Nationwide House Energy Rating Scheme
NatHERS Certificate No. 5EECCO7ZAL

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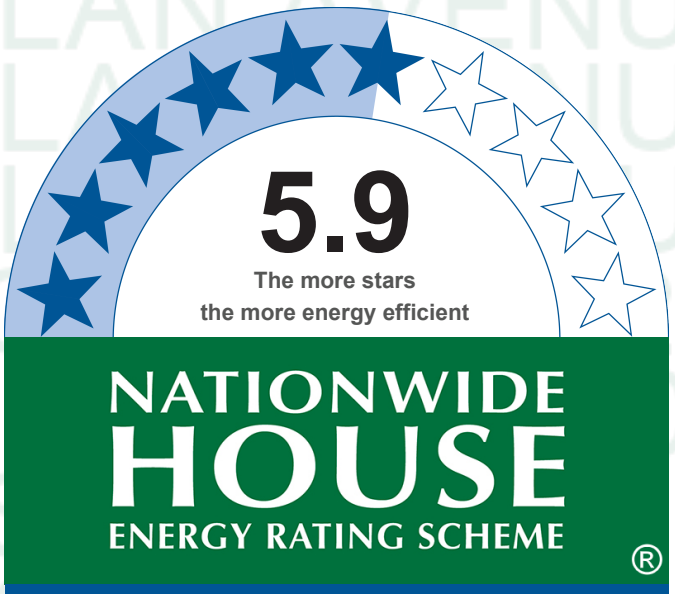

Property

Address	8 Alan Avenue, Seaforth, NSW, 2092
Lot/DP	8/DP1197324
NCC Class*	Class 1a
Type	New Home

Plans

Main plan	2020/21-02
Prepared by	JR

Construction and environment

Assessed floor area (m²)*	
Conditioned*	263.8
Unconditioned*	33.1
Total	346.2
Garage	49.3

Exposure type
suburban

NatHERS climate zone
56, Seaforth

Thermal performance

Heating	**Cooling**
29.8 MJ/m²	**23.3** 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	Trish Campbell
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Phone	0412587507
Accreditation No.	32313
Assessor Accrediting Organisation	ABSA
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=5EECCO7ZAL 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?

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

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
PVC-006-03 W	uPVC B DG Argon Fill High Solar Gain low-E -Clear	2	0.31	0.29	0.33
PVC-005-03 W	uPVC 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***
Kitchen/Dining/-Living	PVC-006-03 W	Opening 16	2600	3970	fixed	0.0	NW	No

Kitchen/Dining/-Living	PVC-006-03 W	Opening 30	600	3970	awning	90.0	NW	No
Kitchen/Dining/-Living	PVC-006-03 W	Opening 18	900	3790	fixed	0.0	SW	No
Kitchen/Dining/-Living	PVC-006-03 W	Opening 24	3000	2841	sliding	40.0	SE	No
Kitchen/Dining/-Living	PVC-006-03 W	Opening 25	3200	1450	fixed	0.0	NE	No
Kitchen/Dining/-Living	PVC-006-03 W	Opening 15	2600	3970	sliding	20.0	NW	No
Kitchen/Dining/-Living	PVC-006-03 W	Opening 29	600	3970	fixed	0.0	NW	No
Kitchen/Dining/-Living	PVC-006-03 W	Opening 14	2600	4487	sliding	45.0	NE	No
Kitchen/Dining/-Living	PVC-006-03 W	Opening 58	600	4487	fixed	0.0	NE	No
Hall	PVC-006-03 W	Opening 23	2600	4090	fixed	0.0	NE	No
Hall	PVC-006-03 W	Opening 59	2600	4090	awning	90.0	NE	No
Pantry	PVC-006-03 W	Opening 19	900	1700	fixed	0.0	SW	No
Mud	PVC-006-03 W	Opening 57	600	970	awning	100.0	SW	No
Entry	PVC-006-03 W	Opening 28	2700	300	fixed	0.0	SE	No
Media	PVC-006-03 W	Opening 22	1800	2950	fixed	0.0	NW	No
Media	PVC-005-03 W	Opening 31	2100	920	casement	100.0	NE	No
Media	PVC-006-03 W	Opening 32	600	920	fixed	0.0	NE	No
Guest	PVC-006-03 W	Opening 20	1800	850	other	90.0	NE	No
Guest	PVC-006-03 W	Opening 21	1800	850	other	90.0	NE	No
Study	PVC-006-03 W	Opening 3	1800	1570	other	90.0	NW	No
Study	PVC-005-03 W	Opening 5	2100	1561	casement	30.0	SE	No
Study	PVC-006-03 W	Opening 4	1800	850	fixed	0.0	NE	No
Master Bed	PVC-006-03 W	Opening 2	1800	2650	other	90.0	NW	No
Ensuite	PVC-006-03 W	Opening 1	1800	1450	other	90.0	NW	No
Landing	PVC-006-03 W	Opening 6	2700	4090	fixed	0.0	NE	No
Bath (Kids)	PVC-006-03 W	Opening 13	700	2410	awning	90.0	SW	No
Bath (kids)	PVC-006-03 W	Opening 12	700	1810	awning	90.0	SW	No
Bed 4	PVC-006-03 W	Opening 11	1800	1810	other	90.0	SE	No
Bed 3	PVC-006-03 W	Opening 10	1800	1810	other	90.0	SE	No
Bed 2	PVC-005-03 W	Opening 7	2100	1570	casement	30.0	NW	No
Bed 2	PVC-006-03 W	Opening 8	1800	850	other	90.0	NE	No
Bed 2	PVC-006-03 W	Opening 9	1800	850	other	90.0	NE	No

