Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0006151237

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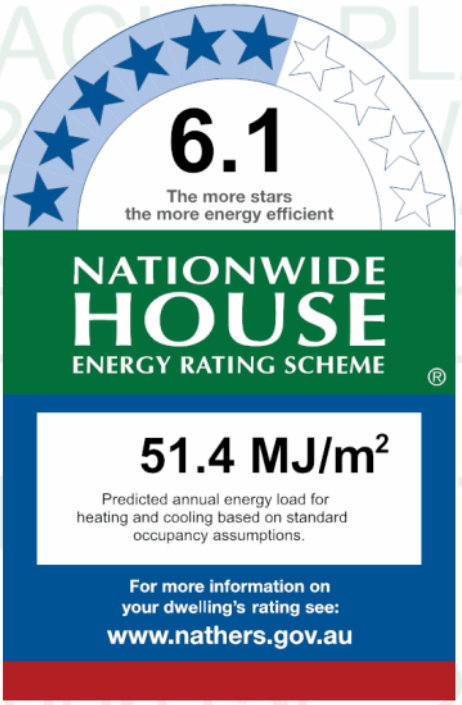

Property

Address	15 Burrendong Place , Avalon Beach , NSW , 2107
Lot/DP	3/231634
NCC Class*	1A
Type	New Dwelling

Plans

Main Plan	Issued on 17/05/2021
Prepared by	Roth Architects

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	272.0	Suburban
Unconditioned*	16.0	**NatHERS climate zone**
Total	288.0	56
Garage	0.0	

Thermal performance

Heating	Cooling
38.1 MJ/m^2	13.3 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=NPuoeHukP.
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?

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.

*The roof colour has not been specified in the design documentation, hence the dwelling has been modelled with light/dark colour as the worst case scenario.

*Nearest existing suburb with similar climatic properties has been used as the suburb is not available in NatHERS software.

*Obscure glazing has been modelled as clear glass as it has similar thermal properties.

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
ATB-005-04 B	ATB-005-04 B Al Thermally Broken A DG Argon Fill Low Solar Gain low-E -Clear	3.0	0.27	0.26	0.28
ATB-004-04 B	ATB-004-04 B Al Thermally Broken B DG Air Fill Low Solar Gain low-E -Clear	3.1	0.27	0.26	0.28

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*
Laundry	ATB-005-04 B	n/a	700	3100	n/a	90	SE	No
Powder	ATB-005-04 B	n/a	700	1800	n/a	90	SE	No
Pantry	ATB-005-04 B	n/a	700	1150	n/a	90	SE	No
Media/Storage	ATB-005-04 B	n/a	400	2040	n/a	90	NW	No
Rumpus	ATB-005-04 B	n/a	2100	4240	n/a	90	NW	Yes
Rumpus	ATB-005-04 B	n/a	2100	1500	n/a	90	NW	No
Rumpus	ATB-004-04 B	n/a	2700	4460	n/a	65	SW	Yes
Rumpus	ATB-004-04 B	n/a	1500	3000	n/a	00	SW	No Shading
Master Bed	ATB-005-04 B	n/a	2100	700	n/a	90	SE	No
Master Bed	ATB-005-04 B	n/a	2100	700	n/a	90	SE	No
Master Bed	ATB-004-04 B	n/a	2700	4460	n/a	65	SW	Yes
Master Bed	ATB-005-04 B	n/a	2100	1500	n/a	90	NW	Yes
Master Bed	ATB-004-04 B	n/a	1500	3000	n/a	00	SW	No Shading
Ensuite 1	ATB-005-04 B	n/a	500	2580	n/a	90	SE	No
Void	ATB-004-04 B	n/a	2700	4000	n/a	00	SW	Yes
Bed 2	ATB-005-04 B	n/a	2100	1500	n/a	90	NE	Yes
Bed 2	ATB-005-04 B	n/a	2100	700	n/a	90	SE	No
Bed 2	ATB-005-04 B	n/a	2100	700	n/a	90	SE	No
Ensuite 2	ATB-005-04 B	n/a	2100	700	n/a	90	NE	No
Bed 3	ATB-005-04 B	n/a	2100	700	n/a	90	NW	No
Bed 3	ATB-005-04 B	n/a	2100	700	n/a	90	NW	No
Bed 3	ATB-005-04 B	n/a	2100	700	n/a	90	SE	No
Ensuite 3	ATB-005-04 B	n/a	2100	700	n/a	90	NE	No
Kitchen/Living	ATB-005-04 B	n/a	700	3395	n/a	90	SE	No
Kitchen/Living	ATB-004-04 B	n/a	2100	4460	n/a	65	SW	Yes
Kitchen/Living	ATB-005-04 B	n/a	2100	5890	n/a	90	NW	Yes
Kitchen/Living	ATB-004-04 B	n/a	2100	4000	n/a	90	SW	Yes
Kitchen/Living	ATB-004-04 B	n/a	750	5890	n/a	00	NW	No Shading
Kitchen/Living	ATB-004-04 B	n/a	750	4000	n/a	00	SW	No Shading
Kitchen/Living	ATB-004-04 B	n/a	750	4460	n/a	00	SW	No Shading
Lounge	ATB-004-04 B	n/a	2100	2000	n/a	90	SW	Yes
Lounge	ATB-005-04 B	n/a	750	1600	n/a	90	NW	No
Lounge	ATB-005-04 B	n/a	750	1600	n/a	90	NW	No

* Refer to glossary.

