Nationwide House Energy Rating Scheme
NatHERS Certificate No. #HR-A9EO3G-02

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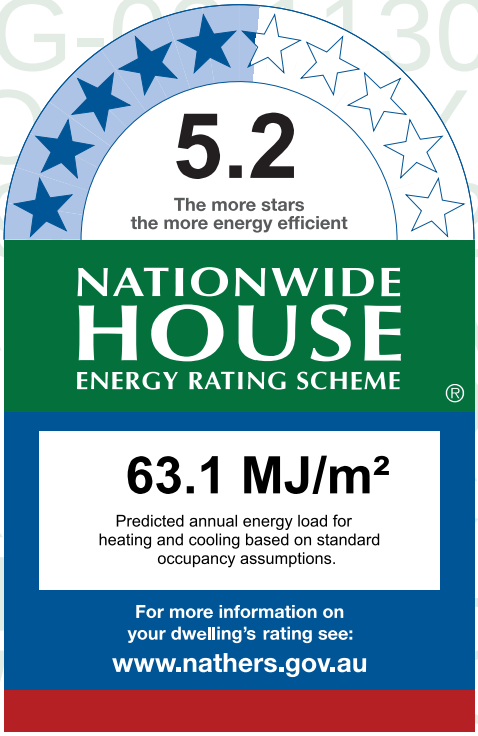

Property

Address	1130 Pittwater Road, Collaroy, NSW, 2097
Lot/DP	1/121939
NCC Class*	1a
Type	New

Plans

Main Plan	2-23-10
Prepared by	MA/JG

Construction and environment

Assessed floor area (m²)*		**Exposure Type**
Conditioned*	252.1	Exposed
Unconditioned*	7.1	**NatHERS climate zone**
Total	298.1	56 - Mascot AMO
Garage	38.9	

Thermal Performance

Heating	Cooling
37.8	**25.4**
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

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Accreditation No.	DMN/18/4423
Assessor Accrediting Organisation	DMN
Declaration of interest	No Conflict of Interest

Verification

To verify this certificate, scan the QR code or visit http://www.hero-software.com.au/pdf/HR-A9EO3G-02. When using either link, ensure you are visiting http://www.hero-software.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?

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
ALM-002-01 A	Aluminium B SG Clear	6.70	0.70	0.66	0.73
ALM-003-03 A	Aluminium A DG Air Fill High Solar Gain low-E -Clear	4.30	0.47	0.45	0.49
ALM-004-03 A	Aluminium B DG Air Fill High Solar Gain low-E -Clear	4.30	0.53	0.50	0.56

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*

* Refer to glossary.

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bath L3	ALM-003-03 A	W16	600	1430	Awning	90	N	None
Bedroom 1	ALM-004-03 A	D04&05	2800	3800	Sliding	45	W	None
Bedroom 1	ALM-004-03 A	W24	1100	3800	Fixed	0	W	None
Bedroom 2	ALM-004-03 A	W11	2200	1200	Fixed	0	E	None
Bedroom 3	ALM-004-03 A	W27	2700	600	Fixed	0	E	None
Bedroom 3	ALM-004-03 A	W14	2200	1200	Fixed	0	W	None
ENS	ALM-003-03 A	W23	700	900	Awning	10	S	None
ENS	ALM-004-03 A	W10	2800	900	Fixed	0	W	None
ENS Master	ALM-003-03 A	W17	700	1000	Awning	90	N	None
ENS Master	ALM-002-01 A	W19	2800	1000	Louvre	90	E	None
ENS Master	ALM-004-03 A	W18	2800	600	Fixed	0	E	None
Hall	ALM-004-03 A	W12&13	2600	2700	Fixed	0	N	None
Hall	ALM-003-03 A	W22	2000	1000	Awning	90	S	None
Hall	ALM-002-01 A	W21	2000	900	Louvre	90	S	None
Kitchen/Living	ALM-004-03 A	W08	2800	900	Fixed	0	S	None
Kitchen/Living	ALM-004-03 A	W09	2800	1300	Fixed	0	S	None
Kitchen/Living	ALM-003-03 A	D01	2800	950	Casement	90	W	None
Kitchen/Living	ALM-003-03 A	D02	2800	920	Casement	90	N	None
Kitchen/Living	ALM-004-03 A	W01	3000	750	Fixed	0	E	None
Kitchen/Living	ALM-004-03 A	W02	3000	1350	Fixed	0	N	None
Kitchen/Living	ALM-004-03 A	W03	3000	1350	Fixed	0	N	None
Kitchen/Living	ALM-004-03 A	W04	600	3000	Fixed	0	N	None
Kitchen/Living	ALM-004-03 A	W05	2800	900	Fixed	0	N	None
Kitchen/Living	ALM-004-03 A	W06	2800	900	Fixed	0	E	None
Kitchen/Living	ALM-004-03 A	D03	2800	5520	Sliding	45	E	None
Kitchen/Living	ALM-004-03 A	W07	2800	900	Fixed	0	E	None

* Refer to glossary.

