795	N	400	NO
Unconditioned 1	EW-2	2700	2400	E	1200	NO
Unconditioned 1	EW-2	2700	600	S	2600	YES
Day Time 1	EW-2	2700	1795	E	1800	YES

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		38.00	No insulation
IW-2 - Brick, plasterboard		35.00	No Insulation

* Refer to glossary.
Generated on 06 Mar 2024 using BERS Pro v4.4.1.5 (3.21) for Maroubra , NSW , 2035

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Suspended Concrete Slab 150mm	25.00	Totally Open	Bulk Insulation in Contact with Floor R2.3	Ceramic Tiles 8mm
Bedroom 1	Suspended Concrete Slab 150mm	12.80	Totally Open	Bulk Insulation in Contact with Floor R2.3	Carpet+Rubber Underlay 18mm
Unconditioned 1	Suspended Concrete Slab 150mm	6.50	Totally Open	Bulk Insulation in Contact with Floor R2.3	Ceramic Tiles 8mm
Day Time 1	Suspended Concrete Slab 150mm	9.60	Totally Open	Bulk Insulation in Contact with Floor R2.3	Ceramic Tiles 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living	Concrete, Plasterboard	No insulation	No
Bedroom 1	Concrete, Plasterboard	No insulation	No
Unconditioned 1	Concrete, Plasterboard	No insulation	No
Day Time 1	Concrete, Plasterboard	No insulation	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Living	4	Downlights - LED	0	Sealed
Kitchen/Living	1	Exhaust Fans	100	Sealed
Bedroom 1	2	Downlights - LED	0	Sealed
Unconditioned 1	1	Downlights - LED	0	Sealed
Unconditioned 1	1	Exhaust Fans	300	Sealed
Day Time 1	2	Downlights - LED	0	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
Kitchen/Living	1	1200

* Refer to glossary.
Generated on 06 Mar 2024 using BERS Pro v4.4.1.5 (3.21) for Maroubra , NSW , 2035

Location	Quantity	Diameter (mm)
Bedroom 1	1	1200

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
None Present			

Explanatory notes

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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.
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Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
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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. 0009284456

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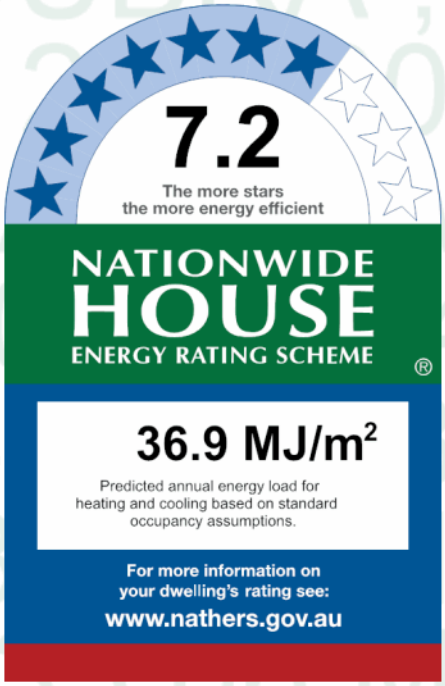

Property

Address	Unit L1-03, 46 Chester Ave, Maroubra , NSW , 2035
Lot/DP	270/36765
NCC Class*	2
Type	New Dwelling

Plans

Main plan	46 Chester Ave
Prepared by	IDG

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	47.0
Unconditioned*	6.0
Total	53.0
Garage	0.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
27.2	9.7
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	marc kiho
Business name	kiho building consulting
Email	energy_rating@bigpond.com
Phone	0400 680 815
Accreditation No.	20094
Assessor Accrediting Organisation	ABSA
Declaration of interest	Declaration completed: no conflicts

Verification

To verify this certificate, scan the QR code or visit hstar.com.au/QR/Generate?p=QrewJhcYL.
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-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
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

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-005-03 A	n/a	900	1000	n/a	20	S	No
Kitchen/Living	ALM-005-03 A	n/a	1800	1800	n/a	10	S	Yes
Kitchen/Living	ALM-006-03 A	n/a	2700	3000	n/a	60	W	No
Bedroom 1	ALM-005-03 A	n/a	1800	1000	n/a	10	S	No
Unconditioned	ALM-005-03 A	n/a	900	1000	n/a	20	S	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	

