

Nationwide House Energy Rating Scheme

NatHERS Certificate No. 6UFN15003H

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Property

Address 10 Jamieson Pde, Collaroy, NSW, 2097
Lot/DP 14/12012
NCC Class* Class 1a
Type New Home

Plans

Main plan 131220
Prepared by PB/MP

Construction and environment

Assessed floor area (m²)*		Exposure type
Conditioned*	325.2	suburban
Unconditioned*	21.3	NatHERS climate zone
Total	411.6	56, Collaroy
Garage	65.1	



Accredited assessor

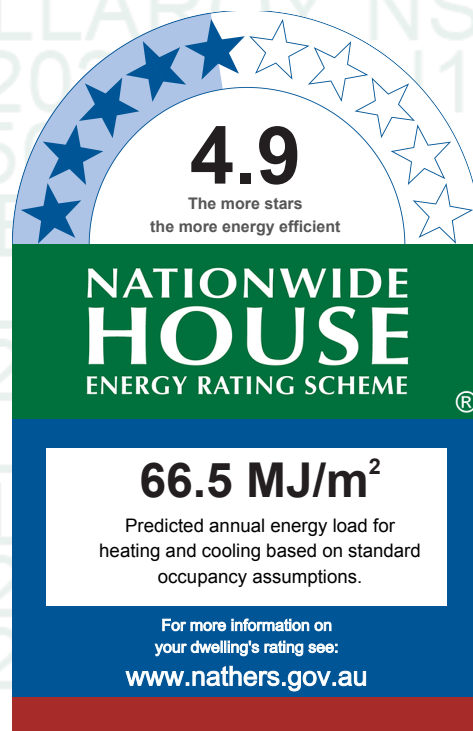
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Declaration of interest Declaration completed: no conflicts

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
42.2	24.3
MJ/m²	MJ/m²

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 <https://www.fr5.com.au/QRCodeLanding?PublicId=6UFN15003H> When using either link, ensure you are visiting www.FR5.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?

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

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-006-03 W	Timber B DG Argon Fill High Solar Gain low-E -Clear	2	0.31	0.29	0.33
TIM-005-04 W	Timber A DG Argon Fill Low Solar Gain low-E -Clear	2	0.18	0.17	0.19
TIM-005-03 W	Timber A DG Argon Fill High Solar Gain low-E -Clear	2	0.25	0.24	0.26

Custom* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	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*
GYM	TIM-006-03 W	W2	600	900	double_hung	45.0	SSE	No



