ABN: 71 166 427 550

To:

Northern Beaches Council

BASIX ASSESSMENT REPORT

(Simulation Method)

Lot 1 No 31 Marine Parade, Avalon Beach NSW 2107

18 December 2020

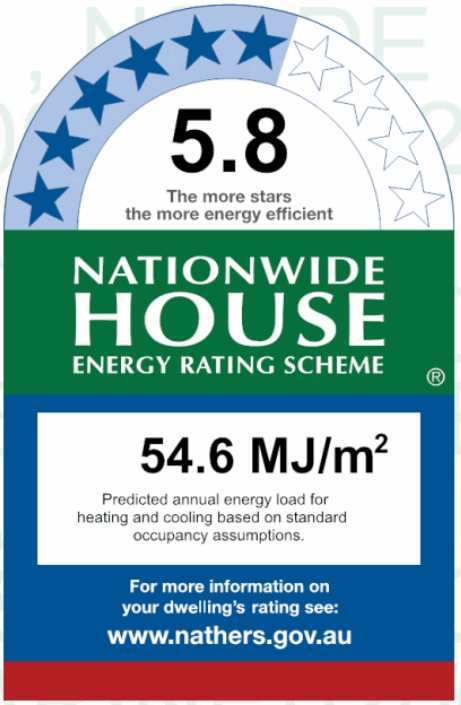
10 Inverness Place BOWRAL

Mobile: 0424 630 400 www.efficiencyassessments.com.au Mobile 0401 861 912

PO Box 363 BOWRAL NSW 2576 info@efficiencyassessments.com.au Mobile: 0418 430 161

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0005532734

Generated on 18 Dec 2020 using BERS Pro v4.4.0.1 (3.21)



Property

Address	31 Marine Parade , Avalon Beach , NSW , 2107
Lot/DP	1/1263133
NCC Class*	1A
Type	New Dwelling

Plans

Main Plan	Job For Timbrell Parker, Dated 4/12/2020, Sheets 1-7
Prepared by	rama

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	188.0	Exposed
Unconditioned*	71.0	**NatHERS climate zone**
Total	259.0	56
Garage	57.0	

Thermal performance

Heating	Cooling
42.1 MJ/m^2	12.5 MJ/m^2

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	Scott Douglass
Business name	Efficiency Assessments Pty Ltd
Email	scott@ea1.com.au
Phone	0424630400
Accreditation No.	13/1547
Assessor Accrediting Organisation	Design Matters National
Declaration of interest	None

Verification

To verify this certificate, scan the QR code or visit hstar.com.au/QR/Generate?p=BvCdZhWLI.
When using either link, ensure you are visiting 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.

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
TIM-001-01 W	TIM-001-01 W Timber A SG Clear	5.4	0.56	0.53	0.59
TIM-003-01 W	TIM-003-01 W Timber A DG Air Fill Clear-Clear	3.0	0.48	0.46	0.50
TIM-004-01 W	TIM-004-01 W Timber B DG Air Fill Clear-Clear	3.0	0.56	0.53	0.59
TIM-002-01 W	TIM-002-01 W Timber B SG Clear	5.4	0.63	0.60	0.66

Custom* windows

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

* Refer to glossary.

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Garage 1	TIM-001-01 W	n/a	2040	820	n/a	90	W	No
Powder	TIM-001-01 W	n/a	1000	600	n/a	90	W	No
Kitchen/Living	TIM-003-01 W	n/a	1800	1800	n/a	90	E	No
Kitchen/Living	TIM-003-01 W	n/a	2400	1640	n/a	90	E	No
Kitchen/Living	TIM-003-01 W	n/a	1400	2100	n/a	90	S	No
Kitchen/Living	TIM-003-01 W	n/a	2400	4800	n/a	90	S	No
Kitchen/Living	TIM-004-01 W	n/a	1170	9000	n/a	00	S	No
Lounge	TIM-002-01 W	n/a	2100	3200	n/a	90	N	No
Hall/stairs	TIM-001-01 W	n/a	1200	1200	n/a	90	E	No
Hall/stairs	TIM-001-01 W	n/a	1200	1200	n/a	90	S	No
Hall/stairs	TIM-001-01 W	n/a	2040	820	n/a	90	N	No
Hall/stairs	TIM-002-01 W	n/a	2100	250	n/a	00	N	No
Bed 1	TIM-001-01 W	n/a	1200	1200	n/a	90	S	No
Bed 1	TIM-001-01 W	n/a	1200	1200	n/a	90	W	No
Wir	TIM-001-01 W	n/a	1200	850	n/a	90	W	No
Ens	TIM-001-01 W	n/a	1200	850	n/a	90	W	No
Bed 2	TIM-001-01 W	n/a	2100	3000	n/a	90	N	No
Bath	TIM-001-01 W	n/a	1200	850	n/a	90	E	No
Bed 3	TIM-002-01 W	n/a	1200	1800	n/a	10	E	No

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
No Data Available					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

* Refer to glossary.

