Nationwide House Energy Rating Scheme
NatHERS Certificate No. OUR6RU3FJT

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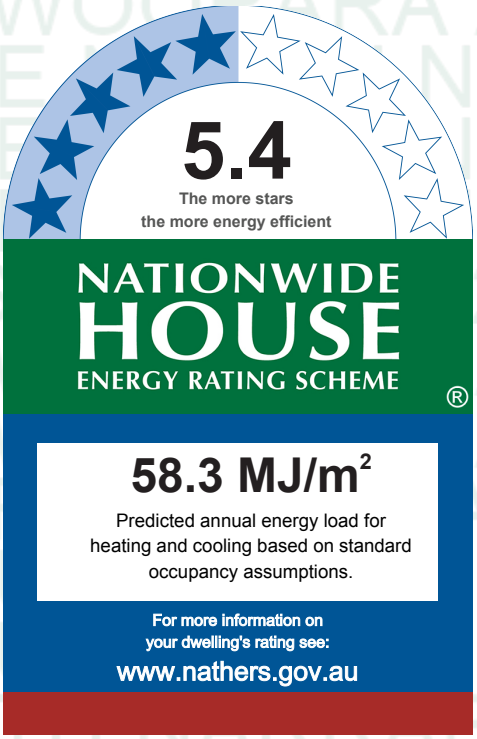

Property

Address	50 WOORARA AVE, NORTH NARRABEEN, NSW, 2101
Lot/DP	14/23429
NCC Class*	Class 1a
Type	New Home

Plans

Main plan	2014-2
Prepared by	PD

Construction and environment

Assessed floor area (m²)*		**Exposure type**
Conditioned*	265.8	suburban
Unconditioned*	54.7	**NatHERS climate zone**
Total	320.5	56, NORTH NARRABEEN
Garage	38.8	

Thermal performance

Heating	Cooling
39.6	**18.7**
MJ/m²	MJ/m²

About the rating

NatHERS software models the expected thermal energy loads using information about the design and construction, climate and common patterns of household use. The software does not take into account appliances, apart from the airflow impacts from ceiling fans.

Accredited assessor

Name	Pranab chakma
Business name	Paul & c Associates
Email	info@basixcertifier.com.au
Phone	0490511593
Accreditation No.	101225
Assessor Accrediting Organisation	ABSA
Declaration of interest	Declaration completed: no conflicts

Verification

To verify this certificate, scan the QR code or visit https://www.fr5.com.au/QRCodeLanding?PublicId=OUR6RU3FJT When using either link, ensure you are visiting www.FR5.com.au.

National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated houses are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at www.abcb.gov.au.

State and territory variations and additions to the NCC may also apply.

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

1. Roof colour to be as per certificate
2. All insulation type may be replaced with similar R-value
3. All window type may be replaced with similar u-value and SHGC

Window and glazed door *type and performance*

Default* windows

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61
ALM-004-03 A	Aluminium B DG Air Fill High Solar Gain low-E -Clear	4.3	0.53	0.5	0.56
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74

Custom* windows

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

Window and glazed door *Schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
BED5	ALM-002-03 A	W1	2000	800	louvre	60.0	SE	No
BED5	ALM-002-03 A	D3	2100	2400	sliding	45.0	NE	No
BED4	ALM-002-03 A	D2	2100	2400	sliding	45.0	NE	No
BATH LFLOOR	ALM-002-03 A	W3	600	1800	sliding	45.0	SE	No
RUMPUS	ALM-004-03 A	D1	2100	3000	sliding	30.0	NE	No
RUMPUS	ALM-002-03 A	W4	2000	800	louvre	60.0	NW	No
PNT	ALM-002-03 A	W1	1200	800	fixed	0.0	NW	No
GARAGE	ALM-002-03 A	W2	600	1800	sliding	45.0	NW	No
BED1	ALM-002-03 A	W3	1300	2400	sliding	45.0	SW	No
BED1	ALM-002-03 A	W4	1500	800	louvre	90.0	SE	No
BED2	ALM-002-03 A	W6	1500	1813	sliding	45.0	SE	No
K/LIV	ALM-002-03 A	W8	1500	800	louvre	90.0	SE	No
K/LIV	ALM-002-03 A	W7	1500	800	louvre	90.0	SE	No
K/LIV	ALM-004-03 A	D1	2100	2400	sliding	45.0	NE	No
K/LIV	ALM-002-03 A	D2	2100	4200	sliding	45.0	NE	No
K/LIV	ALM-004-03 A	D3	2100	2400	sliding	45.0	NE	No
BATH	ALM-002-03 A	W5	1500	800	louvre	90.0	SE	No
MASTER BED	ALM-002-03 A	D3	2100	3000	sliding	30.0	SW	No
MASTER BED	ALM-002-03 A	W2	1500	700	louvre	60.0	SE	No
MASTER BED	ALM-002-03 A	W3	1500	700	louvre	60.0	SE	No
MASTER BED	ALM-002-03 A	D5	2100	3000	sliding	30.0	NE	No
STUDY/STAIRS	ALM-002-01 A	W4	770	750	louvre	60.0	SE	No
STUDY/STAIRS	ALM-002-03 A	D4	2100	3000	other	20.0	NE	No
STUDY/STAIRS	ALM-002-03 A	W5	1500	700	double_hung	22.0	NW	No
ENS	ALM-002-03 A	W1	900	2550	sliding	45.0	SW	No
WIR	ALM-002-03 A	W6	1300	700	fixed	0.0	NW	No

Roof window *type and performance value*

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*

* Refer to glossary.