GYM	TIM-005-04 W	W1	2400	1960	casement	100.0	ENE	No
OFFICE	TIM-005-03 W	W6	600	3600	awning	60.0	SSE	No
OFFICE	TIM-006-03 W	W5	2400	1960	casement	100.0	ENE	No
LDY	TIM-005-03 W	W7	600	3275	awning	60.0	SSE	No
LDY	TIM-006-03 W	W8	2100	820	double_hung	45.0	SSE	No
GUEST	TIM-005-03 W	W18	2400	3600	awning	60.0	NNW	No
GUEST	TIM-006-03 W	W18	2400	1960	casement	100.0	ENE	No
FOYER	TIM-006-03 W	W4	2400	1800	casement	90.0	ENE	No
Kitchen/Living	TIM-006-03 W	W13	2400	1000	louvre	90.0	NNW	No
Kitchen/Living	TIM-006-03 W	W12A	1727	2621	fixed	0.0	NNW	No
Kitchen/Living	TIM-006-03 W	W12	2400	1000	louvre	90.0	NNW	No
Kitchen/Living	TIM-006-03 W	W13A	1727	2622	fixed	0.0	NNW	No
Kitchen/Living	TIM-006-03 W	W11	2100	5100	sliding	35.0	WSW	No
Kitchen/Living	TIM-006-03 W	W11A	1706	5625	fixed	0.0	WSW	No
Kitchen/Living	TIM-006-03 W	W10	2100	5100	sliding	35.0	WSW	No
Kitchen/Living	TIM-006-03 W	W10A	1706	5625	fixed	0.0	WSW	No
Kitchen/Living	TIM-005-03 W	W9 /1	1727	2400	awning	60.0	SSE	No
Kitchen/Living	TIM-005-03 W	W9 /2	1727	2400	awning	60.0	SSE	No
Kitchen/Living	TIM-006-03 W	W9B	1727	2622	fixed	0.0	SSE	No
Kitchen/Living	TIM-006-03 W	W9A	1727	2622	fixed	0.0	SSE	No
Kitchen/Living	TIM-006-03 W	W15	2400	3500	sliding	45.0	NNW	No
Kitchen/Living	TIM-006-03 W	W14	2400	3500	sliding	45.0	ENE	No
MEDIA	TIM-006-03 W	W16	2400	3500	sliding	45.0	WSW	No
MEDIA	TIM-005-03 W	W17	600	3600	awning	60.0	NNW	No
BED 3	TIM-006-03 W	W27	800	1600	double_hung	45.0	WSW	No
BED 3	TIM-006-03 W	W26	600	3600	double_hung	45.0	SSE	No
WIR	TIM-006-03 W	W24	2100	1000	louvre	90.0	SSE	No
WIR	TIM-006-03 W	W23	2100	1000	louvre	90.0	SSE	No
BATH	TIM-006-03 W	W30	1250	1800	double_hung	45.0	WSW	No
BED 2	TIM-006-03 W	W31	1250	3600	double_hung	45.0	WSW	No
BED 2	TIM-006-03 W	W32	600	3400	double_hung	45.0	NNW	No
ENS	TIM-006-03 W	W33	1100	900	double_hung	45.0	NNW	No
ENS	TIM-006-03 W	W34	1100	900	double_hung	45.0	NNW	No
ENS	TIM-005-03 W	W19	2400	1960	casement	100.0	ENE	No
MASTER BED	TIM-006-03 W	W22	600	2500	double_hung	45.0	SSE	No
MASTER BED	TIM-005-03 W	W21	2400	1960	casement	100.0	ENE	No
MASTER BED	TIM-005-03 W	W20	2400	3200	casement	60.0	ENE	No
HALL	TIM-005-03 W	W29	2100	2400	awning	45.0	NNW	No
HALL	TIM-006-03 W	W28	800	1600	double_hung	45.0	WSW	No
HALL	TIM-006-03 W	W25	2100	2200	double_hung	45.0	SSE	No

Roof window type and performance value

Default* roof windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
DEFAULTS:DG-Generic-02 A	Clear Al DG DEFAULT ROOF WINDOW System 02	4.22	0.72	0.68	0.76

Custom* roof windows

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

Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m²)	Orientation	Outdoor shade	Indoor shade
Kitchen/Living	DEFAULTS:DG-Generic-02 A	SK1	0.0	1.6	N	None	None
Kitchen/Living	DEFAULTS:DG-Generic-02 A	SK2	0.0	1.6	N	None	None

Skylight type and performance

Skylight ID	Skylight description
GEN-04-001a	SC: Single Clear

Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m²)	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
BATH	GEN-04-001a	SK5	1000	1.6	N	None	No	0.75
HALL	GEN-04-001a	SK3	1000	1.1	N	None	No	0.75
HALL	GEN-04-001a	SK4	1000	1.6	N	None	No	0.75

External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
GARAGE	2100	5500	100.0	ENE

External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	FR5 - Brick Cavity	0.5	Medium	Glass fibre batt: R4.0 (R4.0)	No
2	FR5 - Weatherboard	0.5	Medium	Glass fibre batt: R4.0 (R4.0)	No