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Master	ALM-004-03 A	D06	2700	4000	Sliding	45	E	None
Master	ALM-004-03 A	W25	1000	4000	Fixed	0	E	None

Roof window *type and performance value*

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
VEL-011-01 W	Velux FS - Fixed Skylight DG 3mm LoE 366 / 8.5mm Argon Gap / 5.36mm Clear La	2.58	0.24	0.23	0.25

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orient-ation	Outdoor shade	Indoor shade
Hall	VEL-011-01 W	SKYRW 01	0	1205	809	S	None	None
Hall	VEL-011-01 W	SKYRW 02	0	1223	782	S	None	None
Kitchen/Living	VEL-011-01 W	SKYRW 03	0	400	1150	N	None	None

Skylight *type and performance*

Skylight ID	Skylight description
None	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m^2)	Orient-ation	Outdoor shade	Diffuser	Shaft Reflectance
None								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
Garage	2800	5000	90	W

* Refer to glossary.

External wall *type*

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
CAV-BRICK-110-110-PB	Cavity Brick Wall - 110mm/110mm Plasterboard Internally	0.25	Light (White)	1.14	Yes
MC-NOCAV	Metal Clad Direct-Fix (No Cavity) Stud Wall	0.85	Dark	2.50	No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orient-ation	Horizontal shading feature* projection (mm)	Vertical shading feature
Bath L2	CAV-BRICK-110-110-PB	3000	1619	N		Yes
Bath L3	MC-NOCAV	2700	1821	N	1771	Yes
Bedroom 1	MC-NOCAV	3800	4521	W	800	Yes
Bedroom 1	MC-NOCAV	2700	4105	N	600	Yes
Bedroom 2	MC-NOCAV	2700	3114	N	672	Yes
Bedroom 2	MC-NOCAV	2700	2691	E		Yes
Bedroom 2	MC-NOCAV	2700	289	E		Yes
Bedroom 3	MC-NOCAV	2700	1662	E		Yes
Bedroom 3	MC-NOCAV	2700	3139	N		Yes
Bedroom 3	MC-NOCAV	2700	2487	W		Yes
ENS	MC-NOCAV	2700	3001	S	600	Yes
ENS	MC-NOCAV	3800	1700	W	800	Yes
ENS Master	MC-NOCAV	2700	6398	N	600	Yes
ENS Master	MC-NOCAV	3800	1682	E	1400	Yes
Garage	CAV-BRICK-110-110-PB	3000	6531	N		Yes
Garage	CAV-BRICK-110-110-PB	3000	6030	S	1200	Yes
Garage	CAV-BRICK-110-110-PB	3000	6061	W		Yes
Hall	MC-NOCAV	2700	3241	N		Yes
Hall	MC-NOCAV	2700	12701	S	600	Yes
Kitchen/Living	CAV-BRICK-110-110-PB	3000	17671	S		No
Kitchen/Living	CAV-BRICK-110-110-PB	3000	1229	W		Yes

* Refer to glossary.

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orient-ation	Horizontal shading feature* projection (mm)	Vertical shading feature
Kitchen/Living	CAV-BRICK-110-110-PB	3000	960	N		Yes
Kitchen/Living	CAV-BRICK-110-110-PB	3000	3099	E		Yes
Kitchen/Living	CAV-BRICK-110-110-PB	3000	3511	N		Yes
Kitchen/Living	CAV-BRICK-110-110-PB	3000	10682	N		Yes
Kitchen/Living	CAV-BRICK-110-110-PB	3000	7290	E	2854	Yes
Kitchen/Living	CAV-BRICK-110-110-PB	3000	408	W		Yes
Laundry	CAV-BRICK-110-110-PB	3000	1370	S		Yes
Master	MC-NOCAV	2700	4521	E	1401	Yes
Master	MC-NOCAV	2700	1348	N	600	Yes
Master	MC-NOCAV	2700	1171	W		Yes
Master	MC-NOCAV	2700	7870	S		Yes
Pantry	CAV-BRICK-110-110-PB	3000	1659	N		Yes
Pantry	CAV-BRICK-110-110-PB	3000	2581	W		Yes

Internal wall *type*

Wall ID	Wall Type	Area (m^2)	Bulk insulation
INT-PB	Internal Plasterboard Stud Wall	114.0	0.00
INT-PB-EXP1	Internal Plasterboard Stud Wall (exposed 1 side)	30.3	2.50
SGL-BRICK-110-REND	Single 110mm Brick Wall - Rendered Both Sides	47.7	0.00

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bath L2	CSOG-100: Concrete Slab on Ground (100mm)	4.2	N/A	0.00	Tile
Bath L3	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	7.1	N/A	0.00	Tile
Bedroom 1	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	19.0	N/A	4.00	Timber
Bedroom 1	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	0.1	N/A	0.00	Timber

* Refer to glossary.