Location	Window ID	Window no.	Opening %	Area (m²)	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 (m²)	Orient-ation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
GARAGE	2500	5500	100.0	SW
STAIRS/ENTRY	2500	1100	100.0	SW

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	FR5 - Concrete Block 190mm Core Filled	0.5	Medium	Polyurethane rigid foamed aged: R2.5 (R2.5)	No
2	FR5 - Fibro Clad Framed	0.5	Medium	Rockwool batt: R2.5 (R2.5)	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
BED5	1	2800	4653	SE	0	No
BED5	1	2800	3336	NE	1281	No
BED4	1	2800	3334	NE	1282	No
BATH LFLOOR	1	2800	3172	SE	0	No
STORE/STAIRS	1	2800	11151	SW	0	Yes
STORE/STAIRS	1	2800	1916	SE	0	No
STORE/STAIRS	1	2800	4321	NW	0	No
RUMPUS	1	2800	4245	NE	1290	No
RUMPUS	1	2800	5570	NW	0	No
PNT	2	2750	2048	NW	805	No
GARAGE	2	2750	6176	SW	859	No
GARAGE	2	2750	950	SE	0	Yes
GARAGE	2	2750	7828	NW	802	No
BED1	2	2750	3380	SW	853	No
BED1	2	2750	3713	SE	614	No
BED1	2	2750	959	NW	0	Yes

* Refer to glossary.

BED2	2	2750	3715	SE	617	No
K/LIV	2	3700	5776	SE	624	No
K/LIV	2	3700	11316	NE	1309	No
K/LIV	2	3700	5769	NW	796	No
STAIRS/ENTRY	2	2750	1520	SW	1808	Yes
BATH	2	2750	2343	SE	610	No
MASTER BED	2	2400	4010	SW	2132	Yes
MASTER BED	2	2400	5661	SE	600	No
MASTER BED	2	2400	4011	NE	1967	Yes
STUDY/STAIRS	2	2400	1367	SE	0	Yes
STUDY/STAIRS	2	2400	4030	NE	600	No
STUDY/STAIRS	2	2400	4031	NW	600	Yes
ENS	2	2400	4533	SW	634	No
ENS	2	2400	1524	SE	0	Yes
ENS	2	2400	2360	NW	609	No
WIR	2	2400	1968	NW	634	No
WIR	2	2400	509	NE	563	Yes

Internal wall *type*

Wall ID	Wall type	Area (m²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	207.6	Rockwool batt: R2.5 (R2.5)
2	FR5 - Internal Plasterboard Stud Wall	33.4	

Floor *type*

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (R-value)	Covering
BED5	FR5 - CSOG: Slab on Ground	14.7	Enclosed	R2.0	Carpet
BED4	FR5 - CSOG: Slab on Ground	13.5	Enclosed	R2.0	Carpet
BATH LFLOOR	FR5 - CSOG: Slab on Ground	10.7	Enclosed	R2.0	Tiles
STORE/STAIRS	FR5 - CSOG: Slab on Ground	45.5	Enclosed	R2.0	Tiles
RUMPUS	FR5 - CSOG: Slab on Ground	23.7	Enclosed	R2.0	Carpet
PNT	FR5 - Timber Lined	1.8	Enclosed	R2.5	Tiles
PNT	FR5 - Timber Lined	3.2	Enclosed	R2.5	Tiles
GARAGE	FR5 - Timber Lined	0.2	Enclosed	R2.5	Timber (Mountain ash)
GARAGE	FR5 - Timber Lined	3.3	Enclosed	R2.5	Timber (Mountain ash)
GARAGE	FR5 - CSOG: Slab on Ground	0.3	Enclosed	R2.0	none
GARAGE	FR5 - CSOG: Slab on Ground	0.5	Enclosed	R2.0	none
GARAGE	FR5 - CSOG: Slab on Ground	24.1	Enclosed	R2.0	none
GARAGE	FR5 - CSOG: Slab on Ground	4.4	Enclosed	R2.0	none