Skylight *type and performance*

Skylight ID	Skylight description
GEN-04-008a	Double-glazed clear, Timber and Aluminium Frame

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m^2)	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
Hall/stairs	GEN-04-008a	n/a	2100	0.60	E	None	No	0.50
Hall/stairs	GEN-04-008a	n/a	2100	0.60	E	None	No	0.50
Hall/stairs	GEN-04-008a	n/a	2100	0.60	E	None	No	0.50

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
Garage 1	2400	2700	90	N

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-1	Concrete Block	0.50	Medium	No insulation	No
EW-2	Concrete block, lined	0.50	Medium	Bulk Insulation R2.5	No
EW-3	Fibro Cavity Panel Direct Fix	0.50	Medium	Bulk Insulation R2.5	No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage 1	EW-1	1000	10995	W	0	NO
Garage 1	EW-1	1401	10995	W	0	NO
Garage 1	EW-1	2400	3500	N	2200	NO
Garage 1	EW-1	1700	595	N	0	NO
Garage 1	EW-1	700	595	N	0	NO
Garage 1	EW-1	300	1795	E	2100	NO
Powder	EW-2	2400	1490	W	0	NO
Kitchen/Living	EW-2	1700	3395	E	0	YES
Kitchen/Living	EW-2	700	3395	E	0	YES
Kitchen/Living	EW-2	800	3000	N	0	YES
Kitchen/Living	EW-2	1600	3000	N	0	YES
Kitchen/Living	EW-3	2401	1200	E	0	NO
Kitchen/Living	EW-3	2700	3100	E	550	YES

* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-3	2700	500	N	3100	YES
Kitchen/Living	EW-3	2700	1000	E	50	NO
Kitchen/Living	EW-3	2700	500	S	8000	YES
Kitchen/Living	EW-3	2700	3100	E	550	YES
Kitchen/Living	EW-3	3850	9200	S	4900	NO
Kitchen/Living	EW-3	2700	7200	W	550	NO
Kitchen/Living	EW-3	2401	700	W	0	NO
Lounge	EW-3	2656	4095	N	2750	NO
Lounge	EW-3	2656	3995	W	550	NO
Hall/stairs	EW-3	2656	1195	E	550	NO
Hall/stairs	EW-3	2656	2100	S	550	NO
Hall/stairs	EW-3	2656	1290	N	2750	NO
Bed 1	EW-3	2656	2000	S	550	NO
Bed 1	EW-3	2656	3795	W	550	NO
Wir	EW-3	2656	2390	W	550	NO
Ens	EW-3	2656	2990	W	550	NO
Bed 2	EW-3	2656	3795	N	2750	NO
Bed 2	EW-3	2656	3995	E	550	NO
Bath	EW-3	2656	4190	E	550	NO
Bed 3	EW-3	2656	3790	E	550	NO
Storage	EW-1	1800	2095	N	0	NO
Storage	EW-1	600	2095	N	0	NO
Storage	EW-1	1800	8595	E	0	NO
Storage	EW-1	600	8595	E	0	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		110.00	No insulation
IW-2 - Cavity wall, direct fix plasterboard, single gap		88.00	Bulk Insulation, No Air Gap R2.5
IW-3 - Stud, plasterboard		14.00	No Insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage 1	Concrete Slab on Ground 100mm	39.00	None	No Insulation	Bare
Powder	Concrete Slab on Ground 100mm	4.00	None	Bulk Insulation in Contact with Floor R1.2	Ceramic Tiles 8mm
Kitchen/Living	Concrete Slab on Ground 100mm	84.20	None	Bulk Insulation in Contact with Floor R1.2	80/20 Carpet 10mm/Ceramic

* Refer to glossary.

Location	Construction	Area (m)	Sub-floor ventilation	Added insulation (R-value)	Covering
Lounge/Garage 1	Timber Above Plasterboard 100mm	13.90		Bulk Insulation R5	Carpet+Rubber Underlay 18mm
Hall/stairs/Kitchen/Living	Timber Above Plasterboard 100mm	10.10		No Insulation	Carpet+Rubber Underlay 18mm
Hall/stairs/Stairs	Timber Above Plasterboard 100mm	4.60		No Insulation	Carpet+Rubber Underlay 18mm
Hall/stairs/Storage	Timber Above Plasterboard 100mm	13.90		Bulk Insulation R5	Carpet+Rubber Underlay 18mm
Hall/stairs	Suspended Timber Floor 100mm	2.00	Enclosed	Bulk Insulation in Contact with Floor R4	Carpet+Rubber Underlay 18mm
Bed 1/Garage 1	Timber Above Plasterboard 100mm	6.40		Bulk Insulation R5	Carpet+Rubber Underlay 18mm
Bed 1/Powder	Timber Above Plasterboard 100mm	4.20		No Insulation	Carpet+Rubber Underlay 18mm
Bed 1/Kitchen/Living	Timber Above Plasterboard 100mm	4.60		No Insulation	Carpet+Rubber Underlay 18mm
Wir/Garage 1	Timber Above Plasterboard 100mm	8.70		Bulk Insulation R5	Carpet+Rubber Underlay 18mm
Ens/Garage 1	Timber Above Plasterboard 19mm	9.20		Bulk Insulation R5	Ceramic Tiles 8mm
Bed 2/Storage	Timber Above Plasterboard 100mm	3.10		Bulk Insulation R5	Carpet+Rubber Underlay 18mm
Bed 2	Suspended Timber Floor 100mm	11.70	Enclosed	Bulk Insulation in Contact with Floor R4	Carpet+Rubber Underlay 18mm
Bath	Suspended Timber Floor 100mm	10.10	Enclosed	Bulk Insulation in Contact with Floor R4	Ceramic Tiles 8mm
Bed 3/Kitchen/Living	Timber Above Plasterboard 100mm	2.60		No Insulation	Carpet+Rubber Underlay 18mm
Bed 3	Suspended Timber Floor 100mm	11.00	Enclosed	Bulk Insulation in Contact with Floor R4	Carpet+Rubber Underlay 18mm
Stairs	Concrete Slab on Ground 100mm	4.70	None	Bulk Insulation in Contact with Floor R1.2	Carpet+Rubber Underlay 18mm
Storage	Concrete Slab on Ground 100mm	17.60	None	No Insulation	Bare

