

# Nationwide House Energy Rating Scheme®

## NatHERS® Certificate No. #HR-KN8GFH-02

Generated on 27 Mar 2025 using Hero 4.1 (Chenath v3.23)

### Property

**Address** 100 Hilltop Road, AVALON BEACH,  
NSW, 2107

**Lot/DP** LOT 2 DP 260241

**NCC Class\*** 1a

**Floor/all Floors** 1 of 4 floors

**Type** New

### Plans

**Main Plan** 14.06.2024

**Prepared by** OLIVER KEVEANEY

### Construction and environment

<b>Assessed floor area (m²)*</b>	<b>Exposure Type</b>
<b>Conditioned*</b> 257.4	Open
<b>Unconditioned*</b> 16.2	<b>NatHERS climate zone</b>
<b>Total</b> 328.0	56 - Mascot AMO
<b>Garage</b> 54.4	



### Accredited assessor

**Name** Adam Clarke

**Business name** 10 Star Building Assessments

**Email** admin@10sba.com

**Phone** +61 481010999

**Accreditation No.** 101518

**Assessor Accrediting Organisation** ABSA

**Declaration of interest** No Conflict of Interest

### NCC Requirements

**BCA provisions** Volume 2

**State/Territory variation** Yes

#### National Construction Code (NCC) requirements

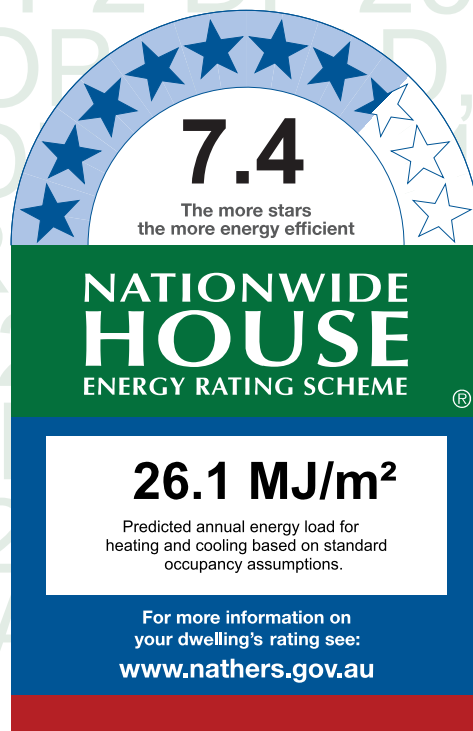
The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J2D2(2)(a) and (3) of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at [www.abcb.gov.au](http://www.abcb.gov.au).

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

### Thermal performance star rating



### Thermal performance (MJ/m²)

Limits taken from ABCB Standard 2022

	Heating	Cooling
<b>Modelled</b>	17.7	8.3
<b>Load limits</b>	25	18

#### Features determining load limits

Floor type	
(lowest conditioned area)	CSOG
NCC climate zone 1 or 2	N
Outdoor living area	N
Outdoor living area ceiling fan N	

### Whole of Home performance rating

No Whole of Home  
performance rating  
generated for this  
certificate.

### Verification

To verify this certificate, scan  
the QR code or visit

<http://www.hero-software.com.au/pdf/HR-KN8GFH-02>

When using either link,  
ensure you are visiting  
<http://www.hero-software.com.au>



\* Refer to glossary.

## About the ratings

### Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

### Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value\* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

## Heating and Cooling Load Limits

### Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the *ABCB Standard: NatHERS heating and cooling load limits* for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

### Setting options:

Floor type:

- CSOG - Concrete Slab on Ground
- SF - Suspended Floor (or a mixture of CSOG and SF)
- NA - Not Applicable

NCC climate Zone 1 or 2:

- Yes
- No
- NA - Not Applicable

Outdoor living area:

- Yes
- No
- NA - Not Applicable

Outdoor living area ceiling fan:

- Yes
- No
- NA - Not Applicable



## Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

## Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar.

### Energy use:

No Whole of Home performance assessment conducted for this certificate.

### Greenhouse gas emissions:

No Whole of Home performance assessment conducted for this certificate.

### Cost:

No Whole of Home performance assessment conducted for this certificate.

