Nationwide House Energy Rating Scheme
NatHERS Certificate No. PKDWYM2ACH

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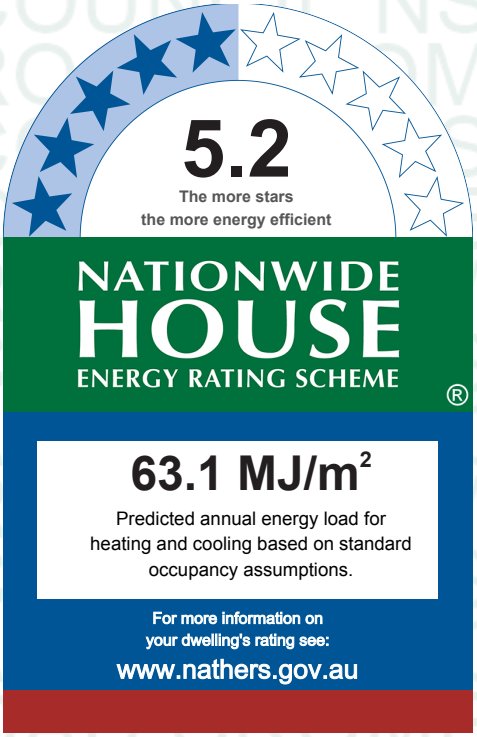

Property

Address	Lot 2 (#50) Carawa Road CROMER, Northern Beaches Council, NSW, 2099
Lot/DP	2/11799
NCC Class*	Class 1a
Type	New Home

Plans

Main plan	716255
Prepared by	Metricon Homes

Construction and environment

Assessed floor area (m²)*	
Conditioned*	245.4
Unconditioned*	63.2
Total	308.6
Garage	37

Exposure type
suburban

NatHERS climate zone
56, Northern Beaches Council

Thermal performance

Heating	**Cooling**
37.3 MJ/m²	**25.8** 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=PKDWYM2ACH 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.

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

BCA Climate Zone 5

Please note, a non-reflective vapour permeable wall wrap has been modelled throughout the external walls of this dwelling

Perimeter insulation has not been included in the modelling of this dwelling

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
TIM-001-01 W	Timber A SG Clear	5.4	0.56	0.53	0.59
TIM-002-01 W	Timber B SG Clear	5.4	0.63	0.6	0.66

Custom* windows

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
A&L-001-04 A	Al Awning SG 4Clr	5.79	0.65	0.62	0.68
A&L-025-04 A	Al Boutique Fixed Lite Window SG 4Clr	5.69	0.75	0.71	0.79
A&L-003-04 A	Al Sliding Window SG 4Clr	6.11	0.76	0.72	0.8

* Refer to glossary.

A&L-012-04 A	Al Sliding Door SG 4Clr	6.09	0.72	0.68	0.76	

Window and glazed door *Schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Study/Guest Bed	A&L-001-04 A	Opening 37	1800	1200	awning	90.0	S	No
Study/Guest Bed	A&L-001-04 A	Opening 36	1800	600	awning	90.0	S	No
Sitting	A&L-025-04 A	Opening 40	500	2700	fixed	0.0	W	No
Ensuite 2	A&L-003-04 A	Opening 38	1800	1200	sliding	30.0	E	No
Laundry	TIM-001-01 W	Opening 44	2110	900	casement	90.0	E	No
Butler's Pantry	A&L-025-04 A	Opening 43	686	1450	fixed	0.0	E	No
Entry	TIM-002-01 W	Opening 34	2455	305	fixed	0.0	S	No
Entry	TIM-002-01 W	Opening 35	2455	305	fixed	0.0	S	No
Entry Passage	A&L-025-04 A	Opening 49	670	600	fixed	0.0	E	No
Kitchen/Family/-Dining	A&L-012-04 A	Opening 45	2370	2997	sliding	60.0	N	No
Kitchen/Family/-Dining	A&L-012-04 A	Opening 46	2370	2394	sliding	60.0	W	No
Kitchen/Family/-Dining	A&L-012-04 A	Opening 47	2370	3573	sliding	60.0	N	No
Kitchen/Family/-Dining	A&L-012-04 A	Opening 48	2370	2690	sliding	30.0	W	No
Kitchen/Family/-Dining	A&L-025-04 A	Opening 39	500	2200	fixed	0.0	E	No
Kitchen/Family/-Dining	A&L-025-04 A	Opening 42	686	2710	fixed	0.0	E	No
Garage	A&L-025-04 A	Opening 41	500	2700	fixed	0.0	W	No
Bedroom 1	A&L-001-04 A	Opening 9	1500	2400	awning	45.0	S	No
Bedroom 1	A&L-001-04 A	Opening 10	1500	600	awning	90.0	S	No
Bedroom 2	A&L-003-04 A	Opening 16	1200	1800	sliding	45.0	E	No
Bedroom 3	A&L-003-04 A	Opening 15	1200	1800	sliding	45.0	N	No
Bedroom 3	A&L-001-04 A	Opening 11	1200	850	awning	90.0	E	No
Bedroom 4	A&L-003-04 A	Opening 14	1200	1800	sliding	45.0	N	No
Bedroom 4	A&L-001-04 A	Opening 12	1200	850	awning	90.0	W	No
Leisure	A&L-001-04 A	Opening 8	500	2400	awning	90.0	S	No
Leisure	A&L-025-04 A	Opening 18	2330	600	fixed	0.0	E	No
Leisure	A&L-025-04 A	Opening 19	500	2400	fixed	0.0	W	No
Ensuite 1	A&L-003-04 A	Opening 17	1200	1800	sliding	45.0	E	No
Bath	A&L-003-04 A	Opening 13	300	1450	sliding	45.0	W	No