* Refer to glossary.
Generated on 06 Mar 2024 using BERS Pro v4.4.1.5 (3.21) for Maroubra , NSW , 2035

Skylight *schedule*

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

External door *schedule*

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

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-1	Brick Veneer	0.50	Medium	Bulk Insulation R2.5	No
EW-2	Fibro 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	2700	6395	S	400	NO
Kitchen/Living	EW-1	2700	4200	W	2800	NO
Bedroom 1	EW-1	2700	4190	S	400	NO
Day Time 1	EW-2	2700	1795	E	2600	YES
Unconditioned	EW-2	2700	600	N	2400	YES
Unconditioned	EW-1	2700	2400	E	2000	NO
Unconditioned	EW-1	2700	2595	S	400	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		26.00	No insulation
IW-2 - Brick, plasterboard		34.00	No Insulation

* Refer to glossary.
Generated on 06 Mar 2024 using BERS Pro v4.4.1.5 (3.21) for Maroubra , NSW , 2035

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-3 - Cavity wall, direct fix plasterboard, single gap		10.00	Bulk Insulation, No Air Gap R2.5

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Suspended Concrete Slab 150mm	26.70	Totally Open	Bulk Insulation in Contact with Floor R2.3	Ceramic Tiles 8mm
Bedroom 1	Suspended Concrete Slab 150mm	11.70	Totally Open	Bulk Insulation in Contact with Floor R2.3	Carpet+Rubber Underlay 18mm
Day Time 1	Suspended Concrete Slab 150mm	8.80	Totally Open	Bulk Insulation in Contact with Floor R2.3	Ceramic Tiles 8mm
Unconditioned	Suspended Concrete Slab 150mm	6.00	Totally Open	Bulk Insulation in Contact with Floor R2.3	Ceramic Tiles 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living	Concrete, Plasterboard	No insulation	No
Bedroom 1	Concrete, Plasterboard	No insulation	No
Day Time 1	Concrete, Plasterboard	No insulation	No
Unconditioned	Concrete, Plasterboard	No insulation	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Living	4	Downlights - LED	0	Sealed
Kitchen/Living	1	Exhaust Fans	100	Sealed
Bedroom 1	2	Downlights - LED	0	Sealed
Day Time 1	2	Downlights - LED	0	Sealed
Unconditioned	1	Downlights - LED	0	Sealed
Unconditioned	1	Exhaust Fans	300	Sealed

* Refer to glossary.
Generated on 06 Mar 2024 using BERS Pro v4.4.1.5 (3.21) for Maroubra , NSW , 2035

Ceiling *fans*

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

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
None Present			

Explanatory notes

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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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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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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. 0009284464

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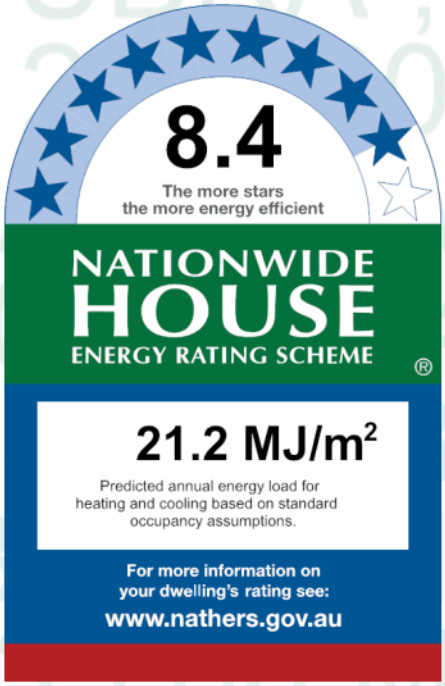

Property

Address	Unit L2-01, 46 Chester Ave, Maroubra , NSW , 2035
Lot/DP	270/36765
NCC Class*	2
Type	New Dwelling

Plans

Main plan	46 Chester Ave
Prepared by	IDG

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	61.0
Unconditioned*	7.0
Total	67.0
Garage	0.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
10.3	**10.8**
MJ/m^2	MJ/m^2

Accredited assessor

Name	marc kiho
Business name	kiho building consulting
Email	energy_rating@bigpond.com
Phone	0400 680 815
Accreditation No.	20094

Assessor Accrediting Organisation
ABSA

Declaration of interest Declaration completed: no conflicts

About the rating

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

Verification

To verify this certificate, scan the QR code or visit hstar.com.au/QR/Generate?p=IrVwGJgLf.
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-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
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

Custom* windows

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

* Refer to glossary.

