Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0007347073

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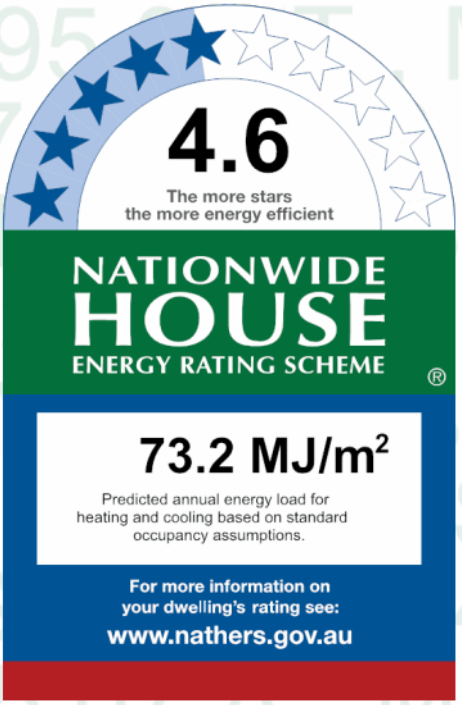

Property

Address	7 Bower Street , Manly , NSW , 2095
Lot/DP	40/8075
NCC Class*	1A
Type	New Dwelling

Plans

Main Plan	Rev 1 - 17/07/2020
Prepared by	CplusC Architectural Workshop Pty

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	222.0	Suburban
Unconditioned*	6.0	**NatHERS climate zone**
Total	228.0	56
Garage	0.0	

Thermal performance

Heating	Cooling
46.6 MJ/m^2	26.6 MJ/m^2

Accredited assessor

Name	Jamie Bonnefin
Business name	Certified Energy
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Phone	1300 443 674
Accreditation No.	10056
Assessor Accrediting Organisation	
HERA	
Declaration of interest	None

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=xDrXRDrkE.
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

*The dwelling has been assessed without recessed light fittings as no lighting or electrical plan has been provided.

*There is a 10% substituiton allowance for the SHGC which has not been shown correctly on the certificate due software generation bugs.

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
TIM-006-01 W	TIM-006-01 W Timber B DG Argon Fill Clear-Clear	2.6	0.53	0.50	0.56
TIM-006-04 W	TIM-006-04 W Timber B DG Argon Fill Low Solar Gain low-E -Clear	2.0	0.23	0.22	0.24
TIM-004-01 W	TIM-004-01 W Timber B DG Air Fill Clear-Clear	3.0	0.56	0.53	0.59
TIM-005-01 W	TIM-005-01 W Timber A DG Argon Fill Clear-Clear	2.6	0.50	0.48	0.53
TIM-005-04 W	TIM-005-04 W Timber A DG Argon Fill Low Solar Gain low-E -Clear	2.0	0.18	0.17	0.19
ALM-004-01 A	ALM-004-01 A Aluminium B DG Air Fill Clear-Clear	4.8	0.59	0.56	0.62

* Refer to glossary.