External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
GARAGE	1	2700	5894	NNW	0	No
GARAGE	1	2700	9056	ENE	0	No
CELLAR	1	2700	1898	NNW	0	No
GYM	1	2700	5897	SSE	0	No
GYM	1	2700	3278	ENE	0	No
OFFICE	2	3000	4002	SSE	0	No
OFFICE	2	3000	4587	ENE	2500	No
LDY	2	3000	5148	SSE	0	No
PTRY	2	3000	1398	SSE	0	No
GUEST	2	3000	4526	NNW	0	No
GUEST	2	3000	3586	ENE	2456	No
ENSUITE	2	3000	1569	ENE	2500	No
FOYER	2	3000	2382	ENE	2500	No
FOYER	2	3000	125	NNW	0	Yes
Kitchen/Living	2	3865	2614	NNW	600	No
Kitchen/Living	2	3865	2614	NNW	0	No
Kitchen/Living	2	4730	4000	NNW	0	No
Kitchen/Living	2	4730	2600	NNW	600	No
Kitchen/Living	2	1730	5213	NNW	0	No
Kitchen/Living	2	3865	6227	WSW	4856	No
Kitchen/Living	2	3865	6227	WSW	0	No
Kitchen/Living	2	3865	6192	WSW	4856	No
Kitchen/Living	2	4730	5213	WSW	0	No
Kitchen/Living	2	3865	5213	SSE	600	No
Kitchen/Living	2	1730	2569	SSE	0	No
Kitchen/Living	2	4730	5213	SSE	0	No
Kitchen/Living	2	3000	2892	SSE	0	No
Kitchen/Living	2	3000	4388	NNW	6000	Yes
Kitchen/Living	2	3000	6135	ENE	4300	Yes
MEDIA	2	3000	6039	WSW	4300	Yes
MEDIA	2	3000	4488	NNW	0	No
BED 3	2	2700	3821	WSW	656	No
BED 3	2	2700	3990	SSE	656	No
WIR	2	2700	4206	SSE	661	No
BATH	2	2700	2281	WSW	656	Yes
BED 2	2	2700	3759	WSW	656	Yes
BED 2	2	2700	4486	NNW	658	No
ENS	2	2700	4512	NNW	661	No
ENS	2	2700	2913	ENE	3031	No

MASTER BED	2	2700	2700	SSE	0	No
MASTER BED	2	2700	9455	ENE	3100	No
HALL	2	2700	4352	NNW	656	Yes
HALL	2	2700	2382	WSW	656	No
HALL	2	2700	2406	SSE	658	No

Internal wall type

Wall ID	Wall type	Area (m ²)	Bulk insulation
1	FR5 - Brick Cavity	38.4	Glass fibre batt: R4.0 (R4.0)
2	FR5 - Internal Plasterboard Stud Wall	351.1	Glass fibre batt: R2.0 (R2.0)

Floor type

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
GARAGE	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	53.4	Enclosed	R0.0	none
CELLAR	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	11.7	Enclosed	R0.0	none
GYM	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	19.3	Enclosed	R0.0	Timber
OFFICE	FR5 - Timber	14.9	Enclosed	R3.5	Timber
MUD	FR5 - Timber	2.9	Enclosed	R3.5	Tiles
MUD	FR5 - 175mm concrete slab	1.7	Enclosed	R3.5	Tiles
LDY	FR5 - 175mm concrete slab	6.8	Enclosed	R3.5	Tiles
LDY	FR5 - Timber	2.9	Enclosed	R3.5	Tiles
PTRY	FR5 - 175mm concrete slab	4.3	Enclosed	R3.5	Timber
GUEST	FR5 - Timber	18.7	Enclosed	R3.5	Timber
ENSUITE	FR5 - Timber	5.4	Enclosed	R3.5	Tiles
FOYER	FR5 - Timber	15.6	Enclosed	R3.5	Timber
FOYER	FR5 - 175mm concrete slab	12	Enclosed	R3.5	Timber
STAIR	FR5 - Timber	4.4	Enclosed	R3.5	Timber
WC	FR5 - 175mm concrete slab	2	Enclosed	R3.5	Tiles
Kitchen/Living	FR5 - 175mm concrete slab	14.9	Enclosed	R3.5	Timber
Kitchen/Living	FR5 - 175mm concrete slab	65.7	Enclosed	R3.5	Timber
PTRY	FR5 - 175mm concrete slab	4.1	Enclosed	R3.5	Timber
MEDIA	FR5 - Timber	17.4	Enclosed	R3.5	Timber
MEDIA	FR5 - 175mm concrete slab	7.2	Enclosed	R3.5	Timber
BED 3	FR5 - Timber	15.3	Enclosed	R3.5	Timber
WIR	FR5 - Timber	16.4	Enclosed	R3.5	Timber
BATH	FR5 - Timber	11.6	Enclosed	R3.5	Tiles
BED 2	FR5 - Timber	16.9	Enclosed	R3.5	Timber
ENS	FR5 - Timber	11.4	Enclosed	R3.5	Tiles
WC	FR5 - Timber	1.4	Enclosed	R3.5	Tiles
MASTER BED	FR5 - Timber	35.4	Enclosed	R3.5	Timber
HALL	FR5 - Timber	9.1	Enclosed	R3.5	Timber