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living	ALM-005-03 A	n/a	900	1000	n/a	20	S	No
Kitchen/Living	ALM-006-03 A	n/a	2700	3000	n/a	60	N	No
Kitchen/Living	ALM-005-03 A	n/a	1800	1000	n/a	10	E	No
Bedroom 1	ALM-005-03 A	n/a	1800	1000	n/a	10	N	No
Bedroom 2	ALM-005-03 A	n/a	1800	1000	n/a	10	N	No
Unconditioned 1	ALM-005-03 A	n/a	900	1000	n/a	20	S	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	

* Refer to glossary.

Skylight *schedule*

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

External door *schedule*

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

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-1	Brick Veneer	0.50	Medium	Bulk Insulation R2.5	No
EW-2	Fibro 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	2700	8195	S	400	NO
Kitchen/Living	EW-1	2700	3400	N	4000	YES
Kitchen/Living	EW-1	2700	3800	E	400	NO
Bedroom 1	EW-1	2700	2400	W	1400	YES
Bedroom 1	EW-1	2700	3795	N	400	NO
Bedroom 2	EW-1	2700	2995	N	400	NO
Bedroom 2	EW-1	2700	3595	E	3800	YES
Unconditioned 1	EW-1	2700	3195	S	400	NO
Unconditioned 1	EW-2	2700	2395	W	200	NO
Day Time 1	EW-2	2700	2595	W	200	NO
Day Time 1	EW-1	2700	1195	N	2800	YES

* Refer to glossary.
Generated on 06 Mar 2024 using BERS Pro v4.4.1.5 (3.21) for Maroubra , NSW , 2035

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		10.00	Bulk Insulation, No Air Gap R2.5
IW-2 - Cavity wall, direct fix plasterboard, single gap		43.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab, Unit Below 150mm	30.80	None	No Insulation	Ceramic Tiles 8mm
Bedroom 1	Concrete Slab, Unit Below 150mm	11.90	None	No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2	Concrete Slab, Unit Below 150mm	11.90	None	No Insulation	Carpet+Rubber Underlay 18mm
Unconditioned 1	Concrete Slab, Unit Below 150mm	6.90	None	No Insulation	Ceramic Tiles 8mm
Day Time 1	Concrete Slab, Unit Below 150mm	6.10	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 R4	No
Bedroom 1	Plasterboard	Bulk Insulation R4	No
Bedroom 2	Plasterboard	Bulk Insulation R4	No
Unconditioned 1	Plasterboard	Bulk Insulation R4	No
Day Time 1	Plasterboard	Bulk Insulation R4	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Living	4	Downlights - LED	0	Sealed
Kitchen/Living	1	Exhaust Fans	100	Sealed
Bedroom 1	2	Downlights - LED	0	Sealed
Bedroom 2	2	Downlights - LED	0	Sealed
Unconditioned 1	1	Downlights - LED	0	Sealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Unconditioned 1	1	Exhaust Fans	300	Sealed
Day Time 1	1	Downlights - LED	0	Sealed

Ceiling *fans*

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

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk+Foil, Reflective Side Down, Anti-glare Up R1.3	0.50	Medium

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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.
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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.
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Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
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Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
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Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0009284472

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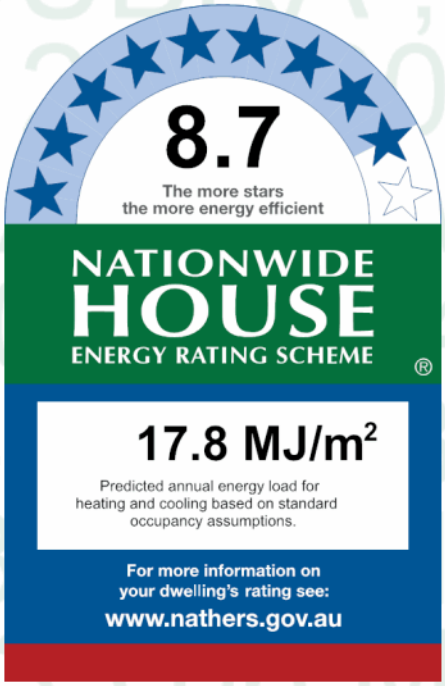

