

Nationwide House Energy Rating Scheme

NatHERS Certificate No. 0007832090-02

Generated on 06 Jun 2023 using BERS Pro v4.4.1.5 (3.21)

Property

Address 3 Orana Road , Mona Vale , NSW , 2103
Lot/DP 13/6195
NCC Class* 1A
Type New Dwelling

Plans

Main plan 2022 02
Prepared by Site Specific Design

Construction and environment

Assessed floor area (m²)*	Exposure type
Conditioned* 234.0	Suburban
Unconditioned* 87.0	NatHERS climate zone
Total 321.0	56
Garage 68.0	



Accredited assessor

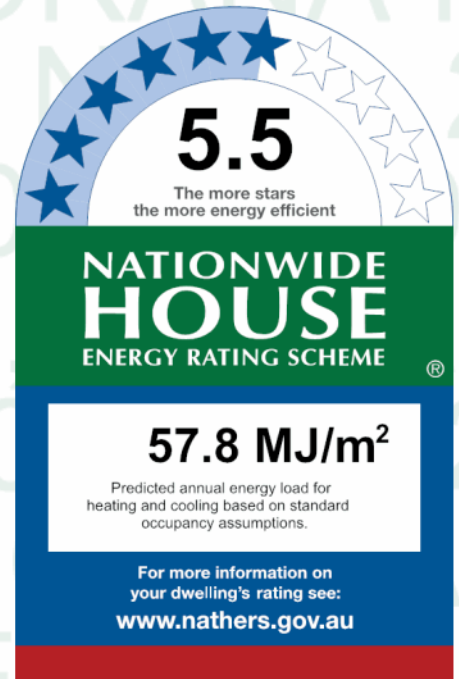
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Assessor Accrediting Organisation ABSA
Declaration of interest Declaration completed: no conflicts

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.



Thermal performance

Heating	Cooling
31.7	26.1
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.

Verification

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



Certificate check

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

Genuine certificate

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

Ceiling penetrations*

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

Windows

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

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

Additional notes

I have modeled the shading in accordance with NatHERS principles

Window and glazed door type and performance

Default* windows

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

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
AWS-067-16 A	AWS-067-16 A RES SERIES 516 FIXED WINDOW DG 8_LightBridge_GySII_75-8-4	2.3	0.35	0.33	0.37
AWS-089-73 A	AWS-089-73 A RES SERIES 704 FLUSH SLIDING DOOR DG LightBridge_GyS0_5-14-5	2.2	0.35	0.33	0.37
VAN-002-18 A	VAN-002-18 A 613 Magnum AI Double Hung SG 6.38CPGy	5.0	0.35	0.33	0.37

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
AWS-018-20 A	AWS-018-20 A 549 ED AI Entry Door SG 6.38CPGy	4.4	0.34	0.32	0.36
VAN-004-07 A	VAN-004-07 A SERIES 525 LOUVRE WINDOW SG 6Gy	6.1	0.45	0.43	0.47
AWS-016-20 A	AWS-016-20 A 548 BF AI BiFold Door SG 6.38CPGy	4.6	0.35	0.33	0.37
AWS-001-21 A	AWS-001-21 A 502/504 AI Sliding Window SG 6.38CPGy	4.5	0.43	0.41	0.45

