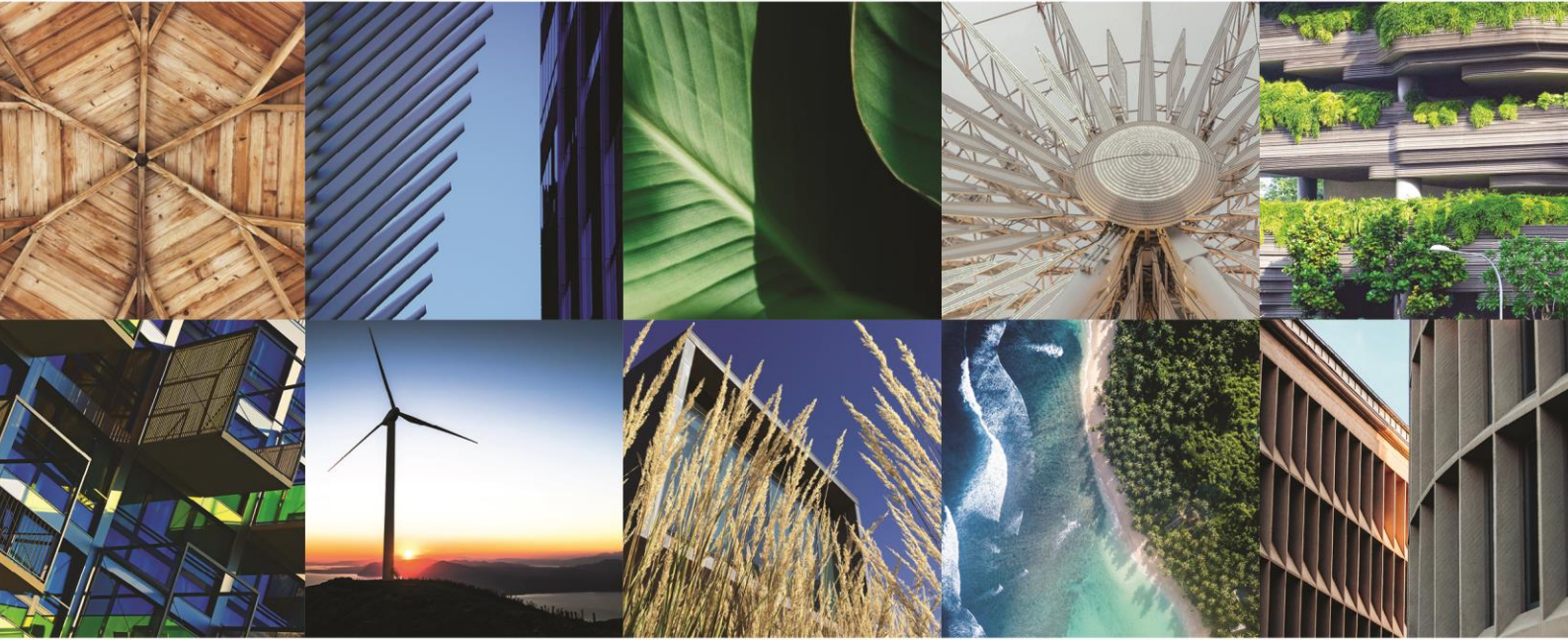




efficient
LIVING

NatHERS and BASIX Assessment



AH Design Proposed Residential Development

To be built at **34 Plateau Road, Bilgola Plateau NSW 2107**

Issue	File Ref	Description	Author	Date
A	21-1778	NatHERS Thermal Comfort Assessment	NR	27/07/2021

This report has been prepared by Efficient Living Pty Ltd on behalf of our AH Design. Efficient Living prepares all reports in accordance with the BASIX Thermal Comfort Protocol and is backed by professional indemnity insurance. This report takes into account our Client's instructions and preferred building inclusions.

If there is a change to this specification during design or construction phases, please contact Efficient Living and quote the above file reference for advice, and to obtain an updated Certificate if required.