Property

Address	Unit L2-02, 46 Chester Ave, Maroubra , NSW , 2035
Lot/DP	270/36765
NCC Class*	2
Type	New Dwelling

Plans

Main plan	46 Chester Ave
Prepared by	IDG

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	47.0
Unconditioned*	7.0
Total	54.0
Garage	0.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
6.4	11.4
MJ/m^2	MJ/m^2

Accredited assessor

Name	marc kiho
Business name	kiho building consulting
Email	energy_rating@bigpond.com
Phone	0400 680 815
Accreditation No.	20094

Assessor Accrediting Organisation
ABSA

Declaration of interest Declaration completed: no conflicts

About the rating

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

Verification

To verify this certificate, scan the QR code or visit hstar.com.au/QR/Generate?p=DUVXdlhhR.
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					

* Refer to glossary.

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	2700	3000	n/a	60	W	No
Kitchen/Living	ALM-005-03 A	n/a	900	1000	n/a	20	N	No
Kitchen/Living	ALM-005-03 A	n/a	1800	1000	n/a	10	N	Yes
Kitchen/Living	ALM-005-03 A	n/a	1800	1000	n/a	10	N	Yes
Bedroom 1	ALM-005-03 A	n/a	1800	1000	n/a	10	N	No
Unconditioned 1	ALM-005-03 A	n/a	900	1000	n/a	20	N	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	

* Refer to glossary.
Generated on 06 Mar 2024 using BERS Pro v4.4.1.5 (3.21) for Maroubra , NSW , 2035

Skylight *schedule*

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

External door *schedule*

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

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-1	Brick Veneer	0.50	Medium	Bulk Insulation R2.5	No
EW-2	Fibro 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	2700	4200	W	2800	NO
Kitchen/Living	EW-1	2700	5995	N	400	NO
Bedroom 1	EW-1	2700	4590	N	400	NO
Unconditioned 1	EW-1	2700	2795	N	400	NO
Unconditioned 1	EW-2	2700	2400	E	1200	NO
Unconditioned 1	EW-2	2700	600	S	2600	YES
Day Time 1	EW-2	2700	1795	E	1800	YES

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		38.00	No insulation
IW-2 - Brick, plasterboard		35.00	No Insulation

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Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab, Unit Below 150mm	25.00	None	No Insulation	Ceramic Tiles 8mm
Bedroom 1	Concrete Slab, Unit Below 150mm	12.80	None	No Insulation	Carpet+Rubber Underlay 18mm
Unconditioned 1	Concrete Slab, Unit Below 150mm	6.50	None	No Insulation	Ceramic Tiles 8mm
Day Time 1	Concrete Slab, Unit Below 150mm	9.60	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 R4	No
Bedroom 1	Plasterboard	Bulk Insulation R4	No
Unconditioned 1	Plasterboard	Bulk Insulation R4	No
Day Time 1	Plasterboard	Bulk Insulation R4	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Living	4	Downlights - LED	0	Sealed
Kitchen/Living	1	Exhaust Fans	100	Sealed
Bedroom 1	2	Downlights - LED	0	Sealed
Unconditioned 1	1	Downlights - LED	0	Sealed
Unconditioned 1	1	Exhaust Fans	300	Sealed
Day Time 1	2	Downlights - LED	0	Sealed

Ceiling *fans*

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

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Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk+Foil, Reflective Side Down, Anti-glare Up R1.3	0.50	Medium

Explanatory notes

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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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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.
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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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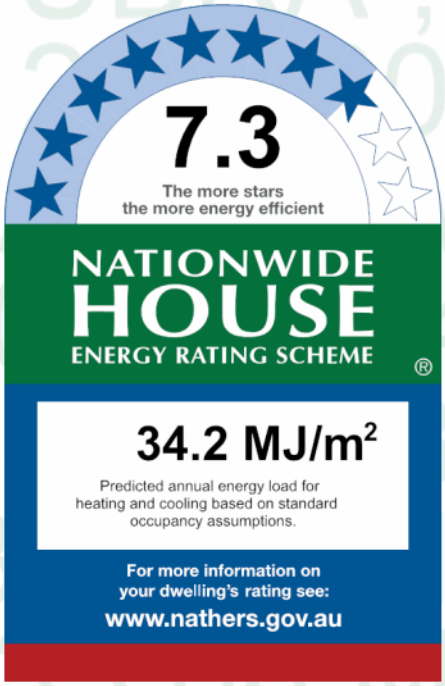
Exposure category – open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category – suburban	terrain with numerous, closely spaced 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. 0009284480