## Certificate check

The checklist covers important items impacting the dwelling's ratings.

It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.

It is not mandatory to complete this checklist.

Approval stage		Construction stage		
Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other

### Genuine certificate check

Does this Certificate match the one available at the web address or QR code verification link on the front page?

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Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate?

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### Thermal performance check

#### Windows and glazed doors

Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in 'Window and glazed door schedule' and 'Roof window schedule' tables on this Certificate?

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Does the installed windows meet the substitution tolerances (AFRC\* based SHGC\* and U-values\*) as shown in the 'Window and glazed door type and performance' and 'Roof window type and performance' tables on this Certificate?

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#### External walls

Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the 'External wall type table' on this Certificate?

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Does the external wall shade (colour) match what is shown in the 'External wall type' table on this Certificate?

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#### Floor

Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Floor type' table on this certificate?

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#### Ceiling penetrations\*

Does the 'quantity' and 'type' of ceiling penetrations\* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Ceiling penetrations' table on this Certificate?

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#### Ceiling

Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Ceiling type' table on this Certificate?

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#### Roof

Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the 'Roof type' table on this Certificate?

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#### Apartment entrance doors (NCC Class 2 assessments only)

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.

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#### Exposure\*

Has the appropriate exposure type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".

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#### Heating and cooling load limits\*

Do the load limits settings (shown on page 1) match what is shown on the NatHERS-stamped plans?

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\* Refer to glossary.

## Certificate check

Continued

Approval stage		Construction stage		
Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other

### Additional NCC requirements for thermal performance (not included in the NatHERS assessment)

#### Thermal bridging

Does the dwelling meet the NCC requirement for thermal bridging?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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#### Insulation installation method

Has the insulation been installed according to the NCC requirements?			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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#### Building sealing

Does the dwelling meet the NCC requirements for Building Sealing?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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### Whole of Home performance check (not applicable if a Whole of Home assessment is not conducted)

#### Appliances

Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed, match the location and minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the 'Onsite Renewable Energy schedule' on this Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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### Additional NCC Requirements for Services (not included in the NatHERS assessment)

Does the lighting meet the artificial lighting requirements specified in the NCC?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Does the hot water system meet the additional requirements specified in the NCC?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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#### Provisional values\* check

Have provisional values* been used in the assessment and, if so, are they noted in 'Additional notes' table below?	<input type="checkbox"/>	<input type="checkbox"/>			
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#### Other NCC requirements

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

## Additional Notes

NCC 2019 Vol 2 - 3.9.2.6 Protection of openable windows – bedrooms (a) A window opening in a bedroom must be provided with protection, where the floor below the window is 2 m or more above the surface beneath.

(b) Where the lowest level of the window opening covered by (a) is less than 1.7 m above the floor, the window opening must comply with the following:

(i) The openable portion of the window must be protected with (A) a device capable of restricting the window opening; or (B) a screen with secure fittings.

NCC 2019 Vol 2 - 3.9.2.7 Protection of openable windows - rooms other than bedrooms (a) A window opening in a room other than a bedroom must be provided with protection where the floor below the window is 4 m or more above the surface beneath.

(b) The openable part of the window covered by (a) must be protected with a barrier with a height of not less than 865 mm above the floor.

## Room schedule

Room	Zone Type	Area (m <sup>2</sup> )
LIFT 1 L3	Day Time	1.95
ENTRY	Day Time	7.93
STAIRS L4	Day Time	3.69
GARAGE	Garage	54.36
WC	Unconditioned	3.46
LIVING	Living	25.75
UTILITY	Day Time	8.81
KITCHEN DINING	Kitchen/Living	56.86
LIFT 2 L1	Day Time	2.09
BED 2	Bedroom	12.46
BED 1	Bedroom	20.30
WIR BED1	Night Time	10.13
ENS 1	Night Time	8.74
BATH L1	Unconditioned	5.57
BED 4	Bedroom	14.12
BED 3	Bedroom	12.98
BATH L2	Unconditioned	7.16
FAMILY / GAMES	Living	21.80
HALL L2	Day Time	23.62
STAIRS L1	Day Time	10.64

## Room schedule

Room	Zone Type	Area (m <sup>2</sup> )
HALLWAY L1	Day Time	10.65
STAIRS	Day Time	4.23
ENTRY L2	Day Time	7.14

