

ENERGY EFFICIENCY REPORT

BASIX® Thermal Comfort Simulation
Assessment

SITE ADDRESS

Lot 1101 (#16) Chapman Street WERRINGTON 2747

LOCAL GOVERNMENT AUTHORITY

Penrith City Council

REFERENCE NUMBER

1101Werrington

COMMISSIONED BY

Creation Homes (NSW) Pty. Ltd.

DEPOSITED PLAN NUMBER

1226122

CLIENT

Lendlease Corporation

CERTIFICATION DATE

9/12/2019

DWELLING TYPE

Single Storey

Disclaimer and Condition of Use

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energy
advance

PROJECT CERTIFICATION SUMMARY



DESIGN AND APPROVED SOFTWARE INFORMATION

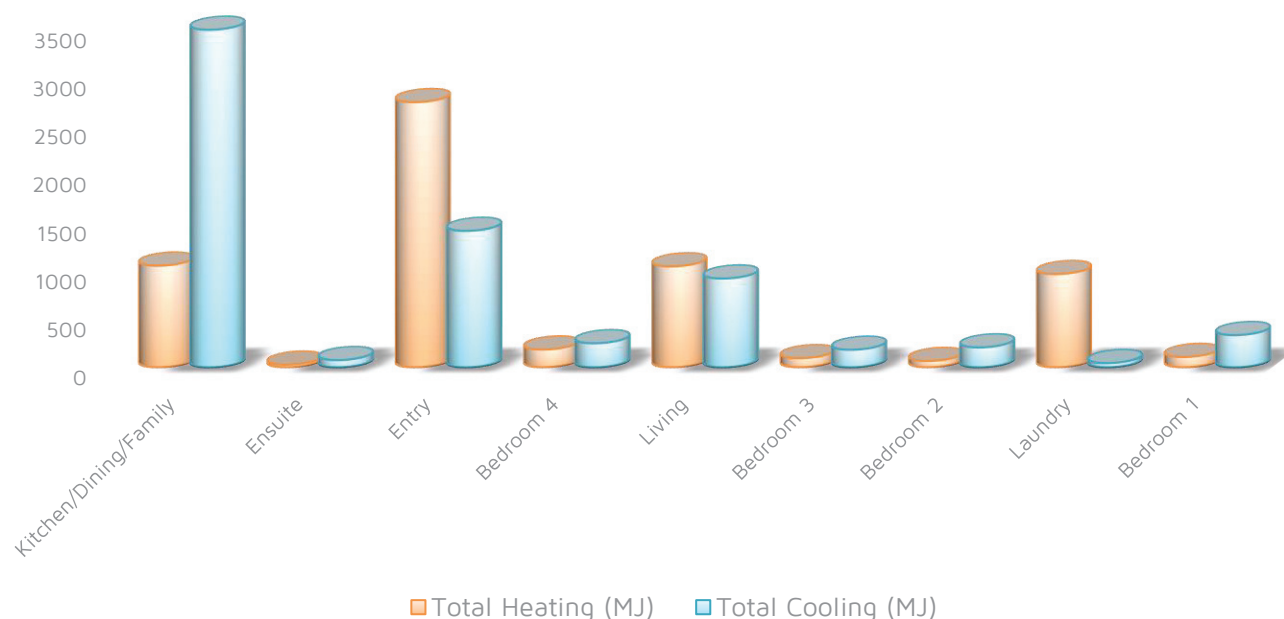
SIMULATION ENGINE	Chenath Engine 3.13 (FirstRate5)	INTERNAL AREAS (m ²)	143.03
EXPOSURE	Suburban	OUTDOOR AREAS (m ²)	15.23
ORIENTATION:	78	GARAGE/CARPORT (m ²)	32.97
NatHERS CLIMATE ZONE:	28		
BCA (NCC) CLIMATE ZONE:	6		

ASSESSMENT CALCULATIONS & SOFTWARE RESULTS

TARGET	(MJ/m ² .pa)	PROPOSED	(MJ/m ² .pa)	BUILD EFFICIENCY BENCHMARK
Heating:	55.7	Heating:	46.3	PASS: 18.4%
Cooling:	56.2	Cooling:	50.9	PASS: 9.9%
Total:	111.9	Total:	97.2	

ZONED ENERGY LOAD DISTRIBUTION TOTALS (MJ)

The heating and cooling loads indicated are the simulated annual energy usages (MJ) for this home. The higher the load, the more energy needed to achieve thermal comfort.