Sustainable Building Consultants

p. 02 9970 6181 e. admin@efficientliving.com.au
www.efficientliving.com.au



Assessor: Nicholas Roberts
Email: nicholas@efficientliving.com.au

License Holder: Tracey Cools
Accreditation Number: HERA10033

BASIX Details:

NatHERS Certificate Number: 0006295406-1

BASIX adjusted conditioned area: 115.0 m²

BASIX adjusted un-conditioned area: 9.0 m²

Area adjusted heating load: 40.0 MJ/ m²/pa

Area adjusted cooling load: 25.7 MJ/ m²/pa

Specification

Heating and cooling loads for the development have been determined using BERS Pro Plus 4.4 thermal comfort simulation software, and assessed under the thermal simulation method of the BASIX Protocol.

The following specification was used to achieve the thermal performance values. Modelling proxies are used at times and if the buildings element details vary the thermal performance specification below shall take precedence.

If there is a change to this specification during design or construction phases, please contact Efficient Living for advice and if required an updated Certificate will be issued.

Floors

Suspended timber floor with R1.0 insulation (insulation only value)

Suspended timber with R0.6 insulation (insulation only value)

External Walls

Lightweight weatherboard wall with R2.5 insulation (insulation only value)

External Colour: Light (<0.475)

Walls within dwellings

Plasterboard on stud, no insulation

Glazing Doors/Windows

Group A windows: Sliding and louvres

U-value: 4.80 (equal to or lower than) SHGC: 0.59 (±10%)

Group B windows: Casement and bi-fold doors

U-value: 4.80 (equal to or lower than) SHGC: 0.51 (±10%)

Given values are AFRC total window system values (glass and frame)

Ceilings

Timber ceiling with R4.0 insulation (insulation only value) where roof and storage loft above

Ceiling Penetrations

Sealed LED downlights not to exceed NatHERS certificate



Roof

Metal roof with foil backed blanket (Rup1.3 and Rdown1.3)

External Colour: Medium (0.475 < SA < 0.7)

Floor coverings

Tiles to wet areas, carpet to bedrooms and timber elsewhere

External Shading

Shading as per stamped drawings

Ventilation

All external doors have weather seals, all exhaust fans and chimneys have dampers, and down lights proposed will have capped fittings

Nationwide House Energy Rating Scheme

NatHERS Certificate No. 0006295406-01

Generated on 04 Aug 2021 using BERS Pro v4.4.0.6 (3.21)

Property

Address Plateau Road , Bilgola Plateau , NSW ,
2107

Lot/DP 2/1214257

NCC Class* 1A

Type New Dwelling

Plans

Main Plan 21-1778

Prepared by AH Design

Construction and environment

Assessed floor area (m ²)*	Exposure Type
Conditioned* 115.0	Suburban
Unconditioned* 9.0	NatHERS climate zone
Total 124.0	56
Garage 0.0	

Accredited assessor

Name Tracey Cools

Business name Efficient Living Pty Ltd

Email admin@efficientliving.com.au

Phone (02)99706181

Accreditation No. HERA10033

Assessor Accrediting Organisation

HERA

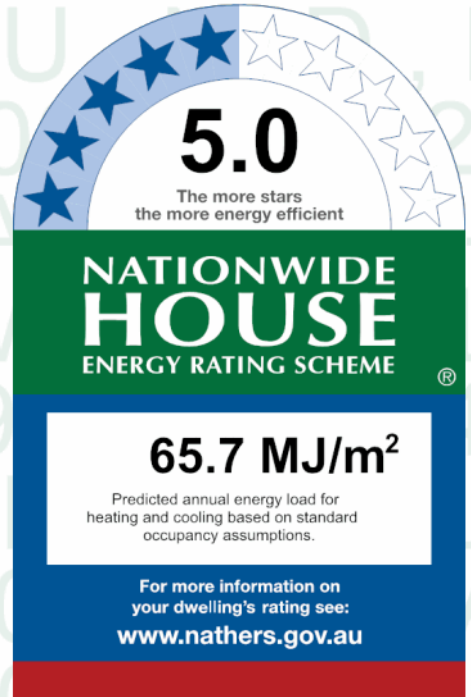
Declaration of interest Declaration completed: no conflicts

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.abccb.gov.au.

State and territory variations and additions to the NCC may also apply.



5.0
The more stars
the more energy efficient

**NATIONWIDE
HOUSE**
ENERGY RATING SCHEME

65.7 MJ/m²
Predicted annual energy load for
heating and cooling based on standard
occupancy assumptions.

For more information on
your dwelling's rating see:
www.nathers.gov.au

Thermal performance

Heating	Cooling
40.0 MJ/m ²	25.7 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=gWujpHDSf. 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?