## 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
None					

### Custom\* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
AWS-001-002	RESIDENTIAL SERIES 502/504 SLIDING WINDOW - SINGLE GLAZED	6.38	0.72	0.68	0.75
AWS-007-002	RESIDENTIAL SERIES 516 AWNING WINDOW- SINGLE GLAZED	6.45	0.64	0.61	0.67
AWS-019-042	RESIDENTIAL SERIES 549 ENTRY DOOR - DOUBLE GLAZED	3.23	0.41	0.39	0.43
AWS-066-007	RESIDENTIAL SERIES 516 FIXED WINDOW - SINGLE GLAZED	5.91	0.75	0.71	0.79
AWS-090-002	ComfortEDGE™ Series 755 Fixed Window - Double Glazed - with Embedded Frame	1.92	0.54	0.51	0.56
AWS-092-041	Residential Series 752 High Performance Sliding Window - Double Glazed	3.08	0.55	0.53	0.58
AWS-115-072	Residential Series 758FBR Sliding Door (Embedded Frame) - Double Glazed	2.02	0.51	0.49	0.54

## Window and glazed door schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
BATH L1	AWS-001-002	108W	600	900	Sliding	45	SE	None
BATH L2	AWS-001-002	207W	1300	1200	Sliding	45	SE	None
BED 1	AWS-001-002	104W	1200	2400	Sliding	45	NW	None
BED 1	AWS-090-002	105W	1300	1200	Fixed	0	NE	None
BED 2	AWS-001-002	106W	1200	2400	Sliding	45	NW	None
BED 3	AWS-001-002	201W	1200	1800	Sliding	45	SW	None





## Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
BED 4	AWS-001-002	204W	1000	2100	Sliding	45	NW	None
ENS 1	AWS-066-007	109W	650	2400	Fixed	0	SE	None
ENS 1	AWS-001-002	101W	1200	1500	Sliding	45	SW	None
ENTRY	AWS-090-002	403W	1300	1000	Fixed	0	NE	None
ENTRY	AWS-090-002	W01	1200	396	Fixed	0	SE	None
ENTRY	AWS-092-041	404W	1200	1200	Sliding	45	NW	None
ENTRY L2	AWS-019-042	W02	2040	750	Hinged Door	90	SE	None
ENTRY L2	AWS-019-042	W03	2040	750	Hinged Door	90	SE	None
FAMILY / GAMES	AWS-115-072	203D	2100	4200	Sliding Door	45	NW	None
FAMILY / GAMES	AWS-092-041	202W	1000	2100	Sliding	45	SW	None
GARAGE	AWS-066-007	401W	1300	1800	Fixed	0	SSW	None
GARAGE	AWS-066-007	405W	1300	1900	Fixed	0	NW	None
GARAGE	AWS-066-007	402W	1200	1700	Fixed	0	NE	None
HALL L2	AWS-090-002	206W	1300	1000	Fixed	0	NE	None
KITCHEN DINING	AWS-115-072	302D	2400	4800	Sliding Door	45	NW	None
KITCHEN DINING	AWS-092-041	304W	1300	1700	Sliding	45	NE	None
LIVING	AWS-115-072	301D	2400	4800	Sliding Door	45	NW	None
LIVING	AWS-092-041	307W	700	1700	Sliding	45	SW	None
STAIRS	AWS-090-002	303W	1300	1000	Fixed	0	NE	None
STAIRS L1	AWS-092-041	107W	1200	1800	Sliding	45	NW	None
UTILITY	AWS-001-002	306W	1200	900	Sliding	45	SW	None
STAIRS L1	AWS-090-002	205W	1200	1800	Fixed	0	NW	None
WC	AWS-001-002	305W	900	1000	Sliding	45	SW	None
WIR BED1	AWS-066-007	103W	1200	750	Fixed	0	NW	None
WIR BED1	AWS-007-002	102W	1200	800	Awning	90	SW	None

\* Refer to glossary.