Window and glazed door schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living	AWS-067-16 A	n/a	2400	2100	n/a	00	NE	No
Kitchen/Living	AWS-089-73 A	n/a	2880	6000	n/a	60	NE	No
Kitchen/Living	AWS-067-16 A	n/a	2880	2400	n/a	00	NE	No
Kitchen/Living	AWS-067-16 A	n/a	2880	4800	n/a	00	NE	No
Kitchen/Living	VAN-002-18 A	n/a	1350	600	n/a	45	SE	No
Kitchen/Living	AWS-067-16 A	n/a	600	4500	n/a	00	SW	No
Kitchen/Living	AWS-067-16 A	n/a	600	4800	n/a	00	SW	No
Kitchen/Living	AWS-067-16 A	n/a	2100	2100	n/a	00	SW	Yes
Kitchen/Living	AWS-018-20 A	n/a	2700	1200	n/a	90	NW	No
Kitchen/Living	AWS-067-16 A	n/a	2400	1800	n/a	00	SW	No
Kitchen/Living	AWS-067-16 A	n/a	2400	1800	n/a	00	SW	No
Kitchen/Living	AWS-067-16 A	n/a	2400	1800	n/a	00	SW	No
Kitchen/Living	AWS-067-16 A	n/a	2250	2600	n/a	00	NW	No
Kitchen/Living	AWS-067-16 A	n/a	2100	2200	n/a	00	NE	No
Kitchen/Living	AWS-067-16 A	n/a	2400	1800	n/a	00	NE	No
Kitchen/Living	AWS-067-16 A	n/a	2400	1800	n/a	00	NE	No
Kitchen/Living	AWS-067-16 A	n/a	2400	1800	n/a	00	NE	No
Kitchen/Living	AWS-067-16 A	n/a	2880	1800	n/a	00	NW	No
Powder	VAN-002-18 A	n/a	1350	600	n/a	45	SW	No
Ldry	AWS-018-20 A	n/a	2700	900	n/a	90	SW	No

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Ldry	VAN-002-18 A	n/a	1350	600	n/a	45	NW	No
Rumpus	AWS-089-73 A	n/a	2400	2800	n/a	45	SE	No
Nook	VAN-002-18 A	n/a	1200	600	n/a	45	NW	No
Bedroom 2	VAN-002-18 A	n/a	1200	600	n/a	45	NE	No
Bath 1	VAN-004-07 A	n/a	1200	1800	n/a	90	NE	No
Bedroom 3	VAN-002-18 A	n/a	1200	600	n/a	45	NE	No
Bedroom 3	VAN-004-07 A	n/a	2400	600	n/a	90	SE	No
Bedroom 3	AWS-016-20 A	n/a	2400	1800	n/a	90	SE	No
Bedroom 4	VAN-004-07 A	n/a	2400	600	n/a	90	SE	No
Bedroom 4	AWS-016-20 A	n/a	2400	1800	n/a	90	SE	No
Bedroom 4	VAN-002-18 A	n/a	1350	600	n/a	45	SW	No
Ensuite 2	VAN-002-18 A	n/a	1350	600	n/a	45	SW	No
Master Bed	AWS-001-21 A	n/a	600	1800	n/a	45	NE	No
Master Bed	AWS-001-21 A	n/a	600	1800	n/a	45	NE	No
Master Bed	VAN-002-18 A	n/a	2100	900	n/a	45	SE	No
Master Bed	AWS-089-73 A	n/a	2400	2700	n/a	45	SE	No
Master WIR	VAN-002-18 A	n/a	1600	600	n/a	45	NW	No
Ensuite	VAN-002-18 A	n/a	1600	600	n/a	45	SW	No
Ensuite	VAN-002-18 A	n/a	1600	600	n/a	45	NW	No

Roof window type and performance

Default* roof windows

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

Custom* roof windows

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

Roof window schedule

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
Kitchen/Living	VEL-011-01 W	n/a	0	1000	4100	SW	No	No
Rumpus	VEL-011-01 W	n/a	0	1000	1180	SW	No	No
Bath 1	VEL-011-01 W	n/a	0	1000	810	SW	No	No

Skylight type and performance

Skylight ID	Skylight description
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No Data Available

Skylight schedule

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

External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
Garage 1	2040	820	90	SW
Garage 1	2400	6000	90	NW