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

Suspended timber floor modeled as a proxy for ground floor construction

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-004-01 A	ALM-004-01 A Aluminium B DG Air Fill Clear-Clear	4.8	0.59	0.56	0.62
ALM-003-01 A	ALM-003-01 A Aluminium A DG Air Fill Clear-Clear	4.8	0.51	0.48	0.54

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*
----------	-----------	------------	-------------	------------	-------------	-----------	-------------	------------------------

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Bedroom 1	ALM-004-01 A	n/a	600	1800	n/a	45	S	No
Bedroom 1	ALM-004-01 A	n/a	1200	2100	n/a	45	E	No
WIR	ALM-004-01 A	n/a	400	600	n/a	90	S	No
Ens 1	ALM-004-01 A	n/a	1200	1600	n/a	20	S	No
Entry/stairs	ALM-003-01 A	n/a	2400	1600	n/a	90	E	No
Laundry	ALM-003-01 A	n/a	2100	900	n/a	90	W	No
Laundry	ALM-004-01 A	n/a	1200	600	n/a	90	W	No
Bedroom 2	ALM-004-01 A	n/a	600	1800	n/a	45	N	No
Bedroom 2	ALM-004-01 A	n/a	1200	2100	n/a	45	E	No
Ens 2	ALM-004-01 A	n/a	1200	600	n/a	90	W	No
Ens 2	ALM-004-01 A	n/a	600	600	n/a	90	N	No
Kitchen/Living	ALM-003-01 A	n/a	240	1600	n/a	90	W	No
Kitchen/Living	ALM-004-01 A	n/a	450	1800	n/a	10	W	No
Kitchen/Living	ALM-004-01 A	n/a	450	2400	n/a	10	N	No
Kitchen/Living	ALM-004-01 A	n/a	1500	2400	n/a	10	E	No
Kitchen/Living	ALM-004-01 A	n/a	1500	900	n/a	90	S	No
Kitchen/Living	ALM-003-01 A	n/a	2100	3200	n/a	90	E	No
Kitchen/Living	ALM-004-01 A	n/a	1500	2400	n/a	30	E	No
Kitchen/Living	ALM-004-01 A	n/a	1500	900	n/a	90	S	No
Office	ALM-004-01 A	n/a	1200	700	n/a	90	W	No
PDR	ALM-004-01 A	n/a	1200	600	n/a	90	W	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	

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	Weatherboard Cavity Panel Direct Fix	0.30	Light	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)
Bedroom 1	EW-1	2700	3695	S	900	NO
Bedroom 1	EW-1	2700	1900	N	5600	YES
Bedroom 1	EW-1	2700	3300	E	1700	NO
WIR	EW-1	2700	2190	S	900	NO
Ens 1	EW-1	2700	3300	W	0	NO
Ens 1	EW-1	2700	400	N	5600	YES
Ens 1	EW-1	2700	1795	S	900	NO
Entry/stairs	EW-1	2700	2390	E	3600	YES
Laundry	EW-1	2700	2390	W	2000	YES
Bedroom 2	EW-1	2700	3895	N	0	NO
Bedroom 2	EW-1	2700	3195	E	1900	NO
Ens 2	EW-1	2700	3200	W	600	NO
Ens 2	EW-1	2700	1895	N	0	NO
Ens 2	EW-1	2700	400	S	6600	YES
Kitchen/Living	EW-1	2700	2400	W	1800	NO
Kitchen/Living	EW-1	2700	1000	N	300	YES
Kitchen/Living	EW-1	2700	3200	W	300	YES

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	2700	8300	N	700	NO
Kitchen/Living	EW-1	2700	3200	E	600	NO
Kitchen/Living	EW-1	2700	1900	S	7300	YES
Kitchen/Living	EW-1	2700	6600	E	2500	YES
Kitchen/Living	EW-1	2700	3995	S	700	NO
Kitchen/Living	EW-1	2700	900	S	300	YES
Office	EW-1	2700	1095	W	900	YES
Office	EW-1	2700	700	S	3800	YES
Office	EW-1	2700	1095	W	200	YES
PDR	EW-1	2700	1995	W	900	NO
PDR	EW-1	2700	1795	S	700	NO