STATEMENT OF COMPLIANCE

I / We certify that we are specialists in the relevant discipline and the following design documents comply with the relevant requirements of the National Construction Code (NCC Volume One/Two as applicable) in relation to thermal performance and the relevant Australian Standards specified in this report.

ASSESSOR NAME:

C. Sookloll

SIGNATURE:

RELEVANT QUALIFICATION STATEMENT

Certificate IV in NatHERS Assessment (Credential Number: TRF0002560)

Residential Building Thermal Performance Assessment (91318NSW) Course

Assessor Accrediting Organisation (AAO) Accreditation Number: **VIC/BDIV/14/1662 | ABSA/61846**

BUILDING SPECIFICATION SUMMARY

EXTERNAL WALLS

	CONSTRUCTION TYPE	INSULATION	NOTES
EXTERNAL WALLS	Brick Masonry	None	Double Brick to Front Elevation of Garage
	Brick Veneer	None	External Garage walls
	Framed	R1.5 Batts	Specified walls
	Brick Veneer	R1.5 Batts	Remainder of the external walls

ADDITIONAL NOTES Location of Construction Material as per Drawings | No insulation to external Garage walls

INTERNAL WALLS

	CONSTRUCTION TYPE	INSULATION	NOTES
INTERNAL WALLS	Framed	None	No insulation to the internal walls

ADDITIONAL NOTES None

ROOF AND CEILING

	CONSTRUCTION TYPE	INSULATION	NOTES
ROOF	Colorbond (un-ventilated)	Sarking	Approx. 20°O' Roof Pitch
CEILING	Plasterboard	R2.5 Batts	To House Area
	Plasterboard	None	To Garage Area

ADDITIONAL NOTES No insulation to the Garage ceiling | Location of Roof Pitch/Type as per elevations

FLOOR

	CONSTRUCTION TYPE	INSULATION	NOTES
FLOOR	225mm Waffle 85mm Slab	None	To Ground Floor

ADDITIONAL NOTES Floor Coverings modelled as per Drawings & NATHERS Protocols

EXTERNAL GLAZING

GLASS TYPE	COLOUR	FRAME	U _w VALUE	SHGC	NOTES
Standard	Clear	Aluminium	6.25	0.72	Sliding Doors
Standard	Clear	Aluminium	6.42	0.76	Sliding Windows
Standard	Clear	Aluminium	6.70	0.57	Casement Doors
Standard	Clear	Aluminium	6.50	0.63	Awning Windows

Note: Only a +/-5% SHGC tolerance is allowed with this rating. NB: This tolerance ONLY applies to SHGC, the U-value can always be lower but not higher than the values stated in the report. If any of the windows selected are outside the 5% tolerance then this certificate is no longer valid and the dwelling will need to be rerated to confirm compliance.

5.6

NATIONWIDE HOUSE ENERGY RATING

97.2 MJ/m²

www.nathers.gov.au

Certificate Number: 6U2JPBC4IT

Assessor Name: Claude-Francois Sookioli

Accreditation number: VIC/BD4V14/1662

Certificate date: 9 Dec 2019

Dwelling address: Lot 1101 (#16) Chapman Street WERRINGTON Penrith City Council NSW 2747

