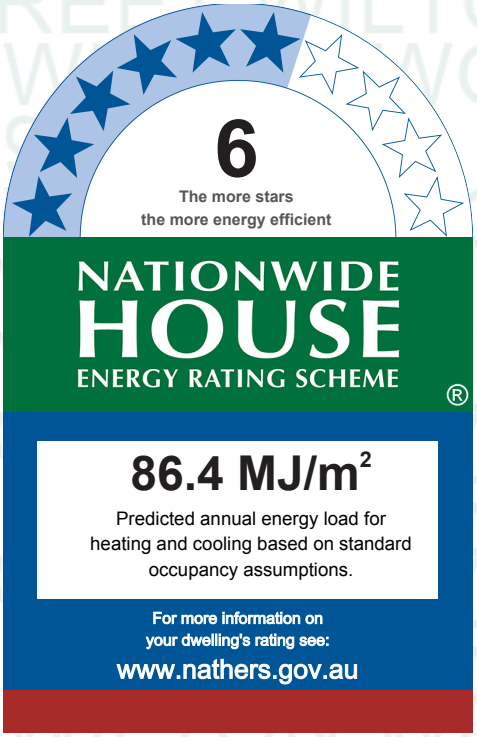
Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0X733D9Q1F

Generated on 28 Sep 2023 using FirstRate5: 5.3.2b (3.21)



Property

Address	Main, Lot 199 Frew Street WILTON, Wollondilly Shire Council 2571, NSW, 2571
Lot/DP	199|280093
NCC Class*	Class 1a
Type	New Home

Plans

Main plan	202272_Main | 28/09/2023
Prepared by	Creation Homes

Construction and environment

Assessed floor area (m²)*	
Conditioned*	157.1
Unconditioned*	39.4
Total	196.5
Garage	33.3

Exposure type
suburban

NatHERS climate zone
28 Richmond

Thermal performance

Heating	Cooling
55.7	**30.7**
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.

Accredited assessor

Name	Claude-Francois Sookloll
Business name	Energy Advance
Email	energy@energyadvance.com.au
Phone	1300 850 228
Accreditation No.	DMN/14/1662
Assessor Accrediting Organisation	Design Matters National
Declaration of interest	Declaration completed: no conflicts

Verification

To verify this certificate, scan the QR code or visit https://www.fr5.com.au/QRCodeLanding?PublicId=0X733D9Q1F When using either link, ensure you are visiting www.FR5.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.

* Refer to glossary.

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

BCA Climate Zone: 6

Please note, restricted window openings (%) have been modelled as per NCC 2019 requirements

Eaves indicated by the `Horizontal shading feature* maximum projection (mm)' may not be directly opposing the respective wall (i.e. some eaves may be horizontally offset)

Where applicable, an additional 150mm has been added to the projection of all `Horizontal shading features & eaves' to account for the Gutter & Fascia Board

Window and glazed door *type and performance*

Default* windows

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
ALM-001-01 A	Aluminium A SG Clear	6.7	0.57	0.54	0.6
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74

Custom* windows

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
WID-012-04 A	Aluminium Awning Window SG 4mmClr	6.35	0.64	0.61	0.67
WID-005-01 A	Al Residential Internal Sliding Door SG 4mm Clear	6.25	0.72	0.68	0.76

* Refer to glossary.

Generated on 28 Sep 2023 using FirstRate5: 5.3.2b (3.21) for 199|280093, Main, Lot 199 Frew Street