Roof window *type and performance value*

Default* roof windows

Substitution tolerance ranges

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

Custom* roof windows

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
Velux: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 %	Area (m²)	Orientation	Outdoor shade	Indoor shade
WIR	Velux:VEL-011-01 W	Element 1	0.0	0.8	SE	None	None
WIR	Velux:VEL-011-01 W	Element 2	0.0	0.8	SE	None	None

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
Mud	2100	970	100.0	SW
Garage	2700	5900	100.0	SE
Entry	2700	1200	100.0	SE

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	FC - Fibro clad with R4 Batt	0.5	Medium	Rockwool batt: R4.0 (R4.0)	No
2	FR5 - Internal Plasterboard Stud Wall	0.5	Medium		No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Dining/Living	1	3200	5539	NW	900	Yes
Kitchen/Dining/Living	1	3200	10114	SW	0	No
Kitchen/Dining/Living	1	3200	3213	SE	0	Yes
Kitchen/Dining/Living	1	3200	4795	NE	900	Yes

* Refer to glossary.

Kitchen/Dining/Living	1	3200	4972	NW	5369	No
Kitchen/Dining/Living	1	3200	4739	NE	5249	Yes
Hall	1	3200	5593	NE	0	Yes
Pantry	1	3200	1681	SW	0	Yes
Laundry	1	3200	2930	SW	0	Yes
Mud	1	3200	1702	SW	0	Yes
Garage	1	2700	533	NW	0	Yes
Garage	1	2700	7984	SW	0	No
Garage	1	2700	6066	SE	900	No
Garage	1	2700	2453	NE	7471	Yes
Entry	2	500	1470	NW	0	No
Entry	1	3200	1586	SE	3425	Yes
Media	1	2700	5170	NW	0	Yes
Media	1	2700	4933	NE	900	Yes
Guest	1	2700	3193	SE	900	No
Guest	1	2700	4345	NE	900	No
Bath	1	2700	2253	SW	7897	Yes
Bath	1	2700	1765	SE	1111	No
Study	1	2700	2001	NW	900	No
Study	1	2700	3093	SE	0	Yes
Study	1	2700	4784	NE	888	No
Master Bed	1	2700	4048	NW	900	No
WIR	1	2700	2489	SW	900	No
Ensuite	1	2700	3225	NW	1005	No
Ensuite	1	2700	2204	SW	925	No
WC	1	2700	1707	SW	911	No
Landing	1	2700	5691	NE	4106	Yes
Bath (Kids)	1	2700	2690	SW	884	No
Bath (kids)	1	2700	2434	SW	899	No
Bed 4	1	2700	3904	SW	891	No
Bed 4	1	2700	3153	SE	945	No
Bed 3	1	2700	3087	SE	900	No
Bed 2	1	2700	3087	NW	0	Yes
Bed 2	1	2700	3087	SE	900	No
Bed 2	1	2700	5382	NE	900	No

Internal wall *type*

Wall ID	Wall type	Area (m²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	239.4	
2	FR5 - Internal Plasterboard Stud Wall	82.4	Rockwool batt: R2.0 (R2.0)