Generated on 06 Mar 2024 using BERS Pro v4.4.1.5 (3.21)



Property

Address	Unit L2-03, 46 Chester Ave, Maroubra , NSW , 2035
Lot/DP	270/36765
NCC Class*	2
Type	New Dwelling

Plans

Main plan	46 Chester Ave
Prepared by	IDG

Construction and environment

Assessed floor area (m^2)*	
Conditioned*	47.0
Unconditioned*	7.0
Total	54.0
Garage	0.0

Exposure type
Suburban

NatHERS climate zone
56

Thermal performance

Heating	Cooling
20.3	**13.9**
MJ/m^2	MJ/m^2

Accredited assessor

Name	marc kiho
Business name	kiho building consulting
Email	energy_rating@bigpond.com
Phone	0400 680 815
Accreditation No.	20094
Assessor Accrediting Organisation	ABSA
Declaration of interest	Declaration completed: no conflicts

About the rating

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

Verification

To verify this certificate, scan the QR code or visit hstar.com.au/QR/Generate?p=iavlqyqtV.
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National Construction Code (NCC) requirements

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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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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-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
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

Custom* windows

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

* Refer to glossary.

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living	ALM-005-03 A	n/a	900	1000	n/a	20	S	No
Kitchen/Living	ALM-005-03 A	n/a	1800	1800	n/a	10	S	Yes
Kitchen/Living	ALM-006-03 A	n/a	2700	3000	n/a	60	W	No
Bedroom 1	ALM-005-03 A	n/a	1800	1000	n/a	10	S	No
Unconditioned	ALM-005-03 A	n/a	900	1000	n/a	20	S	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	

* Refer to glossary.
Generated on 06 Mar 2024 using BERS Pro v4.4.1.5 (3.21) for Maroubra , NSW , 2035

Skylight *schedule*

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

External door *schedule*

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

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-1	Brick Veneer	0.50	Medium	Bulk Insulation R2.5	No
EW-2	Fibro 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	2700	6395	S	400	NO
Kitchen/Living	EW-1	2700	4200	W	2800	NO
Bedroom 1	EW-1	2700	4190	S	400	NO
Day Time 1	EW-2	2700	1795	E	2400	YES
Unconditioned	EW-1	2700	2400	E	1800	NO
Unconditioned	EW-1	2700	2795	S	400	NO
Unconditioned	EW-2	2700	600	N	2400	YES

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		37.00	No insulation
IW-2 - Brick, plasterboard		35.00	No Insulation

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Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab, Unit Below 150mm	26.70	None	No Insulation	Ceramic Tiles 8mm
Bedroom 1	Concrete Slab, Unit Below 150mm	11.70	None	No Insulation	Carpet+Rubber Underlay 18mm
Day Time 1	Concrete Slab, Unit Below 150mm	9.10	None	No Insulation	Ceramic Tiles 8mm
Unconditioned	Concrete Slab, Unit Below 150mm	6.50	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 R4	No
Bedroom 1	Plasterboard	Bulk Insulation R4	No
Day Time 1	Plasterboard	Bulk Insulation R4	No
Unconditioned	Plasterboard	Bulk Insulation R4	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Living	4	Downlights - LED	0	Sealed
Kitchen/Living	1	Exhaust Fans	100	Sealed
Bedroom 1	2	Downlights - LED	0	Sealed
Day Time 1	2	Downlights - LED	0	Sealed
Unconditioned	1	Downlights - LED	0	Sealed
Unconditioned	1	Exhaust Fans	300	Sealed

Ceiling *fans*

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

* Refer to glossary.

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk+Foil, Reflective Side Down, Anti-glare Up R1.3	0.50	Medium

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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.
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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.
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).