Default* windows

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

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*
Stairs	TIM-006-01 W	n/a	300	300	n/a	00	NE	No
Stairs	TIM-006-04 W	n/a	1500	1500	n/a	00	NE	Yes
Stairs	TIM-006-04 W	n/a	600	600	n/a	00	NE	Yes
Living	TIM-006-01 W	n/a	2440	3000	n/a	45	NW	Yes
Living	TIM-006-04 W	n/a	900	900	n/a	00	NW	No
Living	TIM-004-01 W	n/a	600	950	n/a	90	NW	No
Living	TIM-006-04 W	n/a	600	1025	n/a	00	NW	No
Living	TIM-006-04 W	n/a	600	1025	n/a	00	NW	No
Living	TIM-004-01 W	n/a	600	950	n/a	90	NE	No
Living	TIM-006-01 W	n/a	2440	2100	n/a	45	NE	No
Living	TIM-006-04 W	n/a	600	1000	n/a	00	NE	No
Living	TIM-006-04 W	n/a	600	950	n/a	00	NE	No
Living	TIM-006-01 W	n/a	1400	1900	n/a	00	NE	No
Living	TIM-004-01 W	n/a	1400	1000	n/a	90	NE	No
Kitchen/Dining	TIM-005-01 W	n/a	3000	900	n/a	90	NE	Yes
Kitchen/Dining	TIM-004-01 W	n/a	2300	900	n/a	90	NE	Yes
Kitchen/Dining	TIM-004-01 W	n/a	2300	900	n/a	90	NE	Yes
Kitchen/Dining	TIM-006-04 W	n/a	2300	3350	n/a	00	NE	Yes
Kitchen/Dining	TIM-006-01 W	n/a	3000	3900	n/a	45	SE	No
Art/Craft	TIM-005-04 W	n/a	1730	1730	n/a	45	NE	No
Art/Craft	TIM-006-04 W	n/a	2510	3900	n/a	60	SE	No
Art/Craft	TIM-006-04 W	n/a	2510	3900	n/a	60	NW	No
Void	TIM-004-01 W	n/a	2400	950	n/a	90	NE	Yes
Void	TIM-006-04 W	n/a	2400	1000	n/a	00	NE	Yes
Void	TIM-006-04 W	n/a	2400	950	n/a	00	NE	Yes
Void	TIM-004-01 W	n/a	2400	950	n/a	90	NW	Yes
Void	TIM-006-04 W	n/a	2400	1025	n/a	00	NW	Yes

* Refer to glossary.

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Void	TIM-006-04 W	n/a	2400	1025	n/a	00	NW	Yes
Internal Balcon	TIM-006-01 W	n/a	900	900	n/a	45	NW	Yes
Guest/ 2nd Livi	ALM-004-01 A	n/a	1500	1500	n/a	90	SW	No
Bath	ALM-004-01 A	n/a	1500	1470	n/a	90	SW	No
Bedroom 1	ALM-004-01 A	n/a	1500	1500	n/a	90	SW	No
Bedroom 2	ALM-004-01 A	n/a	1500	1500	n/a	90	SW	No
Bath 2	ALM-004-01 A	n/a	1500	1470	n/a	90	SW	No
Master Bed	TIM-004-01 W	n/a	2400	1530	n/a	90	NE	Yes
Master Bed	ALM-006-01 A	n/a	2000	2000	n/a	00	SE	Yes
Ensuite	ALM-004-01 A	n/a	700	700	n/a	90	SE	No
Ensuite	ALM-006-01 A	n/a	1500	1500	n/a	45	SE	No
Corridor	TIM-006-04 W	n/a	2400	3600	n/a	90	NE	Yes
Corridor	TIM-006-04 W	n/a	2400	3600	n/a	90	NE	Yes
Home office	TIM-006-04 W	n/a	2600	2240	n/a	60	SE	No
Home office	TIM-005-04 W	n/a	1770	1030	n/a	90	SW	No
Home office	TIM-005-04 W	n/a	1770	1850	n/a	45	NW	No
Home office	TIM-006-04 W	n/a	1770	1110	n/a	00	NW	No
WC office	TIM-005-04 W	n/a	500	500	n/a	90	SE	No

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

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
Home office	1900	1105	90	NW
Home office	1900	1105	90	NE
WC office	2740	900	90	SE