External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-1	Extruded Poly Cavity Panel Direct Fix	0.30	Light	Foil, Anti-glare one side + Bulk Insulation R2.5	No
EW-2	Brick Veneer	0.30	Light	Foil, Anti-glare one side + Bulk Insulation R2.5	No
EW-3	Extruded Poly Cavity Panel Direct Fix	0.30	Light	Foil, Anti-glare one side + Bulk Insulation R2.5	No
EW-4	Concrete Block	0.50	Medium	No insulation	No
EW-5	Concrete Block	0.50	Medium	No insulation	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	2900	18600	NE	7100	YES
Kitchen/Living	EW-1	2900	1500	SE	600	YES
Kitchen/Living	EW-2	2900	6400	SW	900	YES
Kitchen/Living	EW-2	2900	400	SE	7000	YES
Kitchen/Living	EW-1	2900	9800	SW	500	NO
Kitchen/Living	EW-1	2900	400	NW	4600	YES
Kitchen/Living	EW-1	2900	2700	SW	900	YES
Kitchen/Living	EW-1	2900	2000	NW	10900	YES
Kitchen/Living	EW-1	2900	6500	SW	1500	YES
Kitchen/Living	EW-1	3000	400	SE	0	YES
Kitchen/Living	EW-1	3000	2300	SW	1100	NO
Kitchen/Living	EW-1	3000	2795	NW	5600	YES
Kitchen/Living	EW-1	3000	1395	SE	0	YES
Kitchen/Living	EW-1	2900	9200	NE	3300	YES
Kitchen/Living	EW-1	2900	2200	NW	4700	YES
Powder	EW-1	2400	2390	SW	600	YES
Ldry	EW-1	3000	2095	SW	700	NO
Ldry	EW-1	2400	1100	NW	0	YES
Rumpus	EW-1	3000	3090	SE	900	NO
Nook	EW-1	2400	1490	NW	0	YES
Bedroom 2	EW-1	3000	4595	NW	900	NO
Bedroom 2	EW-2	3000	3595	NE	800	NO
Bath 1	EW-2	3000	1990	NE	800	NO
Bedroom 3	EW-2	3000	3695	NE	800	NO
Bedroom 3	EW-1	3000	4605	SE	900	NO
Bedroom 4	EW-1	3000	3195	SE	900	NO
Bedroom 4	EW-1	3000	5295	SW	700	NO
Ensuite 2	EW-1	3000	1890	SW	700	NO
Master Bed	EW-3	2750	4195	NE	1200	NO

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Master Bed	EW-1	2750	5895	SE	800	NO
Master Bed	EW-1	2750	595	SW	3900	YES
Master WIR	EW-1	2750	3195	NW	1200	NO
Master WIR	EW-1	2750	2495	NE	1200	NO
Ensuite	EW-1	2750	3795	SW	1900	NO
Ensuite	EW-1	2750	2695	NW	1200	NO
Garage 1	EW-4	2400	7500	NE	0	NO
Garage 1	EW-5	2400	9000	SE	0	NO
Garage 1	EW-5	2400	7500	SW	0	NO
Garage 1	EW-5	2400	9000	NW	0	NO

Internal wall type

Wall ID	Wall type	Area (m ²)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		100.00	No insulation
IW-2 - Cavity wall, direct fix plasterboard, single gap		69.00	Bulk Insulation, No Air Gap R2.5

Floor type

Location	Construction	Area Sub-floor (m ²)	Added insulation ventilation(R-value)	Covering
Kitchen/Living /Garage 1	Rendered Concrete 100mm	3.00	Bulk Insulation R1.1	Carpet 10mm
Kitchen/Living	Concrete Slab on Ground 100mm	56.90	None	Bulk Insulation in Contact with Floor R1.1 Cork Tiles or Parquetry 8mm
Kitchen/Living	Suspended Concrete Slab 150mm	56.00	Totally Open	Bulk Insulation in Contact with Floor Cork Tiles or Parquetry 8mm
Powder	Concrete Slab on Ground 100mm	4.70	None	Bulk Insulation in Contact with Floor R1.1 Ceramic Tiles 8mm
Ldry	Concrete Slab on Ground 100mm	6.40	None	Bulk Insulation in Contact with Floor R1.1 Ceramic Tiles 8mm
Rumpus	Concrete Slab on Ground 100mm	22.60	None	Bulk Insulation in Contact with Floor R1.1 Carpet+Rubber Underlay 18mm
Nook	Concrete Slab on Ground 100mm	2.90	None	Bulk Insulation in Contact with Floor R1.1 Cork Tiles or Parquetry 8mm
Bedroom 2	Concrete Slab on Ground 100mm	16.20	None	Bulk Insulation in Contact with Floor R1.1 Carpet+Rubber Underlay 18mm