HALL	FR5 - Timber	5.7	Enclosed	R3.5	Timber
HALL	FR5 - Timber	13.7	Enclosed	R3.5	Timber

Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)		Reflective wrap*
GARAGE	FR5 - Timber	R3.5		No
GARAGE	FR5 - 175mm concrete slab	R3.5		No
CELLAR	FR5 - Timber	R3.5		No
CELLAR	FR5 - 175mm concrete slab	R3.5		No
GYM	FR5 - Timber	R3.5		No
GYM	FR5 - 175mm concrete slab	R3.5		No
OFFICE	FR5 - Timber	R3.5		No
MUD	FR5 - Timber	R3.5		No
MUD	FR5 - Timber	R3.5		No
LDY	FR5 - Timber	R3.5		No
LDY	FR5 - Timber	R3.5		No
PTRY	FR5 - Timber	R3.5		No
GUEST	FR5 - Timber	R3.5		No
ENSUITE	FR5 - Timber	R3.5		No
FOYER	FR5 - Timber	R3.5		No
FOYER	FR5 - Timber	R3.5		No
STAIR	FR5 - Timber	R3.5		No
WC	FR5 - Timber	R3.5		No
Kitchen/Living	FR5 - Timber	R3.5		No
Kitchen/Living	FR5 - Timber	R3.5		No
Kitchen/Living	Plasterboard	R5.0		Yes
PTRY	FR5 - Timber	R3.5		No
MEDIA	FR5 - Timber	R3.5		No
MEDIA	FR5 - Timber	R3.5		No
BED 3	Plasterboard	R5.0		Yes
WIR	Plasterboard	R5.0		Yes
BATH	Plasterboard	R5.0		Yes
BED 2	Plasterboard	R5.0		Yes
ENS	Plasterboard	R5.0		Yes
WC	Plasterboard	R5.0		Yes
MASTER BED	Plasterboard	R5.0		Yes
HALL	Plasterboard	R5.0		Yes
HALL	Plasterboard	R5.0		Yes
HALL	Plasterboard	R5.0		Yes

Ceiling penetrations*

* Refer to glossary.

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
GYM	4	Downlights	50	Sealed
OFFICE	6	Downlights	50	Sealed
MUD	2	Downlights	50	Sealed
LDY	1	Downlights	50	Sealed
PTRY	1	Downlights	50	Sealed
GUEST	1	Downlights	0	Unsealed
ENSUITE	1	Downlights	50	Sealed
FOYER	4	Downlights	50	Sealed
STAIR	1	Downlights	50	Sealed
WC	1	Downlights	50	Sealed
Kitchen/Living	20	Downlights	50	Sealed
Kitchen/Living	1	Exhaust Fans	200	Sealed
PTRY	2	Downlights	50	Sealed
MEDIA	6	Downlights	50	Sealed
BED 3	4	Downlights	50	Sealed
WIR	1	Downlights	50	Sealed
BATH	1	Downlights	50	Sealed
BATH	1	Exhaust Fans	200	Sealed
BED 2	4	Downlights	50	Sealed
ENS	1	Downlights	50	Sealed
WC	1	Downlights	50	Sealed
MASTER BED	6	Downlights	50	Sealed
HALL	10	Downlights	50	Sealed

Ceiling fans

Location	Quantity	Diameter (mm)
OFFICE	1	1400
GUEST	1	1400
FOYER	1	1400
Kitchen/Living	2	1400
MEDIA	1	1400
BED 3	1	1400
BED 2	1	1400
MASTER BED	1	1400

Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Framed:Flat - Flat Framed (Metal Deck)	1.8	0.9	Dark
Cont:Attic-Continuous	1.8	0.9	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).