

# Nationwide House Energy Rating Scheme

## NatHERS Certificate No. 0006618664

Generated on 22 Sep 2021 using AccuRate Sustainability V2.4.3.21

### Property

**Address** Unit MAIN, 96 Avalon Parade , Avalon Beach , NSW , 2107

**Lot/DP** Lot 8 DP 1130346

**NCC Class\*** 1a

**Type** New Home

### Plans

**Main Plan** 001/26.07.21

**Prepared by** THW Architects

### Construction and environment

<b>Assessed floor area (m<sup>2</sup>)*</b>	<b>Exposure Type</b>
Conditioned* 300.0	Suburban
Unconditioned* 62.2	<b>NatHERS climate zone</b>
Total 362.2	56
Garage 55.9	



### Accredited assessor

**Name** Bruce Carr

**Business name** STS

**Email** ENQUIRIES@SUSTAINABLETHERMALSOLUTIONS.COM.AU

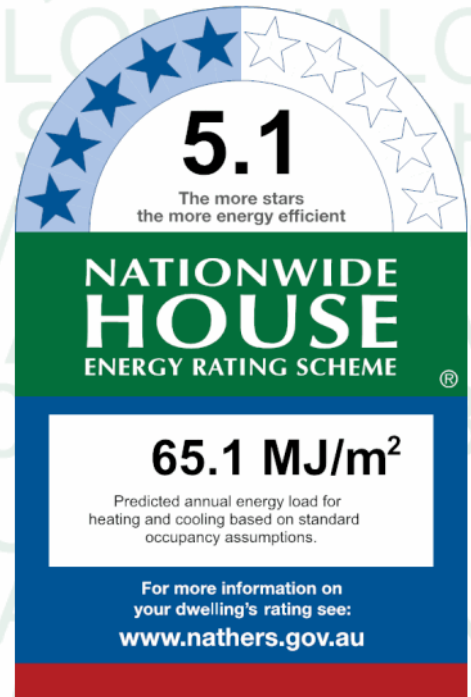
**Phone** 0420312721

**Accreditation No.** DMN/12/1457

### Assessor Accrediting Organisation

Design Matters National

**Declaration of interest** Declaration completed: no conflicts



### Thermal performance

<b>Heating</b>	<b>Cooling</b>
<b>39.3</b>	<b>25.8</b>
<b>MJ/m<sup>2</sup></b>	<b>MJ/m<sup>2</sup></b>

### 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.

### Verification

To verify this certificate, scan the QR code or visit [hstar.com.au/QR/Generate?p=tLCbIYtI](http://hstar.com.au/QR/Generate?p=tLCbIYtI). When using either link, ensure you are visiting [hstar.com.au](http://hstar.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](http://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

## Window and glazed door *type and performance*

### Default\* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-002-01 A	Aluminium B SG Clear	6.7	0.70	0.67	0.74
ALM-002-04 A	Aluminium B SG Low Solar Gain Low-E	5.6	0.41	0.39	0.43
ALM-001-04 A	Aluminium A SG Low Solar Gain Low-E	5.6	0.36	0.34	0.38

### Custom\* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				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*
Garage	ALM-002-01 A	W19	2500	600	Other	00	N	None
Kitchen/Living	ALM-002-04 A	W16	2400	600	Louvre	90	W	None
Kitchen/Living	ALM-002-04 A	W17	2400	600	Louvre	90	W	None
Kitchen/Living	ALM-002-04 A	W1	2400	600	Louvre	90	S	None
Kitchen/Living	ALM-002-04 A	W6	3220	600	Louvre	45	E	None
Kitchen/Living	ALM-002-04 A	W9	2600	7130	Sliding	75	N	None
Bed 1	ALM-002-01 A	W15	1600	2200	Louvre	60	W	None
Bed 2	ALM-002-01 A	W14	1600	2200	Louvre	60	W	None
Bath	ALM-002-01 A	W13	1600	2100	Other	60	W	None
Bed 3	ALM-002-01 A	W12	1600	2200	Louvre	60	W	None
Bed 3	ALM-002-01 A	W11	2400	1600	Louvre	30	N	None
Corridor	ALM-001-04 A	W10	2400	1100	Casement	90	N	None
Corridor	ALM-002-04 A	W20	1265	1100	Other	00	N	None
Corridor	ALM-002-04 A	W8	2400	1800	Louvre	30	E	None
Corridor	ALM-002-04 A	W7	2400	1800	Louvre	30	E	None
Master Bed	ALM-002-01 A	W18	2400	600	Other	90	W	None
Master Bed	ALM-002-01 A	W2	2400	1600	Louvre	30	S	None
Master Bed	ALM-002-01 A	W3	2400	1600	Louvre	30	S	None
Master Bed	ALM-002-01 A	W24	1630	1600	Other	00	S	None
Master Bed	ALM-002-01 A	W25	925	1600	Other	00	S	None
Master Bed	ALM-002-01 A	W28	1000	880	Other	00	N	None
Ensuite	ALM-002-01 A	W4	2400	1950	Louvre	30	E	None
Laundry/Pantry	ALM-002-01 A	W5	1400	600	Louvre	90	E	None
Laundry/Pantry	ALM-002-01 A	W26	1000	880	Other	00	N	None
Laundry/Pantry	ALM-002-01 A	W27	1000	880	Other	00	N	None
Bed 4	ALM-002-01 A	W21	2560	1600	Louvre	30	N	None