Location	Construction	Area Sub-floor (m ²)	Added insulation ventilation(R-value)	Covering
Bath 1	Concrete Slab on Ground 100mm	8.70	None Bulk Insulation in Contact with Floor R1.1	Ceramic Tiles 8mm
Bedroom 3	Concrete Slab on Ground 100mm	16.60	None Bulk Insulation in Contact with Floor R1.1	Carpet+Rubber Underlay 18mm
Bedroom 4	Concrete Slab on Ground 100mm	16.60	None Bulk Insulation in Contact with Floor R1.1	Carpet+Rubber Underlay 18mm
Ensuite 2	Concrete Slab on Ground 100mm	4.60	None Bulk Insulation in Contact with Floor R1.1	Ceramic Tiles 8mm
Master Bed/Garage 1	Rendered Concrete 100mm	20.80	Bulk Insulation R1.1	Cork Tiles or Parquetry 8mm
Master WIR/Garage 1	Rendered Concrete 100mm	7.70	Bulk Insulation R1.1	Cork Tiles or Parquetry 8mm
Ensuite/Garage 1	Rendered Concrete 100mm	10.00	Bulk Insulation R1.1	Ceramic Tiles 8mm
Garage 1	Concrete Slab on Ground 100mm	67.50	None No Insulation	Bare

Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living	Plasterboard	Bulk Insulation R6	No
Powder	Plasterboard	Bulk Insulation R6	No
Ldry	Plasterboard	Bulk Insulation R6	No
Rumpus	Plasterboard	Bulk Insulation R6	No
Nook	Plasterboard	Bulk Insulation R6	No
Bedroom 2	Plasterboard	Bulk Insulation R6	No
Bath 1	Plasterboard	Bulk Insulation R6	No
Bedroom 3	Plasterboard	Bulk Insulation R6	No
Bedroom 4	Plasterboard	Bulk Insulation R6	No
Ensuite 2	Plasterboard	Bulk Insulation R6	No
Master Bed	Plasterboard	Bulk Insulation R6	No
Master WIR	Plasterboard	Bulk Insulation R6	No
Ensuite	Plasterboard	Bulk Insulation R6	No
Garage 1	Concrete	Bulk Insulation R1.1	No
Garage 1	Rendered Concrete	Bulk Insulation R1.1	No

Ceiling penetrations*

Location	Quantity	Type	Diameter (mm ²)	Sealed/unsealed
Kitchen/Living	28	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Powder	1	Downlights - LED	150	Sealed
Powder	1	Exhaust Fans	300	Sealed
Ldry	2	Downlights - LED	150	Sealed
Ldry	1	Exhaust Fans	300	Sealed
Rumpus	6	Downlights - LED	150	Sealed
Nook	1	Downlights - LED	150	Sealed
Bedroom 2	2	Downlights - LED	150	Sealed
Bath 1	2	Downlights - LED	150	Sealed
Bath 1	1	Exhaust Fans	300	Sealed
Bedroom 3	2	Downlights - LED	150	Sealed
Bedroom 4	2	Downlights - LED	150	Sealed
Ensuite 2	1	Downlights - LED	150	Sealed
Ensuite 2	1	Exhaust Fans	300	Sealed
Master Bed	3	Downlights - LED	150	Sealed
Master WIR	2	Downlights - LED	150	Sealed
Ensuite	2	Downlights - LED	150	Sealed
Ensuite	1	Exhaust Fans	300	Sealed

Ceiling fans

Location	Quantity	Diameter (mm)
Kitchen/Living	2	1400
Rumpus	1	1400
Bedroom 2	1	1400
Bedroom 3	1	1400
Bedroom 4	1	1400
Master Bed	1	1400

Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, No Air Gap Above R1.3	0.80	Dark
Waterproofing Membrane	No Added Insulation, No air Gap	0.50	Medium

Explanatory notes

About this report

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

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

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

Accredited assessors

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

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

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

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

Disclaimer

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

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

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

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

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure category – exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category – open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category – suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category – protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au .
Opening percentage	the operability 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).