Internal wall type

Wall ID	Wall type	Area (m ²)	Bulk insulation
WV-1	Cavity wall, direct fix plasterboard, single gap	85.00	No insulation

Floor type

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	Suspended Timber Floor 19mm	12.00	Enclosed	Bulk Insulation in Contact with Floor R1	Carpet 10mm
WIR	Suspended Timber Floor 19mm	6.90	Enclosed	Bulk Insulation in Contact with Floor R1	Carpet 10mm
Ens 1	Suspended Timber Floor 19mm	5.70	Enclosed	Bulk Insulation in Contact with Floor R1	Ceramic Tiles 8mm
Entry/stairs	Suspended Timber Floor 19mm	6.80	Enclosed	Bulk Insulation in Contact with Floor R1	Cork Tiles or Parquetry 8mm
Laundry	Suspended Timber Floor 19mm	5.40	Enclosed	Bulk Insulation in Contact with Floor R1	Ceramic Tiles 8mm
Bedroom 2	Suspended Timber Floor 19mm	12.20	Enclosed	Bulk Insulation in Contact with Floor R1	Carpet 10mm
Ens 2	Suspended Timber Floor 19mm	5.90	Enclosed	Bulk Insulation in Contact with Floor R1	Ceramic Tiles 8mm
Kitchen/Living/Bedroom 1	Timber Above Timber 19mm	5.90		No Insulation	Cork Tiles or Parquetry 8mm
Kitchen/Living/WIR	Timber Above Timber 19mm	7.20		No Insulation	Cork Tiles or Parquetry 8mm
Kitchen/Living/Entry/stairs	Timber Above Timber 19mm	7.20		No Insulation	Cork Tiles or Parquetry 8mm
Kitchen/Living/Laundry	Timber Above Timber 19mm	5.70		No Insulation	Cork Tiles or Parquetry 8mm
Kitchen/Living/Bedroom 2	Timber Above Timber 19mm	12.40		No Insulation	Cork Tiles or Parquetry 8mm
Kitchen/Living/Ens 2	Timber Above Timber 19mm	6.00		No Insulation	Cork Tiles or Parquetry 8mm
Kitchen/Living	Suspended Timber Floor 19mm	16.30	Totally Open	Bulk Insulation in Contact with Floor R0.6	Cork Tiles or Parquetry 8mm
Office/Ens 1	Timber Above Timber 19mm	3.70		No Insulation	Cork Tiles or Parquetry 8mm

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Office	Suspended Timber Floor 19mm	0.70	Totally Open	Bulk Insulation in Contact with Floor R0.6	Cork Tiles or Parquetry 8mm
PDR/Ens 1	Timber Above Timber 19mm	1.90		No Insulation	Ceramic Tiles 8mm
PDR	Suspended Timber Floor 19mm	1.50	Totally Open	Bulk Insulation in Contact with Floor R0.6	Ceramic Tiles 8mm

Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Bedroom 1	Timber	Bulk Insulation R4	No
Bedroom 1	Timber Above Timber	No Insulation	No
WIR	Timber Above Timber	No Insulation	No
Ens 1	Timber Above Timber	No Insulation	No
Entry/stairs	Timber Above Timber	No Insulation	No
Laundry	Timber Above Timber	No Insulation	No
Bedroom 2	Timber Above Timber	No Insulation	No
Ens 2	Timber Above Timber	No Insulation	No
Kitchen/Living	Timber	Bulk Insulation R4	No
Office	Timber	Bulk Insulation R4	No
PDR	Timber	Bulk Insulation R4	No

Ceiling penetrations*

Location	Quantity	Type	Diameter (mm ²)	Sealed/unsealed
Ens 1	1	Exhaust Fans	150	Sealed
Laundry	1	Exhaust Fans	150	Sealed
Ens 2	1	Exhaust Fans	150	Sealed
Kitchen/Living	1	Exhaust Fans	150	Sealed
PDR	1	Exhaust Fans	150	Sealed

Ceiling fans

Location	Quantity	Diameter (mm)
No Data Available		

Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, No Air Gap Above R1.3	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 10m 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).