Window and glazed door *Schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Entry	ALM-001-01 A	WD1	2040	920	casement	90.0	N	No
Lounge	WID-012-04 A	W3	1800	610	awning	60.0	W	No
Lounge	WID-012-04 A	W2	1800	610	awning	60.0	W	No
Lounge	WID-012-04 A	W1	1800	2170	awning	40.0	N	No
Kitchen/Living/-Dining	WID-012-04 A	W6	1800	2170	awning	40.0	S	No
Kitchen/Living/-Dining	WID-005-01 A	WD3	2100	2710	sliding	30.0	S	No
Kitchen/Living/-Dining	WID-012-04 A	W4	1800	850	awning	60.0	W	No
Kitchen/Living/-Dining	WID-012-04 A	W5	860	2170	awning	60.0	W	No
Laundry	ALM-001-01 A	WD2	570	820	casement	100.0	W	No
Bedroom 3	WID-012-04 A	W18	860	2170	awning	60.0	S	No
Bedroom 2	WID-012-04 A	W17	860	2170	awning	60.0	W	No
Bedroom 4	WID-012-04 A	W19	860	2170	awning	60.0	S	No
Bedroom 1	WID-012-04 A	W14	1800	850	awning	10.0	N	No
Bedroom 1	WID-012-04 A	W13	1800	850	awning	10.0	N	No
Bedroom 1	WID-012-04 A	W12	1800	850	awning	10.0	N	No
UF Passage	WID-012-04 A	W15	600	2170	awning	60.0	N	No
UF Passage	ALM-002-01 A	W16	1800	850	fixed	0.0	W	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
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 %	Area (m²)	Orientation	Outdoor shade	Indoor shade
No Data Available							

Skylight *type and performance*

* Refer to glossary.

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m²)	Orient-ation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
Garage	2100	2405	100.0	N
Garage	2100	2405	100.0	N
Laundry	1470	820	100.0	W

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	NCC 2019 STANDARD - Partiwall | R2.5 Insulation | No Wrap	0.5	Medium	Glass fibre batt: R2.5 (R2.5);Glass fibre batt: R2.5 (R2.5)	No
2	NCC 2019 STANDARD - Brick Veneer | Uninsulated | No Wrap	0.5	Medium		No
3	NCC 2019 MISC - Double Leaf Brick Wall 110mm | Uninsulated	0.5	Medium		No
4	NCC 2019 STANDARD - Brick Veneer | R2.5 Insulation | No Wrap	0.5	Medium	Glass fibre batt: R2.5 (R2.5)	No
5	NCC 2019 STANDARD - Framed | R2.5 Insulation | No Wrap	0.5	Medium	Glass fibre batt: R2.5 (R2.5)	No
6	NCC 2019 STANDARD - AAC Panel | R2.5 Insulation | No Wrap	0.5	Medium	Glass fibre batt: R2.5 (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)
Garage	1	2400	3372	S	0	No
Garage	2	3254	1080	S	600	Yes
Garage	2	3254	5610	E	600	Yes
Garage	3	3254	2710	N	600	No
Garage	3	3254	2930	N	600	Yes
Entry	4	2740	1980	N	2680	Yes
Lounge	4	2740	3830	W	600	Yes
Lounge	4	2740	1080	E	2900	Yes
Lounge	4	2740	604	N	1600	Yes
Lounge	4	2740	2726	N	600	Yes
GF Passage	4	2740	2470	W	600	Yes

* Refer to glossary.

Kitchen/Living/Dining	4	2740	2529	S	600	Yes
Kitchen/Living/Dining	4	2740	4150	S	3100	Yes
Kitchen/Living/Dining	1	2400	4100	E	0	No
Kitchen/Living/Dining	4	2740	6820	W	600	Yes
WIP	1	2400	1302	E	0	No
Powder	1	2740	2700	E	0	No
Laundry	4	2740	1700	W	0	Yes
Bedroom 3	5	2440	2980	S	710	No
Bedroom 3	4	2440	4280	W	600	Yes
Bedroom 2	4	2440	3200	W	600	Yes
Bedroom 4	6	2440	3060	E	610	Yes
Bedroom 4	5	2440	3600	S	720	No
Bedroom 1	5	2440	4730	E	705	Yes
Bedroom 1	5	2440	3500	N	710	No
WIR	5	2440	1370	N	710	No
WIR	5	2440	2860	W	710	Yes
UF Passage	5	2440	600	W	710	Yes
UF Passage	5	2440	3420	N	710	Yes
UF Passage	4	2440	2470	W	600	Yes
Ensuite	5	2440	1495	E	710	Yes
Ensuite	6	2440	1696	S	600	Yes
Bathroom	6	2440	3000	E	602	Yes
WC	6	2440	1000	E	600	Yes