## 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-010-02 W	VS - Ventilating Skylight DG 3mm LoE 366 / 10.5mm Argon Gap / 3mm Clear	2.61	0.21	0.20	0.22

## Roof window schedule

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orient-ation	Outdoor shade	Indoor shade
KITCHEN DINING	VEL-010-02 W	SKYRW 05	90	879	1807	SE	None	HB
KITCHEN DINING	VEL-010-02 W	SKYRW 06	90	879	1807	SE	None	HB
LIVING	VEL-010-02 W	SKYRW 03	90	879	1806	SE	None	HB
LIVING	VEL-010-02 W	SKYRW 04	90	879	1807	SE	None	HB

## Skylight type and performance

Skylight ID	Skylight description
None	

## Skylight schedule

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

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
ENTRY	2040	920	90	SE
GARAGE	2040	5400	90	SE
KITCHEN DINING	2040	820	90	SE

## External wall type

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
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## External wall type

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
CONCBLOCK-190-FCF-EXP-A	Concrete Block 190mm Fully Core-Filled - Exposed	0.50	Medium	2.00	No
CONCBLOCK-190-FCF-EXP-B	Concrete Block 190mm Fully Core-Filled - Exposed	0.50	Medium	0.00	No
CONCBLOCK-190-FCF-EXP-C	Concrete Block 190mm Fully Core-Filled - Exposed	0.46	Medium (Shale Grey Matt)	2.00	No
FC-NONREFL-CAV	Fibre-Cement Clad Battened (Non-Refl Cavity) Stud Wall	0.50	Medium	2.50	No
REV-VEN-FC-NON REFLCAV-PB1	Brick Veneer - Scyon Linear Clad Non Refl Cavity - PB Internally	0.50	Medium	2.00	No

## External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* projection (mm)	Vertical shading feature
BATH L1	CONCBLOCK-190-FCF-EXP-A	1500	3012	SE	2557	Yes
BATH L1	CONCBLOCK-190-FCF-EXP-C	1400	3012	SE		No
BATH L2	REV-VEN-FC-NON REFLCAV-PB1	2950	2610	SE	3582	Yes
BED 1	REV-VEN-FC-NON REFLCAV-PB1	2900	3319	NW	437	Yes
BED 1	REV-VEN-FC-NON REFLCAV-PB1	2900	1491	NE	219	Yes
BED 1	REV-VEN-FC-NON REFLCAV-PB1	2900	1491	SW	2129	Yes
BED 2	REV-VEN-FC-NON REFLCAV-PB1	2900	3785	NW	429	Yes
BED 2	REV-VEN-FC-NON REFLCAV-PB1	2900	1511	NE	3694	Yes
BED 3	REV-VEN-FC-NON REFLCAV-PB1	2950	3656	SE	3580	Yes
BED 3	REV-VEN-FC-NON REFLCAV-PB1	2950	3551	SW		Yes
BED 4	REV-VEN-FC-NON REFLCAV-PB1	2950	507	NW	840	Yes
BED 4	REV-VEN-FC-NON REFLCAV-PB1	2550	3314	NW	840	Yes
ENS 1	CONCBLOCK-190-FCF-EXP-A	1500	4729	SE	2557	Yes
ENS 1	REV-VEN-FC-NON REFLCAV-PB1	2900	1849	SW	779	Yes
ENS 1	CONCBLOCK-190-FCF-EXP-C	1400	4729	SE		No
ENTRY	FC-NONREFL-CAV	2544	1360	NE	426	No

\* Refer to glossary.