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 2	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	13.0	N/A	0.00	Timber
Bedroom 2	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	1.1	N/A	4.00	Timber
Bedroom 3	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	15.0	N/A	0.00	Timber
ENS	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	2.8	N/A	4.00	Tile
ENS	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	2.3	N/A	1.10	Tile
ENS Master	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	9.9	N/A	0.00	Tile
ENS Master	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	0.9	N/A	1.10	Tile
Garage	CSOG-100: Concrete Slab on Ground (100mm)	38.9	N/A	0.00	Exposed
Hall	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	27.0	N/A	0.00	Timber
Kitchen/Living	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	5.7	Enclosed (Disc.)	1.10	Timber
Kitchen/Living	CSOG-100: Concrete Slab on Ground (100mm)	103.1	N/A	0.00	Timber
Laundry	CSOG-100: Concrete Slab on Ground (100mm)	5.8	N/A	0.00	Tile
Master	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	35.6	N/A	0.00	Timber
Master	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	2.4	N/A	1.10	Timber
Pantry	CSOG-100: Concrete Slab on Ground (100mm)	4.3	N/A	0.00	Stone

Ceiling *type*

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Bath L2	SLAB-100-CEIL-01: Concrete Slab (100mm) with Suspended PB Ceiling	0.00	No
Bath L3	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	4.00	Yes
Bedroom 1	FLAT-02: Flat Framed / Skillion Metal Roof & Cathedral PB Ceiling (11°-33°)	2.50	Yes
Bedroom 2	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	4.00	Yes
Bedroom 3	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	4.00	Yes
ENS	FLAT-02: Flat Framed / Skillion Metal Roof & Cathedral PB Ceiling (11°-33°)	2.50	Yes
ENS Master	FLAT-02: Flat Framed / Skillion Metal Roof & Cathedral PB Ceiling (11°-33°)	2.50	Yes

* Refer to glossary.

Ceiling *type*

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Garage	SLAB-100-CEIL-01: Concrete Slab (100mm) with Suspended PB Ceiling	0.00	No
Hall	FLAT-02: Flat Framed / Skillion Metal Roof & Cathedral PB Ceiling (11°-33°)	2.50	Yes
Kitchen/Living	SLAB-100-CEIL-01: Concrete Slab (100mm) with Suspended PB Ceiling	0.00	No
Master	FLAT-02: Flat Framed / Skillion Metal Roof & Cathedral PB Ceiling (11°-33°)	2.50	Yes
Pantry	SLAB-100-CEIL-01: Concrete Slab (100mm) with Suspended PB Ceiling	0.00	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bath L2	1	Exhaust Fan	250	Sealed
Bath L2	2	Downlight	150	Sealed
Bath L3	1	Exhaust Fan	250	Sealed
Bath L3	3	Downlight	150	Sealed
Bedroom 1	8	Downlight	150	Sealed
Bedroom 2	6	Downlight	150	Sealed
Bedroom 3	6	Downlight	150	Sealed
ENS	1	Exhaust Fan	250	Sealed
ENS	3	Downlight	150	Sealed
ENS Master	1	Exhaust Fan	250	Sealed
ENS Master	5	Downlight	150	Sealed
Garage	16	Downlight	150	Sealed
Hall	13	Downlight	150	Sealed
Kitchen/Living	1	Exhaust Fan	250	Sealed
Kitchen/Living	44	Downlight	150	Sealed
Laundry	3	Downlight	150	Sealed
Master	19	Downlight	150	Sealed
Pantry	2	Downlight	150	Sealed

* Refer to glossary.

Ceiling *fans*

Location	Quantity	Diameter (mm)
Kitchen/Living	1	1200

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof Colour
ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	1.30	0.85	Dark
FLAT-02: Flat Framed / Skillion Metal Roof & Cathedral PB Ceiling (11°-33°)	1.30	0.85	Dark
SLAB-100-CEIL-01: Concrete Slab (100mm) with Suspended PB Ceiling	4.10	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 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).

* Refer to glossary.