## Roof window *type and performance*

### Default\* roof windows

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

### Custom\* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit

## Custom\* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
VEL-011-01 W	VELUX FS - Fixed Skylight DG 3mm LoE 366 / 8.5mm Argon Gap / 5.36mm Clear La	2.6	0.24	0.23	0.25

## Roof window schedule

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
Kitchen/Living	VEL-011-01 W	S4	0	1095	1095	S	None	None
Kitchen/Living	VEL-011-01 W	S5	0	1095	1095	S	None	None
Ensuite	VEL-011-01 W	S7	0	1095	1095	E	None	None
Bed 4	VEL-011-01 W	S1	0	1095	1095	W	None	None
Bed 4	VEL-011-01 W	S2	0	1095	1095	W	None	None
Study	VEL-011-01 W	S3	0	1095	1095	W	None	None

## Skylight type and performance

Skylight ID	Skylight description
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No Data Available

## Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m <sup>2</sup> )	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
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No Data Available

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
Garage	2399	5900	0	S
Garage	2100	820	90	N
Laundry/Pantry	2400	820	90	E
Hall/Entry	2300	1360	90	S
Hall/Entry	2100	820	90	W

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-001	Plasterboard	50	Medium	Polyester or polyester/wool blanket (k = 0.045 density = 16 kg/m3): R2.7	Yes
EW-002	Retaining Concrete wall/Plasterboard	50	Medium		No

## External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	EW-001	2500	6250	E	2000	Yes
Garage	EW-001	2500	5910	S	1300	Yes
Garage	EW-001	2500	9600	W		No
Garage	EW-001	2500	4400	N		No
Garage	EW-002	180	3285	E		No
Garage	EW-002	180	1456	N		No
Kitchen/Living	EW-001	4125	6559	W		No
Kitchen/Living	EW-001	3050	4400	S		No
Kitchen/Living	EW-001	3050	555	N		No
Kitchen/Living	EW-001	4125	6530	E		No
Kitchen/Living	EW-001	3050	7945	N	3800	Yes
Kitchen/Living	EW-001	500	9444	S		No
Bed 1	EW-001	2400	3700	W		No
Bed 1	EW-002	570	4135	S		No
Bed 2	EW-001	2400	3400	W		No
Bath	EW-001	2400	2101	W		No
Bed 3	EW-001	2400	3090	W		No
Bed 3	EW-001	2400	4756	N	700	Yes
Corridor	EW-001	3900	1700	N	700	Yes
Corridor	EW-001	3600	12470	E		No
Corridor	EW-002	570	2380	S		No
Master Bed	EW-001	2800	6200	W	2000	Yes
Master Bed	EW-001	3800	6110	S	800	Yes
Master Bed	EW-001	2800	5357	E		No
Master Bed	EW-001	2200	1100	N		No
Ensuite	EW-001	2800	1951	E		No
Laundry/Pantry	EW-001	2800	1800	E		No
Laundry/Pantry	EW-001	2400	400	N		No
Laundry/Pantry	EW-001	2400	1400	E		No
Laundry/Pantry	EW-001	2200	4900	N		No
Hall/Entry	EW-001	2400	2000	S	1700	Yes
Hall/Entry	EW-001	2400	1090	W		No
Bed 4	EW-001	1000	8800	W		No
Bed 4	EW-001	2561	5357	N	700	Yes
Study	EW-001	1000	3700	W		No