Floor *type*

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Dining/L-iving	FR5 - CSOG: Slab on Ground	48.9	Enclosed	R2.5	Tiles
Kitchen/Dining/L-iving	FR5 - CSOG: Slab on Ground	30.7	Enclosed	R2.5	Tiles
Powder	FR5 - CSOG: Slab on Ground	3.4	Enclosed	R2.5	Tiles
Hall	FR5 - CSOG: Slab on Ground	15.6	Enclosed	R2.5	Tiles
Pantry	FR5 - CSOG: Slab on Ground	1.5	Enclosed	R2.5	Tiles
Pantry	FR5 - CSOG: Slab on Ground	6.1	Enclosed	R2.5	Tiles
Laundry	FR5 - CSOG: Slab on Ground	2.6	Enclosed	R2.5	Tiles
Laundry	FR5 - CSOG: Slab on Ground	6.6	Enclosed	R2.5	Tiles
Mud	FR5 - CSOG: Slab on Ground	1.6	Enclosed	R2.5	Tiles
Mud	FR5 - CSOG: Slab on Ground	7.4	Enclosed	R2.5	Tiles
Garage	FR5 - CSOG: Slab on Ground	30.4	Enclosed	R2.5	Timber
Garage	FR5 - CSOG: Slab on Ground	18.7	Enclosed	R2.5	Timber
Entry	FR5 - CSOG: Slab on Ground	6.7	Enclosed	R2.5	Tiles
Entry	FR5 - CSOG: Slab on Ground	3.1	Enclosed	R2.5	Tiles
Media	FR5 - CSOG: Slab on Ground	15.8	Enclosed	R2.5	Tiles
Media	FR5 - CSOG: Slab on Ground	9.7	Enclosed	R2.5	Tiles
Guest	FR5 - CSOG: Slab on Ground	0.5	Enclosed	R2.5	Timber
Guest	FR5 - CSOG: Slab on Ground	13.3	Enclosed	R2.5	Carpet
Hall	FR5 - CSOG: Slab on Ground	1.6	Enclosed	R2.5	Tiles
Hall	FR5 - CSOG: Slab on Ground	0.7	Enclosed	R2.5	Tiles
Bath	FR5 - CSOG: Slab on Ground	4.8	Enclosed	R2.5	Tiles
Study	FR5 - Timber Lined	10.8	Enclosed	R0.0	Carpet
Master Bed	FR5 - Timber Lined	16.1	Enclosed	R0.0	Carpet
WIR	FR5 - Timber Lined	10.6	Enclosed	R0.0	Carpet
Ensuite	FR5 - Timber Lined	10.7	Enclosed	R0.0	Tiles
WC	FR5 - Timber Lined	2	Enclosed	R0.0	Tiles
Landing	FR5 - Timber Lined	24.7	Enclosed	R0.0	Tiles
Bath (Kids)	FR5 - Timber Lined	4.2	Enclosed	R0.0	Tiles
WC	FR5 - Timber Lined	1.4	Enclosed	R0.0	Tiles
Bath (kids)	FR5 - Timber Lined	3.9	Enclosed	R0.0	Tiles
Bed 4	FR5 - Timber Lined	12.8	Enclosed	R2.0	Carpet
Bed 3	FR5 - Timber Lined	13.4	Enclosed	R2.0	Carpet
Bed 2	FR5 - Timber Lined	16.7	Enclosed	R0.0	Carpet

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Dining/L-iving	FR5 - Timber Lined	R0.0	No

Kitchen/Dining/L-iving	Plasterboard	R6.3	No
Powder	FR5 - Timber Lined	R0.0	No
Hall	FR5 - Timber Lined	R0.0	No
Hall	FR5 - Timber Lined	R2.0	No
Pantry	Plasterboard	R6.3	No
Pantry	FR5 - Timber Lined	R0.0	No
Laundry	Plasterboard	R6.3	No
Laundry	FR5 - Timber Lined	R0.0	No
Mud	Plasterboard	R6.3	No
Mud	FR5 - Timber Lined	R0.0	No
Mud	FR5 - Timber Lined	R2.0	No
Garage	Plasterboard	R6.3	No
Garage	FR5 - Timber Lined	R0.0	No
Garage	FR5 - Timber Lined	R2.0	No
Entry	FR5 - Timber Lined	R2.0	No
Entry	FR5 - Timber Lined	R0.0	No
Entry	Plasterboard	R6.3	No
Media	FR5 - Timber Lined	R0.0	No
Media	Plasterboard	R6.3	No
Guest	FR5 - Timber Lined	R0.0	No
Guest	Plasterboard	R6.3	No
Hall	Plasterboard	R6.3	No
Hall	FR5 - Timber Lined	R0.0	No
Bath	Plasterboard	R6.3	No
Study	Plasterboard	R6.3	No
Master Bed	Plasterboard	R6.3	No
WIR	Plasterboard	R6.3	No
Ensuite	Plasterboard	R6.3	No
WC	Plasterboard	R6.3	No
Landing	Plasterboard	R6.3	No
Bath (Kids)	Plasterboard	R6.3	No
WC	Plasterboard	R6.3	No
Bath (kids)	Plasterboard	R6.3	No
Bed 4	Plasterboard	R6.3	No
Bed 3	Plasterboard	R6.3	No
Bed 2	Plasterboard	R6.3	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Dining/Living	1	Exhaust Fans	200	Sealed
Kitchen/Dining/Living	1	Chimneys	200	Sealed

* Refer to glossary.

Powder	1	Exhaust Fans	200	Sealed
Bath	1	Exhaust Fans	200	Sealed
Ensuite	1	Exhaust Fans	200	Sealed
Bath (Kids)	1	Exhaust Fans	200	Sealed
WC	1	Exhaust Fans	200	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Framed:Flat - Flat Framed (Metal Deck)	0.0	0.5	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 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).