## External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* projection (mm)	Vertical shading feature
ENTRY	CONCBLOCK-190-FCF-EXP-A	2642	1701	SE	4263	Yes
ENTRY	CONCBLOCK-190-FCF-EXP-A	2300	1403	NW	380	Yes
ENTRY L2	REV-VEN-FC-NON REFLCAV-PB1	2950	1818	SE		Yes
FAMILY / GAMES	REV-VEN-FC-NON REFLCAV-PB1	2950	5563	NW	840	Yes
FAMILY / GAMES	REV-VEN-FC-NON REFLCAV-PB1	2950	4036	SW		Yes
GARAGE	CONCBLOCK-190-FCF-EXP-B	2847	6191	SE	460	No
GARAGE	CONCBLOCK-190-FCF-EXP-B	2768	3125	SSW	460	No
GARAGE	CONCBLOCK-190-FCF-EXP-B	2571	4653	SW	461	No
GARAGE	CONCBLOCK-190-FCF-EXP-B	2300	7500	NW	461	Yes
GARAGE	CONCBLOCK-190-FCF-EXP-B	2645	3891	NE	2361	Yes
HALL L2	REV-VEN-FC-NON REFLCAV-PB1	2950	2528	NE		Yes
HALL L2	REV-VEN-FC-NON REFLCAV-PB1	700	1072	SE	1915	Yes
HALL L2	REV-VEN-FC-NON REFLCAV-PB1	2950	3815	SE	3581	Yes
HALL L2	REV-VEN-FC-NON REFLCAV-PB1	700	1664	SW	11084	Yes
HALL L2	REV-VEN-FC-NON REFLCAV-PB1	700	1633	NE		Yes
HALL L2	REV-VEN-FC-NON REFLCAV-PB1	2250	1081	SE		Yes
HALLWAY L1	CONCBLOCK-190-FCF-EXP-A	600	2726	SE	2557	Yes
HALLWAY L1	CONCBLOCK-190-FCF-EXP-C	2300	2726	SE		No
KITCHEN DINING	REV-VEN-FC-NON REFLCAV-PB1	3000	5854	NW	3935	Yes
KITCHEN DINING	REV-VEN-FC-NON REFLCAV-PB1	3000	111	NE	2079	Yes
KITCHEN DINING	REV-VEN-FC-NON REFLCAV-PB1	4200	1033	SE		Yes
KITCHEN DINING	REV-VEN-FC-NON REFLCAV-PB1	3132	1504	SW	6164	Yes
KITCHEN DINING	REV-VEN-FC-NON REFLCAV-PB1	4200	98	SE		Yes
KITCHEN DINING	REV-VEN-FC-NON REFLCAV-PB1	4200	2401	SE	5760	Yes
KITCHEN DINING	REV-VEN-FC-NON REFLCAV-PB1	4200	2964	NE	316	Yes

\* Refer to glossary.

## External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* projection (mm)	Vertical shading feature
LIFT 1 L3	CONCBLOCK-190-FCF-EXP-A	4200	1500	NE		Yes
LIFT 1 L3	CONCBLOCK-190-FCF-EXP-A	4200	1300	SE	3228	Yes
LIFT 1 L3	CONCBLOCK-190-FCF-EXP-A	4200	906	SW	8843	Yes
LIFT 1 L3	CONCBLOCK-190-FCF-EXP-A	2631	1500	NE	374	No
LIFT 1 L3	CONCBLOCK-190-FCF-EXP-A	2674	1300	SE	373	Yes
LIFT 1 L3	CONCBLOCK-190-FCF-EXP-A	2659	600	SW	1521	Yes
LIFT 2 L1	CONCBLOCK-190-FCF-EXP-A	600	1429	NE		Yes
LIFT 2 L1	CONCBLOCK-190-FCF-EXP-A	600	1464	SE	2557	Yes
LIFT 2 L1	CONCBLOCK-190-FCF-EXP-C	2300	1464	SE		No
LIFT 2 L1	CONCBLOCK-190-FCF-EXP-C	2300	1429	NE		No
LIFT 2 L1	CONCBLOCK-190-FCF-EXP-A	2950	1423	NE		Yes
LIFT 2 L1	CONCBLOCK-190-FCF-EXP-A	400	1466	NW		Yes
LIFT 2 L1	CONCBLOCK-190-FCF-EXP-A	4215	1415	NE	377	Yes
LIFT 2 L1	CONCBLOCK-190-FCF-EXP-A	3300	1466	NW	4025	Yes
LIVING	REV-VEN-FC-NON REFLCAV-PB1	3300	5597	NW	1353	Yes
LIVING	REV-VEN-FC-NON REFLCAV-PB1	3705	4601	SW	488	Yes
LIVING	REV-VEN-FC-NON REFLCAV-PB1	4100	950	SE		Yes
STAIRS	FC-NONREFL-CAV	1720	4110	SW		Yes
STAIRS	REV-VEN-FC-NON REFLCAV-PB1	4400	4127	NE	317	Yes
STAIRS L1	CONCBLOCK-190-FCF-EXP-A	1100	3442	NE		Yes
STAIRS L1	REV-VEN-FC-NON REFLCAV-PB1	2900	3624	NW	411	Yes
STAIRS L1	CONCBLOCK-190-FCF-EXP-C	1800	3442	NE		No
STAIRS L4	FC-NONREFL-CAV	1550	1703	NE	423	No
STAIRS L4	CONCBLOCK-190-FCF-EXP-A	2300	688	NW	380	Yes
STAIRS L4	FC-NONREFL-CAV	1550	1821	SW	539	Yes

\* Refer to glossary.