Roof window *type and performance value*

Default* roof windows

Substitution tolerance ranges

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

Custom* roof windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges: SHGC lower limit	Substitution tolerance ranges: 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*

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
Entry	2455	1200	100.0	S
Garage	2110	900	100.0	N
Garage	2236	4810	100.0	S

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	VAPOUR - Hebel Panel (Render) - R2.0 Batts + VP Wrap	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No
2	STANDARD - Hebel Panel Construction (Rendered) -Uninsulated	0.5	Medium		No
3	VAPOUR - Framed Slim (Generic) - R2.0 Batts + VP Wrap	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Study/Guest Bed	1	2550	720	W	2400	Yes
Study/Guest Bed	1	2550	1762	S	600	Yes
Study/Guest Bed	1	2550	464	S	0	No

* Refer to glossary.

Study/Guest Bed	1	2550	1482	S	0	Yes
Study/Guest Bed	1	2550	4216	E	0	No
Sitting	1	3238	4550	W	635	Yes
Ensuite 2	1	2550	601	N	0	Yes
Ensuite 2	1	2550	2637	E	0	No
Laundry	1	3238	601	S	0	Yes
Laundry	1	3238	1727	E	635	No
Butler's Pantry	1	3238	1974	E	635	No
Entry	1	2550	2307	S	1320	Yes
Entry Passage	1	3238	2226	E	0	Yes
Kitchen/Family/Dining	1	3238	5255	N	635	No
Kitchen/Family/Dining	1	3238	3254	W	5320	Yes
Kitchen/Family/Dining	1	3238	4681	N	3890	Yes
Kitchen/Family/Dining	1	3238	4813	W	635	Yes
Kitchen/Family/Dining	1	3238	6550	E	635	No
Garage	2	2625	2167	N	0	Yes
Garage	2	2625	6269	W	0	No
Garage	2	2625	5905	S	1320	Yes
Bedroom 1	3	2550	4930	W	730	Yes
Bedroom 1	1	2550	1200	W	640	Yes
Bedroom 1	1	2550	4425	S	640	No
Bedroom 1	1	2550	597	E	643	Yes
Bedroom 1	1	480	1681	S	635	Yes
Bedroom 1	3	2070	1681	S	730	Yes
Bedroom 1	1	480	4500	E	635	No
Bedroom 1	3	2070	4500	E	730	No
Bedroom 2	1	480	601	S	9995	Yes
Bedroom 2	3	2070	601	S	10090	Yes
Bedroom 2	1	480	3200	E	635	No
Bedroom 2	3	2070	3200	E	730	No
Bedroom 3	3	2550	5093	N	730	No
Bedroom 3	1	480	3903	E	635	No
Bedroom 3	3	2070	3903	E	730	No
Bedroom 4	3	2550	4756	N	730	No
Bedroom 4	1	480	3903	W	635	No
Bedroom 4	3	2070	3903	W	730	No
Leisure	3	2550	3831	S	730	Yes
Leisure	3	2550	1461	W	730	Yes
Leisure	3	2550	617	E	1330	Yes
Leisure	1	480	3408	W	635	No
Leisure	3	2070	3408	W	730	No