Internal wall *type*

Wall ID	Wall type	Area (m²)	Bulk insulation
1	NCC 2019 STANDARD - INT Plasterboard Stud Wall | R2.0 Insulation	45.7	Glass fibre batt: R2.0 (R2.0)
2	NCC 2019 STANDARD - INT Plasterboard Stud Wall | Uninsulated	136.5	

Floor *type*

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage	FLOOR - 85mm Concrete | 300mm Waffle	15.2	Enclosed	R0.0	none
Garage	FLOOR - 85mm Concrete | 300mm Waffle	18.2	Enclosed	R0.0	none
Entry	FLOOR - 85mm Concrete | 300mm Waffle	5.4	Enclosed	R0.0	Timber
Lounge	FLOOR - 85mm Concrete | 300mm Waffle	9.3	Enclosed	R0.0	Timber
Lounge	FLOOR - 85mm Concrete | 300mm Waffle	3.4	Enclosed	R0.0	Timber
GF Passage	FLOOR - 85mm Concrete | 300mm Waffle	14.5	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FLOOR - 85mm Concrete | 300mm Waffle	33.2	Enclosed	R0.0	Timber

Kitchen/Living/D-ining	FLOOR - 85mm Concrete | 300mm Waffle	3.4	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FLOOR - 85mm Concrete | 300mm Waffle	3	Enclosed	R0.0	Timber
WIP	FLOOR - 85mm Concrete | 300mm Waffle	2.3	Enclosed	R0.0	Timber
Powder	FLOOR - 85mm Concrete | 300mm Waffle	4.9	Enclosed	R0.0	Tiles
Laundry	FLOOR - 85mm Concrete | 300mm Waffle	6.1	Enclosed	R0.0	Tiles
Bedroom 3	FLOOR - Framed Suspended Floor | R2.0 Insulation	9.5	Enclosed	R2.0	Carpet
Bedroom 3	FLOOR - Framed Suspended Floor | R2.0 Insulation	1.2	Enclosed	R2.0	Carpet
Bedroom 3	FLOOR - Framed Suspended Floor | R2.0 Insulation	2	Enclosed	R2.0	Carpet
Bedroom 2	FLOOR - Framed Suspended Floor | R2.0 Insulation	9.9	Enclosed	R2.0	Carpet
Bedroom 2	FLOOR - Framed Suspended Floor | R2.0 Insulation	1.5	Enclosed	R2.0	Carpet
Bedroom 4	FLOOR - Framed Suspended Floor | R2.0 Insulation	8	Enclosed	R2.0	Carpet
Bedroom 4	FLOOR - Framed Suspended Floor | R2.0 Insulation	3	Enclosed	R2.0	Carpet
Bedroom 1	FLOOR - Framed Suspended Floor | R2.0 Insulation	1.8	Elevated	R2.0	Carpet
Bedroom 1	FLOOR - Framed Suspended Floor | R2.0 Insulation	0.5	Elevated	R2.0	Carpet
Bedroom 1	FLOOR - Framed Suspended Floor | R2.0 Insulation	12.1	Enclosed	R2.0	Carpet
Bedroom 1	FLOOR - Framed Suspended Floor | R2.0 Insulation	2.2	Enclosed	R2.0	Carpet
WIR	FLOOR - Framed Suspended Floor | R2.0 Insulation	1.1	Enclosed	R2.0	Carpet
WIR	FLOOR - Framed Suspended Floor | R2.0 Insulation	1.9	Enclosed	R2.0	Carpet
WIR	FLOOR - Framed Suspended Floor | R2.0 Insulation	0.1	Elevated	R2.0	Carpet
WIR	FLOOR - Framed Suspended Floor | R2.0 Insulation	0.7	Elevated	R2.0	Carpet
UF Passage	FLOOR - Framed Suspended Floor | R2.0 Insulation	15	Enclosed	R2.0	Carpet
UF Passage	FLOOR - Framed Suspended Floor | R2.0 Insulation	3.3	Enclosed	R2.0	Carpet
Ensuite	FLOOR - Framed Suspended Floor | R2.0 Insulation	3.6	Enclosed	R2.0	Tiles
Ensuite	FLOOR - Framed Suspended Floor | R2.0 Insulation	1.6	Enclosed	R2.0	Tiles
Bathroom	FLOOR - Framed Suspended Floor | R2.0 Insulation	3.9	Enclosed	R2.0	Tiles

