

Nationwide House Energy Rating Scheme

NatHERS Certificate No. 0005385547

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Property

Address 38 Undercliff Road , Freshwater , NSW , 2096

Lot/DP 22/5118

NCC Class* 1A

Type New Dwelling

Plans

Main Plan Plans, Elevations, Section

Prepared by Arkhaus

Construction and environment

Assessed floor area (m ²)*	Exposure Type
Conditioned*	240.0
Unconditioned*	43.0
Total	283.0
Garage	0.0

NatHERS climate zone 56



Accredited assessor

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Assessor Accrediting Organisation ABSA

Declaration of interest Declaration not completed

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.



Thermal performance

Heating	Cooling
40.0 MJ/m ²	25.5 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.

Verification

To verify this certificate, scan the QR code or visit www.hstar.com.au/QR/Generate?p=MXdUQAOGT.

When using either link, ensure you are visiting www.hstar.com.au



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
ATB-004-03 B	ATB-004-03 B AI Thermally Broken B DG Air Fill High Solar Gain low-E -Clear	3.1	0.49	0.47	0.51
ATB-003-03 B	ATB-003-03 B AI Thermally Broken A DG Air Fill High Solar Gain low-E -Clear	3.1	0.39	0.37	0.41
ALM-002-03 A	ALM-002-03 A Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61
ALM-002-01 A	ALM-002-01 A Aluminium B SG Clear	6.7	0.70	0.66	0.73
ALM-001-01 A	ALM-001-01 A Aluminium A SG Clear	6.7	0.57	0.54	0.60
ATB-004-04 B	ATB-004-04 B AI Thermally Broken B DG Air Fill Low Solar Gain low-E -Clear	3.1	0.27	0.26	0.28

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*
Kitchen/Living	ATB-004-03 B	n/a	2700	1400	n/a	00	NW	No
Kitchen/Living	ATB-003-03 B	n/a	3000	2700	n/a	95	SW	No
Kitchen/Living	ATB-004-03 B	n/a	3400	4200	n/a	70	NE	No
Kitchen/Living	ATB-004-03 B	n/a	3400	4200	n/a	70	NE	No
Kitchen/Living	ALM-002-03 A	n/a	3000	1250	n/a	95	SE	No
WIP-Cellar	ALM-002-01 A	n/a	1540	900	n/a	00	SW	No
Entry Stair	ATB-004-03 B	n/a	2700	1600	n/a	00	SW	No
Entry Stair	ATB-004-03 B	n/a	2700	3040	n/a	00	NE	No
Guest Bed	ALM-001-01 A	n/a	1200	600	n/a	30	NW	No
Guest Bed	ALM-002-03 A	n/a	2700	3672	n/a	66	NE	No
Powder	ALM-001-01 A	n/a	1200	600	n/a	30	NW	No
Laundry	ALM-002-01 A	n/a	2590	1570	n/a	95	NW	No
MU	ATB-004-03 B	n/a	2320	3900	n/a	66	SW	No
Bed 2	ALM-002-01 A	n/a	2200	3424	n/a	66	SW	Yes
Bed 2	ALM-002-01 A	n/a	2700	600	n/a	00	NW	No
Rumpus	ATB-004-03 B	n/a	3800	3043	n/a	00	NE	No
Rumpus	ATB-004-04 B	n/a	1640	600	n/a	00	SE	No
Rumpus	ATB-004-04 B	n/a	2200	4576	n/a	75	SW	Yes
Rumpus	ATB-004-04 B	n/a	2700	3043	n/a	00	SW	Yes
Bed 3	ALM-002-01 A	n/a	2700	900	n/a	00	NW	No
Bed 3	ALM-002-01 A	n/a	3000	3300	n/a	45	NE	No
Bath	ALM-002-01 A	n/a	2700	1000	n/a	00	NW	No
Master Bed	ALM-002-01 A	n/a	2700	1500	n/a	00	NW	No
Master Bed	ALM-002-01 A	n/a	2700	4776	n/a	75	NE	No
Master Bed	ALM-002-01 A	n/a	2700	1000	n/a	95	SE	No
Ensuite	ALM-002-01 A	n/a	1640	600	n/a	45	SE	No
Void	ATB-004-03 B	n/a	3800	3043	n/a	00	SW	No
Void	ATB-004-03 B	n/a	3800	3043	n/a	00	NE	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								

Skylight type and performance

Skylight ID	Skylight description
No Data Available	

Skylight schedule

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

External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
Entry Stair	2700	1200	90	SW
Laundry	2400	820	90	NW