Leisure	1	480	802	E	1236	Yes
Leisure	3	2070	802	E	1331	Yes
Leisure	1	480	812	E	1236	Yes
Leisure	3	2070	812	E	1331	Yes
Ensuite 1	1	480	600	N	10236	Yes
Ensuite 1	3	2070	600	N	10331	Yes
Ensuite 1	1	480	2358	E	638	No
Ensuite 1	3	2070	2358	E	733	No
Bath	1	480	1981	W	635	No
Bath	3	2070	1981	W	730	No

Internal wall *type*

Wall ID	Wall type	Area (m²)	Bulk insulation
1	STANDARD - Internal Stud Walls	245.9	
2	STANDARD - Internal Stud Walls -R2.0 Batts	25.5	Glass fibre batt: R2.0 (R2.0)

Floor *type*

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Study/Guest Bed	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	14.9	Enclosed	R0.0	Carpet
Sitting	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	19.5	Enclosed	R0.0	Carpet
Ensuite 2	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	8.3	Enclosed	R0.0	Tiles
Ensuite 2 WC	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	1.5	Enclosed	R0.0	Tiles
Laundry	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	6.9	Enclosed	R0.0	Tiles
WIL	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	1.8	Enclosed	R0.0	Tiles
Butler's Pantry	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	4.7	Enclosed	R0.0	Tiles
Entry	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	14.8	Enclosed	R0.0	Tiles
Entry Passage	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	15.5	Enclosed	R0.0	Tiles
Kitchen/Family/D-ining	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	42.2	Enclosed	R0.0	Tiles
Kitchen/Family/D-ining	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	17	Enclosed	R0.0	Tiles
Garage	FR5 - 225mm waffle pod, 85mm concrete (R0.60)	37	Enclosed	R0.0	none
Bedroom 1	FLOOR - Framed External Suspended Floor (uninsulated)	4.3	Elevated	R0.0	Carpet
Bedroom 1	FLOOR - Framed Internal Suspended Floor (uninsulated)	27.1	Enclosed	R0.0	Carpet
Bedroom 2	FLOOR - Framed Internal Suspended Floor (uninsulated)	13.6	Enclosed	R0.0	Carpet
Bedroom 3	FLOOR - Framed Internal Suspended Floor (uninsulated)	18.9	Enclosed	R0.0	Carpet
Bedroom 4	FLOOR - Framed Internal Suspended Floor (uninsulated)	17.6	Enclosed	R0.0	Carpet
Leisure	FLOOR - Framed Internal Suspended Floor (uninsulated)	34.6	Enclosed	R0.0	Carpet

Ensuite 1	FLOOR - Framed Internal Suspended Floor (uninsulated)	9.5	Enclosed	R0.0	Tiles
Ensuite 1 WC	FLOOR - Framed Internal Suspended Floor (uninsulated)	1.4	Enclosed	R0.0	Tiles
Bath	FLOOR - Framed Internal Suspended Floor (uninsulated)	7.7	Enclosed	R0.0	Tiles

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Study/Guest Bed	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Sitting	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Ensuite 2	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Ensuite 2 WC	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Laundry	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
WIL	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Butler's Pantry	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Entry	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Entry Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Kitchen/Family/D-ining	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Kitchen/Family/D-ining	Plasterboard	R4.1	Yes
Garage	Plasterboard	R0.0	Yes
Bedroom 1	Plasterboard	R4.1	Yes
Bedroom 1	Plasterboard	R4.1	Yes
Bedroom 2	Plasterboard	R4.1	Yes
Bedroom 3	Plasterboard	R4.1	Yes
Bedroom 4	Plasterboard	R4.1	Yes
Leisure	Plasterboard	R4.1	Yes
Ensuite 1	Plasterboard	R4.1	Yes
Ensuite 1 WC	Plasterboard	R4.1	Yes
Bath	Plasterboard	R4.1	Yes

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Ensuite 2	1	Exhaust Fans	250	Sealed

* Refer to glossary.

Ensuite 2 WC	1	Exhaust Fans	250	Sealed
Kitchen/Family/Dining	1	Exhaust Fans	185	Sealed
Ensuite 1	1	Exhaust Fans	250	Sealed
Ensuite 1 WC	1	Exhaust Fans	250	Sealed
Bath	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	0.9	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 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).