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-1	Weatherboard Cavity Panel Direct Fix	0.85	Dark	Foil Anti-glare one side and Reflective other of the Bulk Insulation R2.7	Yes
EW-2	Metal Clad Cavity Panel Direct Fix	0.85	Dark	Foil Anti-glare one side and Reflective other of the Bulk Insulation R2.7	Yes
EW-3	Metal Clad Cavity Panel Direct Fix	0.85	Dark	Foil Anti-glare one side and Reflective other of the Bulk Insulation R2.7	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Stairs	EW-1	3000	3995	NE	0	NO
Stairs	EW-1	3000	995	SE	15100	YES
Stairs	EW-1	3000	3990	NE	2100	NO
Living	EW-1	3000	5100	NW	0	NO
Living	EW-1	3000	4995	NE	2700	NO
Living	EW-1	3000	4995	SW	0	YES
Kitchen/Dining	EW-1	3000	800	NW	0	YES
Kitchen/Dining	EW-1	3000	900	NE	2700	YES
Kitchen/Dining	EW-1	3000	1000	NW	9900	YES
Kitchen/Dining	EW-1	3000	5700	NE	1700	NO
Kitchen/Dining	EW-1	3000	5900	SE	8500	NO
Kitchen/Dining	EW-2	3000	10600	SW	0	NO
Art/Craft	EW-1	3000	4000	NE	2400	NO
Art/Craft	EW-1	3000	4700	SE	0	NO
Art/Craft	EW-3	3000	4000	SW	0	NO
Art/Craft	EW-1	3000	4700	NW	0	NO
Void	EW-1	3000	4995	NE	1000	NO
Void	EW-1	3000	3595	NW	1000	NO

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Internal Balcon	EW-1	3000	4995	SW	0	YES
Internal Balcon	EW-1	3000	1495	NW	1000	NO
Guest/ 2nd Livi	EW-3	3000	3395	SW	400	NO
Guest/ 2nd Livi	EW-1	3000	400	NW	0	YES
Bath	EW-3	3000	1590	SW	400	NO
Bedroom 1	EW-3	3000	3690	SW	400	NO
Bedroom 2	EW-3	3000	3690	SW	400	NO
Bath 2	EW-3	3000	1590	SW	400	NO
Master Bed	EW-1	3000	1590	NE	2100	YES
Master Bed	EW-1	3000	3795	SE	500	NO
Master Bed	EW-3	3000	5095	SW	400	NO
Ensuite	EW-1	3000	1200	NW	0	YES
Ensuite	EW-1	3000	2800	NE	900	NO
Ensuite	EW-1	3000	2895	SE	500	NO
Corridor	EW-1	3000	10690	NE	2100	NO
Home office	EW-1	3000	2395	SE	0	NO
Home office	EW-1	3000	4000	SW	2700	NO
Home office	EW-1	3000	3800	NW	900	NO
Home office	EW-1	3000	2995	NE	0	NO
WC office	EW-1	3000	995	NE	0	NO
WC office	EW-1	3000	1395	SE	0	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		197.00	Bulk Insulation, No Air Gap R2

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Stairs	Suspended Concrete Slab 150mm	3.80	Totally Open	Bulk Insulation in Contact with Floor R5	Bare
Stairs/Stairs	Timber Above Timber 19mm	3.70		Bulk Insulation R2.5	Cork Tiles or Parquetry 8mm
Living	Suspended Concrete Slab 150mm	25.30	Totally Open	Bulk Insulation in Contact with Floor R5	Bare
Kitchen/Dining	Suspended Concrete Slab 150mm	57.30	Totally Open	Bulk Insulation in Contact with Floor R5	Bare
Art/Craft	Concrete Slab on Ground 100mm	18.80	None	Bulk Insulation in Contact with Floor R2.5	Bare
Void/Living	Timber Above Timber 19mm	17.60		No Insulation	Cork Tiles or Parquetry 8mm
Internal Balcon/Living	Timber Above Timber 19mm	7.20		No Insulation	Cork Tiles or Parquetry 8mm

* Refer to glossary.