## External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* projection (mm)	Vertical shading feature
STAIRS L4	FC-NONREFL-CAV	1260	1040	NW	919	No
STAIRS L4	FC-NONREFL-CAV	2478	1158	NE	426	No
UTILITY	REV-VEN-FC-NON REFLCAV-PB1	4200	4647	SE	5754	Yes
UTILITY	REV-VEN-FC-NON REFLCAV-PB1	4200	1896	SW	288	Yes
STAIRS L1	REV-VEN-FC-NON REFLCAV-PB1	2950	3375	NE		Yes
STAIRS L1	REV-VEN-FC-NON REFLCAV-PB1	2550	3727	NW	840	Yes
WC	REV-VEN-FC-NON REFLCAV-PB1	4200	1539	SE	4134	Yes
WC	REV-VEN-FC-NON REFLCAV-PB1	4200	312	SW	5962	Yes
WC	REV-VEN-FC-NON REFLCAV-PB1	4200	937	SE	4446	Yes
WC	REV-VEN-FC-NON REFLCAV-PB1	4200	1204	SW	5025	Yes
WIR BED1	REV-VEN-FC-NON REFLCAV-PB1	2900	2190	NW	463	Yes
WIR BED1	REV-VEN-FC-NON REFLCAV-PB1	2900	4626	SW		Yes
WIR BED1	REV-VEN-FC-NON REFLCAV-PB1	2900	884	SE	4510	Yes

## Internal wall *type*

Wall ID	Wall Type	Area (m <sup>2</sup> )	Bulk insulation
CONCBLOCK-190-FCF-EXP	Concrete Block 190mm Fully Core-Filled - Exposed	40.5	0.00
CONCBLOCK-190-FCF-EXP	Concrete Block 190mm Fully Core-Filled - Exposed	7.5	1.50
INT-PB	Internal Plasterboard Stud Wall	16.3	0.00
INT-PB	Internal Plasterboard Stud Wall	47.5	1.50
INT-PB	Internal Plasterboard Stud Wall	2.8	2.50
PB-SGL-BRICK-110 -PB	PB -Single 110mm Brick Wall - PB	134.2	0.00

## Floor *type*

Location	Construction	Area (m <sup>2</sup> )	Sub-floor ventilation	Added insulation (R-value)	Covering
BATH L1	CSOG-100: Concrete Slab on Ground (100mm)	5.6	N/A	1.00	Tile (8mm)