External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-1	Cavity Brick	0.30	Light	Foil, Anti-glare one side + Bulk Insulation R0.3	Yes
EW-2	Cavity Brick	0.50	Medium	Foil, Anti-glare one side + Bulk Insulation R0.3	Yes
EW-3	Cavity Brick	0.30	Light	Anti-glare foil with bulk no gap R0.3	Yes
EW-4	Weatherboard Cavity Panel Direct Fix	0.85	Dark	Foil, Anti-glare one side + Bulk Insulation R2.5	Yes
EW-5	Metal Clad Cavity Panel Direct Fix	0.85	Dark	Anti-glare foil with bulk no gap R2.5	Yes
EW-6	Cavity Brick	0.85	Dark	No insulation	No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Kitchen/Living	EW-1	3000	1700	NW	3400	YES
Kitchen/Living	EW-1	3400	3395	SW	1700	YES
Kitchen/Living	EW-1	3400	2700	NW	3900	YES
Kitchen/Living	EW-1	3400	9000	NE	2000	NO
Kitchen/Living	EW-1	3400	5700	SE	0	NO
Kitchen/Living	EW-1	3400	800	SW	1900	YES
Kitchen/Living	EW-1	3000	1900	SE	0	YES
Kitchen/Living	EW-2	3000	800	NE	1900	YES
Kitchen/Living	EW-1	3000	4795	SE	0	NO
WIP-Cellar	EW-1	3000	1695	SE	0	NO
WIP-Cellar	EW-1	3000	5595	SW	1600	NO
Entry Stair	EW-1	2700	3190	SW	1600	YES
Entry Stair	EW-1	3000	3190	NE	1700	YES
Guest Bed	EW-3	2700	3695	NW	0	NO
Guest Bed	EW-3	2700	3845	NE	1500	YES
Powder	EW-1	2700	600	SW	3700	YES
Powder	EW-1	2700	1795	NW	0	NO
Laundry	EW-1	2700	3690	NW	0	YES
MU	EW-1	2700	900	SE	8800	YES
MU	EW-1	2700	4100	SW	700	NO
MU	EW-1	2700	3100	NW	0	NO
MU	EW-1	2700	600	NE	3700	YES
MU	EW-1	2700	1700	SE	3400	YES
MU	EW-1	2700	195	NE	1700	YES
Bed 2	EW-4	3000	3695	SW	600	NO
Bed 2	EW-4	3000	3695	NW	0	NO
Rumpus	EW-5	3000	395	SE	3400	YES
Rumpus	EW-4	3800	3395	NE	1700	YES
Rumpus	EW-4	3800	4000	SE	0	NO
Rumpus	EW-4	3800	7795	SW	600	NO
Bed 3	EW-4	3000	4595	NW	0	NO
Bed 3	EW-4	3000	3295	NE	700	YES
Bed 3	EW-4	3000	1295	SE	3400	YES
Bath	EW-4	3000	3090	NW	0	NO
Master Bed	EW-4	2700	1700	NW	3400	YES
Master Bed	EW-4	2700	4795	NE	2100	YES
Master Bed	EW-4	2700	5895	SE	0	NO

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Ensuite	EW-4	2700	2490	SE	0	NO
Void	EW-4	3800	3390	SW	1700	YES
Void	EW-4	3800	2700	NW	0	YES
Void	EW-4	3800	3400	NE	400	NO
Void	EW-4	3800	1700	SE	4800	YES

Internal wall type

Wall ID	Wall type	Area (m ²)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		194.00	Bulk Insulation, No Air Gap R1
IW-2 - Cavity wall, direct fix plasterboard, single gap		1.00	No insulation
IW-3 - Cavity Brick		9.00	No insulation