Location	Construction	Area (m)	Sub-floor ventilation	Added insulation (R-value)	Covering
Guest/ 2nd Livi/Kitchen/Dining	Timber Above Timber 19mm	14.80		Bulk Insulation R2.5	Cork Tiles or Parquetry 8mm
Bath/Kitchen/Dining	Timber Above Timber 19mm	4.60		Bulk Insulation R2.5	Ceramic Tiles 8mm
Bedroom 1/Kitchen/Dining	Timber Above Timber 19mm	15.70		Bulk Insulation R2.5	Cork Tiles or Parquetry 8mm
Bedroom 2/Kitchen/Dining	Timber Above Timber 19mm	8.10		Bulk Insulation R2.5	Cork Tiles or Parquetry 8mm
Bedroom 2	Suspended Timber Floor 19mm	7.60	Totally Open	Bulk Insulation in Contact with Floor R5	Cork Tiles or Parquetry 8mm
Bath 2	Suspended Timber Floor 19mm	4.80	Totally Open	Bulk Insulation in Contact with Floor R5	Ceramic Tiles 8mm
Master Bed/Art/Craft	Timber Above Timber 19mm	15.40		Bulk Insulation R2.5	Cork Tiles or Parquetry 8mm
Master Bed	Suspended Timber Floor 19mm	5.80	Totally Open	Bulk Insulation in Contact with Floor R5	Cork Tiles or Parquetry 8mm
Ensuite/Art/Craft	Timber Above Timber 19mm	1.40		Bulk Insulation R2.5	Cork Tiles or Parquetry 8mm
Ensuite	Suspended Timber Floor 19mm	6.60	Totally Open	Bulk Insulation in Contact with Floor R5	Ceramic Tiles 8mm
Corridor/Kitchen/Dining	Timber Above Timber 19mm	8.10		Bulk Insulation R2.5	Cork Tiles or Parquetry 8mm
Corridor	Suspended Timber Floor 19mm	7.70	Totally Open	Bulk Insulation in Contact with Floor R5	Cork Tiles or Parquetry 8mm
Home office	Suspended Concrete Slab 150mm	13.70	Very Open	Bulk Insulation in Contact with Floor R5	Bare
WC office	Suspended Concrete Slab 150mm	1.30	Very Open	Bulk Insulation in Contact with Floor R5	Ceramic Tiles 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Stairs	Timber Above Timber	Bulk Insulation R2.5	No
Stairs	Timber	Bulk Insulation R7	No
Living	Timber Above Timber	No Insulation	No
Kitchen/Dining	Timber	Bulk Insulation R7	No
Kitchen/Dining	Timber Above Timber	Bulk Insulation R2.5	No
Art/Craft	Concrete, Plasterboard	Bulk Insulation R7	No
Art/Craft	Timber Above Timber	Bulk Insulation R2.5	No
Void	Timber	Bulk Insulation R7	No
Internal Balcon	Timber	Bulk Insulation R7	No
Guest/ 2nd Livi	Timber	Bulk Insulation R7	No
Bath	Timber	Bulk Insulation R7	No
Bedroom 1	Timber	Bulk Insulation R7	No
Bedroom 2	Timber	Bulk Insulation R7	No
Bath 2	Timber	Bulk Insulation R7	No
Master Bed	Timber	Bulk Insulation R7	No
Ensuite	Timber	Bulk Insulation R7	No
Corridor	Timber	Bulk Insulation R7	No

* Refer to glossary.

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Home office	Concrete, Plasterboard	Bulk Insulation R7	No
WC office	Concrete, Plasterboard	Bulk Insulation R7	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
No Data Available				

Ceiling *fans*

Location	Quantity	Diameter (mm)
Guest/ 2nd Livi	2	1400
Bedroom 1	1	1400
Bedroom 2	1	1400
Master Bed	1	1400

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	No Added Insulation, No air Gap	0.85	Dark
Waterproofing Membrane	No Added Insulation, No air Gap	0.85	Dark

Explanatory notes

About this report

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

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

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

Accredited assessors

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

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

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

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

Disclaimer

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

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

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

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

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure category – exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category – open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category – suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category – protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au.
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
Roof window	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
Shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
Skylight (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
Vertical shading features	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).