## Floor type

Location	Construction	Area (m <sup>2</sup> )	Sub-floor ventilation	Added insulation (R-value)	Covering
BATH L2	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	7.2	N/A	2.00	Tile (8mm)
BED 1	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	20.3	N/A	2.00	Carpet
BED 2	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	12.5	N/A	2.00	Carpet
BED 3	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	12.9	N/A	2.00	Carpet
BED 4	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	14.1	N/A	2.00	Carpet
ENS 1	CSOG-100: Concrete Slab on Ground (100mm)	8.7	N/A	1.00	Tile (8mm)
ENTRY	SUSP-CONC-150: Suspended Concrete Slab Floor (150mm)	7.9	N/A	0.00	Timber (12mm)
ENTRY L2	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	7.1	N/A	2.00	Timber (12mm)
FAMILY / GAMES	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	21.7	N/A	2.00	Timber (12mm)
GARAGE	SUSP-CONC-150: Suspended Concrete Slab Floor (150mm)	54.4	N/A	0.00	Exposed
HALL L2	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	8.9	N/A	2.00	Timber (12mm)
HALL L2	CSOG-100: Concrete Slab on Ground (100mm)	14.8	N/A	0.00	Timber (12mm)
HALLWAY L1	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	4.6	N/A	2.00	Timber (12mm)
HALLWAY L1	CSOG-100: Concrete Slab on Ground (100mm)	6.0	N/A	1.00	Timber (12mm)
KITCHEN DINING	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	54.3	N/A	2.00	Timber (12mm)
KITCHEN DINING	CSOG-100: Concrete Slab on Ground (100mm)	2.7	N/A	0.00	Timber (12mm)
LIFT 1 L3	CSOG-100: Concrete Slab on Ground (100mm)	1.9	N/A	0.00	Tile (8mm)
LIFT 2 L1	CSOG-100: Concrete Slab on Ground (100mm)	2.1	N/A	1.00	Timber (12mm)
LIVING	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	25.7	N/A	2.00	Timber (12mm)
STAIRS	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	4.1	N/A	2.00	Timber (12mm)
STAIRS	SUSP-CONC-150: Suspended Concrete Slab Floor (150mm)	0.1	N/A	2.00	Timber (12mm)
STAIRS L1	CSOG-100: Concrete Slab on Ground (100mm)	10.6	N/A	1.00	Timber (12mm)
STAIRS L4	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	3.6	N/A	0.00	Timber (12mm)
UTILITY	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	8.8	N/A	2.00	Tile (8mm)

## Floor type

Location	Construction	Area (m <sup>2</sup> )	Sub-floor ventilation	Added insulation (R-value)	Covering
WC	CSOG-100: Concrete Slab on Ground (100mm)	3.5	N/A	0.00	Tile (8mm)
WIR BED1	SUSP-CONC-100: Suspended Concrete Slab Floor (100mm)	10.1	N/A	2.00	Carpet

## Ceiling type

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
BED 1	SLAB-150-CEIL-01: Concrete Slab (150mm) with Suspended PB Ceiling	4.00	No
BED 2	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	4.00	Yes
BED 3	SLAB-150-CEIL-01: Concrete Slab (150mm) with Suspended PB Ceiling	3.00	No
BED 4	SLAB-150-CEIL-01: Concrete Slab (150mm) with Suspended PB Ceiling	3.00	No
ENTRY	FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	4.00	Yes
FAMILY / GAMES	SLAB-150-CEIL-01: Concrete Slab (150mm) with Suspended PB Ceiling	3.00	No
GARAGE	FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	0.00	Yes
HALL L2	SLAB-150-CEIL-01: Concrete Slab (150mm) with Suspended PB Ceiling	3.00	No
KITCHEN DINING	FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	4.00	Yes
LIFT 1 L3	FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	4.00	Yes
LIFT 2 L1	FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	4.00	Yes
LIVING	FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	4.00	Yes
STAIRS	FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	4.00	Yes
STAIRS L4	FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	4.00	Yes
UTILITY	FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	4.00	Yes
STAIRS L1	SLAB-150-CEIL-01: Concrete Slab (150mm) with Suspended PB Ceiling	3.00	No
WIR BED1	SLAB-150-CEIL-01: Concrete Slab (150mm) with Suspended PB Ceiling	4.00	No

## Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
BATH L1	1	Downlight	200	Sealed

## Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
BATH L1	1	Exhaust Fan	350	Sealed
BATH L2	1	Exhaust Fan	350	Sealed
BED 1	3	Downlight	200	Sealed
BED 2	2	Downlight	200	Sealed
BED 3	1	Downlight	200	Sealed
BED 4	1	Downlight	200	Sealed
ENS 1	1	Downlight	200	Sealed
ENS 1	1	Exhaust Fan	350	Sealed
ENTRY	1	Downlight	200	Sealed
ENTRY L2	1	Downlight	200	Sealed
FAMILY / GAMES	1	Downlight	200	Sealed
HALL L2	3	Downlight	200	Sealed
HALLWAY L1	2	Downlight	200	Sealed
KITCHEN DINING	1	Downlight	200	Sealed
KITCHEN DINING	1	Exhaust Fan	350	Sealed
LIFT 1 L3	1	Downlight	200	Sealed
LIFT 1 L4	1	Downlight	200	Sealed
LIFT 2 L1	1	Downlight	200	Sealed
LIFT 2 L2	1	Downlight	200	Sealed
LIFT 2 L3	1	Downlight	200	Sealed
LIVING	4	Downlight	200	Sealed
STAIRS	1	Downlight	200	Sealed
STAIRS L1	1	Downlight	200	Sealed
STAIRS L4	1	Downlight	200	Sealed
UTILITY	1	Downlight	200	Sealed
VOID L2	2	Downlight	200	Sealed

\* Refer to glossary.



## Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
WC	1	Downlight	200	Sealed
WIR BED1	1	Downlight	200	Sealed

## Ceiling fans

Location	Quantity	Diameter (mm)
FAMILY / GAMES	1	1400
KITCHEN DINING	1	1400
LIVING	1	1400

## Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof Colour
ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	1.30	0.44	Medium (Shale Grey)
FLAT-01: Flat Framed / Skillion Metal Roof & Flat PB Ceiling	1.30	0.44	Medium (Shale Grey)
SLAB-150-CEIL-01: Concrete Slab (150mm) with Suspended PB Ceiling	0.00	0.44	Medium (Shale Grey)

## Thermal bridging schedule for steel frame elements

Building element	Steel section dimensions (height x width, mm)	Frame spacing (mm)	Steel thickness (BMT mm)	Thermal Break (R-value)
None				

## Appliance schedule

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

### Cooling system

Type	Location	Fuel Type	Minimum efficiency / performance	Recommended capacity
No Whole of Home Data				

### Heating system

Type	Location	Fuel Type	Minimum efficiency / performance	Recommended capacity
No Whole of Home Data				

### Hot water system

Type	Fuel type	Hot Water CER Zone	Minimum efficiency / STC	Assessed daily load [litres]
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Hot water system

Type	Fuel type	Hot Water CER Zone	Minimum efficiency / STC	Assessed daily load [litres]
No Whole of Home Data				

Pool / spa equipment

Type	Fuel type	Minimum efficiency / performance	Recommended capacity
No Whole of Home Data			

Onsite Renewable Energy *schedule*

Type	Orientatation	Generation Capacity [kW]
No Whole of Home Data		

Battery *schedule*

Type	Storage Capacity [kWh]
No Whole of Home Data	

## Explanatory Notes

### About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value\* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the home's energy value\*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary.

Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

### Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and

are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

### Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings 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, behaviour, appliance performance, indoor air temperature and local climate.

Not all assumptions made by the assessor using the NatHERS accredited software tool are presented in this report and further details or data files may be obtained from the assessor.

## Glossary

<b>Annual energy load</b>	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
<b>AFRC</b>	Australian Fenestration Rating Council
<b>Assessed floor area</b>	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.
<b>Ceiling penetrations</b>	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, 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.
<b>Conditioned</b>	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.
<b>COP</b>	Coefficient of performance
<b>Custom windows</b>	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
<b>Default windows</b>	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
<b>EER</b>	Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input
<b>Energy use</b>	This is your home's rating without solar or batteries.
<b>Energy value</b>	The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard).
<b>Entrance door</b>	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.
<b>Exposure</b>	see exposure categories below
<b>Exposure category - exposed</b>	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
<b>Exposure category - open</b>	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).
<b>Exposure category - suburban</b>	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
<b>Exposure category - protected</b>	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
<b>Horizontal shading feature</b>	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
<b>National Construction Code (NCC) Class</b>	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 <a href="http://www.abcb.gov.au">www.abcb.gov.au</a> .
<b>Net zero home</b>	a home that achieves a net zero energy value*.
<b>Opening percentage</b>	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
<b>Provisional value</b>	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 <a href="http://www.nathers.gov.au">www.nathers.gov.au</a>
<b>Recommended capacity</b>	this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person.
<b>Reflective wrap (also known as foil)</b>	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
<b>Roof window</b>	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.
<b>Shading features</b>	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
<b>Solar heat gain coefficient (SHGC)</b>	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.
<b>Skylight (also known as roof lights)</b>	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
<b>STCs</b>	Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory
<b>Thermal breaks</b>	are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels.
<b>U-value</b>	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
<b>Unconditioned</b>	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions
<b>Vertical shading features</b>	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).
<b>Window shading device</b>	a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies)

\* Refer to glossary.