Floor type

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living	Concrete Slab on Ground 100mm	87.70	None	No Insulation	Ceramic Tiles 8mm
WIP-Cellar	Concrete Slab on Ground 100mm	9.20	None	No Insulation	Ceramic Tiles 8mm
Entry Stair	Concrete Slab on Ground 100mm	19.90	None	No Insulation	Ceramic Tiles 8mm
Guest Bed	Concrete Slab on Ground 100mm	13.20	None	No Insulation	Carpet 10mm
Powder	Concrete Slab on Ground 100mm	4.20	None	No Insulation	Ceramic Tiles 8mm
Laundry	Concrete Slab on Ground 100mm	6.70	None	No Insulation	Ceramic Tiles 8mm
MU	Concrete Slab on Ground 100mm	21.40	None	No Insulation	Ceramic Tiles 8mm
Bed 2/Entry Stair	Concrete Above Plasterboard 150mm	0.70		No Insulation	Carpet 10mm
Bed 2/Laundry	Concrete Above Plasterboard 150mm	2.80		No Insulation	Carpet 10mm
Bed 2/MU	Concrete Above Plasterboard 150mm	9.90		No Insulation	Carpet 10mm
Rumpus/Kitchen/Living	Concrete Above Plasterboard 150mm	13.10		No Insulation	Cork Tiles or Parquetry 8mm
Rumpus/WIP-Cellar	Concrete Above Plasterboard 150mm	8.00		No Insulation	Cork Tiles or Parquetry 8mm
Rumpus/Entry Stair	Concrete Above Plasterboard 150mm	19.40		No Insulation	Cork Tiles or Parquetry 8mm
Rumpus/MU	Concrete Above Plasterboard 150mm	4.30		No Insulation	Cork Tiles or Parquetry 8mm
Bed 3/Guest Bed	Concrete Above Plasterboard 150mm	11.10		No Insulation	Carpet 10mm
Bed 3/Powder	Concrete Above Plasterboard 150mm	1.70		No Insulation	Carpet 10mm
Bed 3/MU	Concrete Above Plasterboard 150mm	2.10		No Insulation	Carpet 10mm
Bath/Powder	Concrete Above Plasterboard 150mm	1.60		No Insulation	Ceramic Tiles 8mm
Bath/Laundry	Concrete Above Plasterboard 150mm	4.00		No Insulation	Ceramic Tiles 8mm
Master Bed/Kitchen/Living	Concrete Above Plasterboard 150mm	30.20		No Insulation	Carpet 10mm
Ensuite/Kitchen/Living	Concrete Above Plasterboard 150mm	6.90		No Insulation	Ceramic Tiles 8mm
Void/Kitchen/Living	Concrete Above Plasterboard 150mm	20.10		No Insulation	Ceramic Tiles 8mm

Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living	Concrete, Plasterboard	Foil reflective both sides of the Bulk Insulation R2	Yes
Kitchen/Living	Concrete Above Plasterboard	No Insulation	No
WIP-Cellar	Concrete, Plasterboard	Foil reflective both sides of the Bulk Insulation R2	Yes
WIP-Cellar	Concrete Above Plasterboard	No Insulation	No
Entry Stair	Concrete Above Plasterboard	No Insulation	No
Guest Bed	Concrete, Plasterboard	Foil reflective both sides of the Bulk Insulation R2	Yes
Guest Bed	Concrete Above Plasterboard	No Insulation	No
Powder	Concrete, Plasterboard	Foil reflective both sides of the Bulk Insulation R2	Yes
Powder	Concrete Above Plasterboard	No Insulation	No
Laundry	Concrete Above Plasterboard	No Insulation	No
MU	Concrete, Plasterboard	Foil reflective both sides of the Bulk Insulation R2	Yes
MU	Concrete Above Plasterboard	No Insulation	No
Bed 2	Plasterboard	Bulk Insulation R3.5	No
Rumpus	Plasterboard	Bulk Insulation R3.5	No
Bed 3	Plasterboard	Bulk Insulation R3.5	No
Bath	Plasterboard	Bulk Insulation R3.5	No
Master Bed	Plasterboard	Bulk Insulation R3.5	No
Ensuite	Plasterboard	Bulk Insulation R3.5	No
Void	Plasterboard	Bulk Insulation R3.5	No

Ceiling penetrations*

Location	Quantity	Type	Diameter (mm ²)	Sealed/unsealed
Kitchen/Living	10	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
WIP-Cellar	3	Downlights - LED	150	Sealed
WIP-Cellar	1	Exhaust Fans	300	Sealed
Entry Stair	4	Downlights - LED	150	Sealed
Guest Bed	4	Downlights - LED	150	Sealed
Powder	2	Downlights - LED	150	Sealed
Powder	1	Exhaust Fans	300	Sealed
Laundry	2	Downlights - LED	150	Sealed
Laundry	1	Exhaust Fans	300	Sealed
MU	5	Downlights - LED	150	Sealed
Bed 2	2	Downlights - LED	150	Sealed
Rumpus	8	Downlights - LED	150	Sealed
Bed 3	2	Downlights - LED	150	Sealed

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Bath	1	Downlights - LED	150	Sealed
Bath	1	Exhaust Fans	300	Sealed
Master Bed	4	Downlights - LED	150	Sealed
Ensuite	2	Downlights - LED	150	Sealed
Ensuite	1	Exhaust Fans	300	Sealed
Void	4	Downlights - LED	150	Sealed

Ceiling fans

Location	Quantity	Diameter (mm)
No Data Available		

Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Waterproofing Membrane	No Insulation, Only an Air Gap	0.50	Medium
Waterproofing Membrane	No Insulation, Only an Air Gap	0.85	Dark
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.3	0.85	Dark
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.3	0.85	Dark

Explanatory notes

About this report

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

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

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

Accredited assessors

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

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

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

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

Disclaimer

The format of the NatHERS Certificate was developed by the 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 10m 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).