## Internal wall type

Wall ID	Wall type	Area (m <sup>2</sup> )	Bulk insulation
IW-001	Plasterboard	201.93	
IW-003	Plasterboard	32.47	Glass fibre batt: R1.5

## Floor type

Location	Construction	Area (m <sup>2</sup> )	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage/Ground	Concrete Slab 200 mm: bare/bare	55.90			
Kitchen/Living/Ground	Concrete Slab 100 mm: timber/waffle pod	96.00		R1.0	
Bed 1/Ground	Concrete Slab 100 mm: timber/waffle pod	16.10		R1.0	
Bed 2/Ground	Concrete Slab 100 mm: timber/waffle pod	16.70		R1.0	
Bath/Ground	Concrete Slab 200 mm: ceramic tiles/bare	6.30			Ceramic tile
Bed 3/Ground	Concrete Slab 100 mm: timber/waffle pod	14.80		R1.0	
Corridor/Ground	Concrete Slab 100 mm: timber/waffle pod	22.60		R1.0	
Master Bed/Ground	Concrete Slab 100 mm: timber/waffle pod	37.20		R1.0	
Ensuite/Ground	Concrete Slab 100mm: ceramic tiles/waffle pod	9.50		R1.0	Ceramic tile
Laundry/Pantry/Ground	Concrete Slab 100mm: ceramic tiles/waffle pod	15.40		R1.0	Ceramic tile
Hall/Entry/Ground	Concrete Slab 100mm: ceramic tiles/waffle pod	12.40		R1.0	Ceramic tile
Bed 4/Bed 3	Timber (hardwood): bare/air gap/plasterboard	14.80			
Bed 4/Bath	Timber (hardwood): bare/air gap/plasterboard	6.30			
Bed 4/Corridor	Timber (hardwood): bare/air gap/plasterboard	6.00			
Bed 4/Bed 2	Timber (hardwood): ceramic tile/air gap/plasterboard	7.80			Ceramic tile
Study/Bed 1	Timber (hardwood): bare/air gap/plasterboard	16.10			
Study/Corridor	Timber (hardwood): bare/air gap/plasterboard	2.80			
Landing/Bed 2	Timber (hardwood): bare/air gap/plasterboard	6.50			
Landing/Corridor	Timber (hardwood): bare/air gap/plasterboard	1.31			

## Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/Garage	Timber (hardwood): bare/air gap/plasterboard		No
Study/Bed 1	Timber (hardwood): bare/air gap/plasterboard		No
Bed 4/Bed 2	Timber (hardwood): ceramic tile/air gap/plasterboard		No
Landing/Bed 2	Timber (hardwood): bare/air gap/plasterboard		No
Bed 4/Bath	Timber (hardwood): bare/air gap/plasterboard		No
Bed 4/Bed 3	Timber (hardwood): bare/air gap/plasterboard		No
Bed 4/Corridor	Timber (hardwood): bare/air gap/plasterboard		No
Study/Corridor	Timber (hardwood): bare/air gap/plasterboard		No



Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Landing/Corridor	Timber (hardwood): bare/air gap/plasterboard		No

## Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm <sup>2</sup> )	Sealed/unsealed
Garage	22	Downlight		Sealed
Kitchen/Living	38	Downlight		Sealed
Bed 1	6	Downlight		Sealed
Bed 2	5	Downlight		Sealed
Bath	2	Downlight		Sealed
Bed 3	6	Downlight		Sealed
Corridor	9	Downlight		Sealed
Master Bed	15	Downlight		Sealed
Ensuite	4	Downlight		Sealed
Ensuite	1	Ceiling exhaust fan	160	Sealed
Laundry/Pantry	6	Downlight		Unsealed
Laundry/Pantry	1	Ceiling exhaust fan	160	Sealed
Hall/Entry	5	Downlight		Sealed
Bed 4	14	Downlight		Sealed
Study	7	Downlight		Sealed
Landing	3	Downlight		Sealed

## Ceiling fans

Location	Quantity	Diameter (mm)
Kitchen/Living	2	1400
Bed 1	1	1400
Bed 2	1	1400
Master Bed	1	1400
Bed 4	1	1400
Study	1	1400

## Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Metal deck roof: 25d pitch: air gap: R3.5: 10mm plasterboard	R3.5	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

<b>Annual energy load</b>	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
<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, 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.
<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>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>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 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 10m 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>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>Reflective wrap</b> (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.
<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 device</b>	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
<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</b> (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.
<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).