Bathroom	FLOOR - Framed Suspended Floor | R2.0 Insulation	1.5	Enclosed	R2.0	Tiles
WC	FLOOR - Framed Suspended Floor | R2.0 Insulation	0.5	Enclosed	R2.0	Tiles
WC	FLOOR - Framed Suspended Floor | R2.0 Insulation	1.3	Enclosed	R2.0	Tiles

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	R0.0	Yes
Garage	FLOOR - Framed Suspended Floor | R2.0 Insulation	R2.0	No
Entry	FLOOR - Framed Suspended Floor | R2.0 Insulation	R2.0	No
Lounge	Plasterboard	R6.0	Yes
Lounge	Plasterboard	R3.5	Yes
GF Passage	FLOOR - Framed Suspended Floor | R2.0 Insulation	R2.0	No
Kitchen/Living/D-ining	FLOOR - Framed Suspended Floor | R2.0 Insulation	R2.0	No
Kitchen/Living/D-ining	Plasterboard	R3.5	Yes
Kitchen/Living/D-ining	Plasterboard	R6.0	Yes
WIP	FLOOR - Framed Suspended Floor | R2.0 Insulation	R2.0	No
Powder	FLOOR - Framed Suspended Floor | R2.0 Insulation	R2.0	No
Laundry	FLOOR - Framed Suspended Floor | R2.0 Insulation	R2.0	No
Bedroom 3	Plasterboard	R6.0	Yes
Bedroom 3	Plasterboard	R3.5	Yes
Bedroom 3	Plasterboard	R3.5	Yes
Bedroom 2	Plasterboard	R6.0	Yes
Bedroom 2	Plasterboard	R3.5	Yes
Bedroom 4	Plasterboard	R6.0	Yes
Bedroom 4	Plasterboard	R3.5	Yes
Bedroom 1	Plasterboard	R3.5	Yes
Bedroom 1	Plasterboard	R6.0	Yes
Bedroom 1	Plasterboard	R3.5	Yes
WIR	Plasterboard	R3.5	Yes
WIR	Plasterboard	R6.0	Yes
WIR	Plasterboard	R3.5	Yes
UF Passage	Plasterboard	R6.0	Yes
UF Passage	Plasterboard	R3.5	Yes
Ensuite	Plasterboard	R6.0	Yes
Ensuite	Plasterboard	R3.5	Yes
Bathroom	Plasterboard	R6.0	Yes
Bathroom	Plasterboard	R3.5	Yes

* Refer to glossary.

WC	Plasterboard	R3.5	Yes
WC	Plasterboard	R6.0	Yes

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Living/Dining	3	Downlights	100	Sealed
Kitchen/Living/Dining	1	Exhaust Fans	185	Sealed
Powder	2	Downlights	100	Sealed
Powder	1	Exhaust Fans	250	Sealed
Laundry	1	Downlights	100	Sealed
Laundry	1	Exhaust Fans	250	Sealed
Ensuite	2	Downlights	100	Sealed
Ensuite	1	Exhaust Fans	250	Sealed
Bathroom	2	Downlights	100	Sealed
Bathroom	1	Exhaust Fans	250	Sealed
WC	1	Downlights	100	Sealed
WC	1	Exhaust Fans	250	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Cont:Attic-Continuous	0.0	0.91	Dark

* Refer to glossary.

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 NatHERSAdministrator. 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).