GARAGE	FR5 - CSOG: Slab on Ground	5.1	Enclosed	R2.0	none
GARAGE	FR5 - CSOG: Slab on Ground	0.9	Enclosed	R2.0	none
BED1	FR5 - CSOG: Slab on Ground	2.5	Enclosed	R2.0	Carpet
BED1	FR5 - CSOG: Slab on Ground	3.1	Enclosed	R2.0	Carpet
BED1	FR5 - CSOG: Slab on Ground	7	Enclosed	R2.0	Carpet
BED2	FR5 - Timber Lined	8.4	Enclosed	R2.5	Carpet
BED2	FR5 - Timber Lined	4.2	Enclosed	R2.5	Carpet
K/LIV	FR5 - Timber Lined	68.6	Enclosed	R2.5	Tiles
K/LIV	FR5 - Timber Lined	0.5	Enclosed	R2.5	Timber (Mountain ash)
K/LIV	FR5 - Timber Lined	0.9	Enclosed	R2.5	Timber (Mountain ash)
STAIRS/ENTRY	FR5 - CSOG: Slab on Ground	2.3	Enclosed	R2.0	Carpet
STAIRS/ENTRY	FR5 - CSOG: Slab on Ground	7.3	Enclosed	R2.0	Carpet
STAIRS/ENTRY	FR5 - Timber Lined	1.2	Enclosed	R2.5	Carpet
STAIRS/ENTRY	FR5 - Timber Lined	17.7	Enclosed	R2.5	Carpet
BATH	FR5 - Timber Lined	0.5	Enclosed	R2.5	Tiles
BATH	FR5 - Timber Lined	0.3	Enclosed	R2.5	Tiles
BATH	FR5 - CSOG: Slab on Ground	1.7	Enclosed	R2.0	Tiles
BATH	FR5 - CSOG: Slab on Ground	2.8	Enclosed	R2.0	Tiles
MASTER BED	FR5 - Timber Lined	22.7	Enclosed	R3.0	Carpet
STUDY/STAIRS	FR5 - Timber Lined	16.2	Enclosed	R3.0	Carpet
ENS	FR5 - Timber	10.6	Enclosed	R3.0	Tiles
WIR	FR5 - Timber	8.9	Enclosed	R3.0	Carpet

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
BED5	FR5 - Timber Lined	R2.5	No
BED4	FR5 - Timber Lined	R2.5	No
BATH LFLOOR	FR5 - Timber Lined	R2.5	No
STORE/STAIRS	FR5 - Timber Lined	R2.5	No
RUMPUS	FR5 - Timber Lined	R2.5	No
PNT	FR5 - Timber Lined	R3.0	No
PNT	Plasterboard	R6.0	Yes
GARAGE	Plasterboard	R6.0	Yes
GARAGE	Plasterboard	R6.0	Yes
GARAGE	FR5 - Timber Lined	R3.0	No
GARAGE	FR5 - Timber	R3.0	No
GARAGE	Plasterboard	R6.0	Yes
GARAGE	Plasterboard	R6.0	Yes

* Refer to glossary.

GARAGE	Plasterboard	R6.0	Yes
BED1	FR5 - Timber Lined	R3.0	No
BED1	Plasterboard	R6.0	Yes
BED1	Plasterboard	R6.0	Yes
BED2	Plasterboard	R6.0	Yes
BED2	FR5 - Timber Lined	R3.0	No
K/LIV	Plasterboard	R6.0	Yes
K/LIV	FR5 - Timber Lined	R3.0	No
K/LIV	FR5 - Timber Lined	R3.0	No
STAIRS/ENTRY	Plasterboard	R6.0	Yes
STAIRS/ENTRY	FR5 - Timber Lined	R3.0	No
STAIRS/ENTRY	Plasterboard	R6.0	Yes
STAIRS/ENTRY	FR5 - Timber Lined	R3.0	No
BATH	FR5 - Timber Lined	R3.0	No
BATH	FR5 - Timber Lined	R3.0	No
BATH	Plasterboard	R6.0	Yes
MASTER BED	Plasterboard	R6.0	Yes
STUDY/STAIRS	Plasterboard	R6.0	Yes
ENS	Plasterboard	R6.0	Yes
WIR	Plasterboard	R6.0	Yes

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
No Data Available				

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Cont:Attic-Continuous	1.8	0.9	Dark
Cont:Attic-Continuous	1.8	0.5	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 NatHERSAdministrator. However the content of each individual certificate is entered and created by the assessor to create a NatHERS Certificate. It is the responsibility of the assessor who prepared this certificate to use NatHERS accredited software correctly and follow the NatHERS Technical Notes to produce a NatHERS Certificate.

The predicted annual energy load in this NatHERS Certificate is an estimate based on an assessment of the building by the assessor. It is not a prediction of actual energy use, but may be used to compare how other buildings are likely to perform when used in a similar way. Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, indoor air temperature and local climate.

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

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure category - exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category - open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category - suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category - protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.

National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au.
Opening Percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
Roof window	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
Shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
Skylight (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
Vertical shading features	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).