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage 1	Timber Above Plasterboard	Bulk Insulation R5	No
Powder	Timber Above Plasterboard	No Insulation	No
Kitchen/Living	Plasterboard	Bulk Insulation R5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Lounge	Plasterboard	Bulk Insulation R5	No
Hall/stairs	Plasterboard	Bulk Insulation R5	No
Bed 1	Plasterboard	Bulk Insulation R5	No
Wir	Plasterboard	Bulk Insulation R5	No
Ens	Plasterboard	Bulk Insulation R5	No
Bed 2	Plasterboard	Bulk Insulation R5	No
Bath	Plasterboard	Bulk Insulation R5	No
Bed 3	Plasterboard	Bulk Insulation R5	No
Stairs	Timber Above Plasterboard	No Insulation	No

* Refer to glossary.

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Storage	Timber Above Plasterboard	Bulk Insulation R5	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Powder	1	Downlights - LED	150	Sealed
Kitchen/Living	34	Downlights - LED	150	Sealed
Kitchen/Living	2	Exhaust Fans	200	Sealed
Lounge	7	Downlights - LED	150	Sealed
Hall/stairs	12	Downlights - LED	150	Sealed
Bed 1	6	Downlights - LED	150	Sealed
Wir	4	Downlights - LED	150	Sealed
Ens	3	Downlights - LED	150	Sealed
Ens	1	Exhaust Fans	300	Sealed
Bed 2	6	Downlights - LED	150	Sealed
Bath	4	Downlights - LED	150	Sealed
Bath	1	Exhaust Fans	300	Sealed
Bed 3	6	Downlights - LED	150	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, No Air Gap Above R1.3	0.50	Medium

* Refer to glossary.

Explanatory notes

About this report

A NatHERS rating is a comprehensive, dynamic computer modelling evaluation of a home, using the floorplans, elevations and specifications to estimate an energy load. It addresses the building layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings), but does not cover the water or energy use of appliances or energy production of solar panels.

Ratings are based on a unique climate zone where the home is located and are generated using standard assumptions, including occupancy patterns and thermostat settings. The actual energy consumption of a home may vary significantly from the predicted energy load, as the assumptions used in the rating will not match actual usage patterns. For example, the number of occupants and personal heating or cooling preferences will vary.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparing different dwelling designs and to demonstrate that the design meets the energy efficiency requirements in the National Construction Code. Homes that are energy efficient use less energy, are warmer on cool days, cooler on hot days and cost less to run. The higher the star rating the more thermally efficient the dwelling is.

Accredited assessors

To ensure the NatHERS Certificate is of a high quality, always use an accredited or licenced assessor. NatHERS accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO).

Australian Capital Territory (ACT) licensed assessors may only produce assessments for regulatory purposes using software for which they have a licence endorsement. Licence endorsements can be confirmed on the ACT licensing register

AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country. Non-accredited assessors do not have this level of quality assurance or any ongoing training requirements.

Any questions or concerns about this report should be directed to the assessor in the first instance. If the assessor is unable to address these questions or concerns, the AAO specified on the front of this certificate should be contacted.

Disclaimer

The format of the NatHERS Certificate was developed by the NatHERS Administrator. However the content of each individual certificate is entered and created by the assessor to create a NatHERS Certificate. It is the responsibility of the assessor who prepared this certificate to use NatHERS accredited software correctly and follow the NatHERS Technical Notes to produce a NatHERS Certificate.

The predicted annual energy load in this NatHERS Certificate is an estimate based on an assessment of the building by the assessor. It is not a prediction of actual energy use, but may be used to compare how other buildings are likely to perform when used in a similar way.

Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, indoor air temperature and local climate.

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

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure category – exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category – open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category – suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category – protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au.
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
Roof window	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
Shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
Skylight (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
Vertical shading features	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).

* Refer to glossary.