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Lounge	ATB-004-04 B	n/a	750	2000	n/a	00	SW	No Shading

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
GEN-04-008a	Double-glazed clear, Timber and Aluminium Frame

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m^2)	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
Robe	GEN-04-008a	n/a	50	0.50	SE	None	No	0.50
Ensuite 1	GEN-04-008a	n/a	50	0.50	SE	None	No	0.50
Stairs GF	GEN-04-008a	n/a	50	1.10	NE	None	No	0.50
Ensuite 2	GEN-04-008a	n/a	50	0.50	NE	None	No	0.50
Ensuite 3	GEN-04-008a	n/a	50	0.50	NE	None	No	0.50
Ensuite 3	GEN-04-008a	n/a	50	0.50	NE	None	No	0.50
WC	GEN-04-008a	n/a	50	0.50	NE	None	No	0.50
Corridor GF	GEN-04-008a	n/a	50	0.50	SE	None	No	0.50

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	Reverse Brick Veneer	0.50	Medium	Anti-glare foil with bulk no gap R2.7	No
EW-2	Reverse Brick Veneer	0.50	Medium	Anti-glare foil with bulk no gap R2.7	No
EW-3	Reverse Brick VeneerZ:2W2:3	0.50	Medium	Anti-glare foil with bulk no gap R2.7	No
EW-4	Reverse Brick VeneerZ:3W2:2	0.50	Medium	Anti-glare foil with bulk no gap R2.7	No
EW-5	Reverse Brick Veneer	0.50	Medium	Anti-glare foil with bulk no gap 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)
Stairs LG	EW-1	2950	2190	NE	0	NO
Laundry	EW-1	1200	3890	SE	0	NO
Laundry	EW-3	1750	3890	SE	0	NO
Powder	EW-1	2950	2895	NE	0	NO
Powder	EW-1	1200	1895	SE	0	NO
Powder	EW-4	1750	1895	SE	0	NO
Pantry	EW-1	2950	2090	SE	0	NO
Cellar	EW-1	2950	2290	NE	0	NO
Media/Storage	EW-1	2950	2795	NW	0	NO
Media/Storage	EW-1	2950	4795	NE	0	NO
Rumpus	EW-1	2700	7100	NW	400	NO
Rumpus	EW-1	2700	2100	NE	8100	YES
Rumpus	EW-2	2700	3095	NW	2500	YES
Rumpus	EW-1	2700	4795	SW	800	NO
Master Bed	EW-1	2700	4995	SE	600	NO
Master Bed	EW-1	2700	4500	SW	700	NO
Master Bed	EW-1	2700	3100	NW	300	YES
Robe	EW-1	2700	3290	SE	600	NO
Ensuite 1	EW-1	2700	2690	SE	600	NO
Void	EW-1	2700	4090	SW	0	YES
Bed 2	EW-1	2700	4595	NE	800	NO
Bed 2	EW-1	2700	4295	SE	600	NO
Ensuite 2	EW-1	2700	1990	NE	0	NO
Bed 3	EW-1	2700	4100	NW	400	NO
Bed 3	EW-1	2700	4400	NE	900	NO
Bed 3	EW-1	2700	2100	SE	500	YES
Bed 3	EW-1	2700	195	NE	3000	YES
Bed 3	EW-1	2700	2100	SW	11000	YES

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Ensuite 3	EW-1	2700	2190	NE	0	NO
Kitchen/Living	EW-1	2950	6195	SE	0	NO
Kitchen/Living	EW-1	2950	4500	SW	0	NO
Kitchen/Living	EW-1	2950	6200	NW	0	YES
Kitchen/Living	EW-1	2950	4095	SW	0	YES
Storage Hall	EW-1	2950	1190	NE	0	NO
Lounge	EW-1	2950	4795	SW	0	NO
Lounge	EW-1	2950	5095	NW	0	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		369.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Stairs LG	Concrete Slab on Ground 300mm	7.30	None	No Insulation	Cork Tiles or Parquetry 8mm
Laundry	Concrete Slab on Ground 300mm	10.90	None	No Insulation	Ceramic Tiles 8mm
Powder	Concrete Slab on Ground 300mm	5.30	None	No Insulation	Ceramic Tiles 8mm
Pantry	Concrete Slab on Ground 300mm	5.70	None	No Insulation	Cork Tiles or Parquetry 8mm
Cellar	Concrete Slab on Ground 300mm	7.60	None	No Insulation	Cork Tiles or Parquetry 8mm
Media/Storage	Concrete Slab on Ground 300mm	13.10	None	No Insulation	Cork Tiles or Parquetry 8mm
Rumpus/Media/Storage	Timber Above Plasterboard 300mm	11.60		No Insulation	Cork Tiles or Parquetry 8mm
Rumpus/Lounge	Timber Above Plasterboard 300mm	24.10		No Insulation	Cork Tiles or Parquetry 8mm
Rumpus	Concrete Slab on Ground 300mm	5.70	None	No Insulation	Carpet 10mm
Master Bed/Pantry	Timber Above Plasterboard 300mm	5.40		No Insulation	Carpet 10mm
Master Bed/Kitchen/Living	Timber Above Plasterboard 300mm	16.80		No Insulation	Carpet 10mm
Robe/Laundry	Timber Above Plasterboard 300mm	8.60		No Insulation	Carpet 10mm
Robe/Pantry	Timber Above Plasterboard 300mm	0.60		No Insulation	Carpet 10mm
Robe/Kitchen/Living	Timber Above Plasterboard 300mm	1.00		No Insulation	Carpet 10mm
Ensuite 1/Laundry	Timber Above Plasterboard 300mm	2.20		No Insulation	Ceramic Tiles 8mm
Ensuite 1/Powder	Timber Above Plasterboard 300mm	5.30		No Insulation	Ceramic Tiles 8mm
Ensuite 1/Storage Hall	Timber Above Plasterboard 300mm	1.00		No Insulation	Ceramic Tiles 8mm

* Refer to glossary.

Location	Construction	Area (m)	Sub-floor ventilation	Added insulation (R-value)	Covering
Void/Kitchen/Living	Timber Above Plasterboard 300mm	13.50		No Insulation	Bare
Stairs GF/Stairs LG	Timber Above Plasterboard 300mm	7.20		No Insulation	Cork Tiles or Parquetry 8mm
Bed 2	Suspended Concrete Slab 300mm	19.40	Totally Open	Bulk Insulation in Contact with Floor R4.5	Carpet 10mm
Ensuite 2	Suspended Concrete Slab 300mm	8.10	Totally Open	Bulk Insulation in Contact with Floor R4.5	Ceramic Tiles 8mm
Bed 3	Suspended Concrete Slab 300mm	18.20	Totally Open	Bulk Insulation in Contact with Floor R4.5	Carpet 10mm
Ensuite 3	Suspended Concrete Slab 300mm	9.00	Totally Open	Bulk Insulation in Contact with Floor R4.5	Ceramic Tiles 8mm
WC/Cellar	Timber Above Plasterboard 300mm	5.80		No Insulation	Ceramic Tiles 8mm
Corridor GF/Cellar	Timber Above Plasterboard 300mm	1.60		No Insulation	Cork Tiles or Parquetry 8mm
Corridor GF/Kitchen/Living	Timber Above Plasterboard 300mm	6.50		No Insulation	Cork Tiles or Parquetry 8mm
Corridor GF/Storage Hall	Timber Above Plasterboard 300mm	2.60		No Insulation	Cork Tiles or Parquetry 8mm
Kitchen/Living	Concrete Slab on Ground 300mm	52.10	None	No Insulation	Cork Tiles or Parquetry 8mm
Storage Hall	Concrete Slab on Ground 300mm	3.80	None	No Insulation	Cork Tiles or Parquetry 8mm
Lounge	Concrete Slab on Ground 300mm	24.00	None	No Insulation	Cork Tiles or Parquetry 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Stairs LG	Timber Above Plasterboard	No Insulation	No
Laundry	Timber Above Plasterboard	No Insulation	No
Powder	Timber Above Plasterboard	No Insulation	No
Pantry	Timber Above Plasterboard	No Insulation	No
Cellar	Timber Above Plasterboard	No Insulation	No
Media/Storage	Plasterboard	Bulk Insulation R6	No
Media/Storage	Timber Above Plasterboard	No Insulation	No
Rumpus	Plasterboard	Bulk Insulation R6	No
Master Bed	Plasterboard	Bulk Insulation R6	No
Robe	Plasterboard	Bulk Insulation R6	No
Ensuite 1	Plasterboard	Bulk Insulation R6	No
Void	Plasterboard	Bulk Insulation R6	No
Stairs GF	Plasterboard	Bulk Insulation R6	No
Bed 2	Plasterboard	Bulk Insulation R6	No
Ensuite 2	Plasterboard	Bulk Insulation R6	No
Bed 3	Plasterboard	Bulk Insulation R6	No
Ensuite 3	Plasterboard	Bulk Insulation R6	No
WC	Plasterboard	Bulk Insulation R6	No

* Refer to glossary.

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Corridor GF	Plasterboard	Bulk Insulation R6	No
Kitchen/Living	Plasterboard	Bulk Insulation R6	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Storage Hall	Timber Above Plasterboard	No Insulation	No
Lounge	Timber Above Plasterboard	No Insulation	No

Ceiling *penetrations**

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

Ceiling *fans*

Location	Quantity	Diameter (mm)
Rumpus	1	1200
Master Bed	1	1200
Bed 2	1	1200
Bed 3	1	1200
Kitchen/Living	1	1200
Lounge	1	1200

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, No Air Gap Above R1.8	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).