www.nathers.gov.au

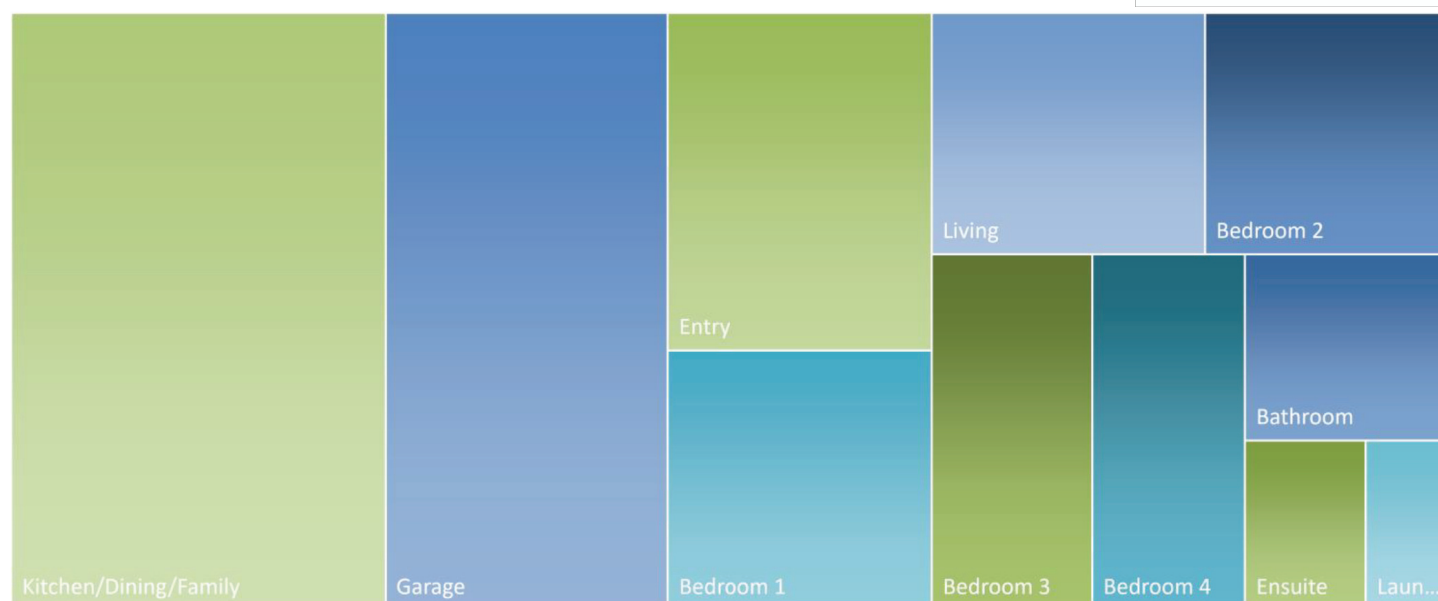


6U2JPBC4IT



ROOM AREAS

THERMAL MODELLING SOFTWARE AREA CALCULATIONS



All areas are calculated by the modelling software and do not take into account internal wall area displacements. The areas above are a representation of room proportions only in relation to total areas

LIGHTING/PENETRATION CALCULATIONS

ARTIFICIAL LIGHTING CALCULATION ALLOWANCES

AREA WITHIN THE CLASS 1 BUILDING	143.03 m ²		
Development Maximum	715 Watts	Area Wattage Allowance	5.0 W/m ²
AREA WITHIN THE CLASS 10 BUILDING	32.97 m ²		
Development Maximum	132 Watts	Area Wattage Allowance	4.0 W/m ²
AREA WITHIN THE OUTDOOR AREAS	15.23 m ²		
Development Maximum	46 Watts	Area Wattage Allowance	3.0 W/m ²

CEILING INULATION PENETRATION ALLOWANCE

CLASS 1 MAXIMUM PENETRATION ALLOWANCE	CLASS 1 MAXIMUM PENETRATION AREA (m ²)
0.5% TOTAL INSULATED CEILING AREA	0.72

The clearance required around downlights by "Australian Standard AS/NZS 3000 – 2007 Electrical Installations" (AS/NZS 3000), introduces a significant area of uninsulated ceiling and therefore increases heat loss and gain through the ceiling.

If approved fireproof downlight covers, which can be fully covered by insulation, are specified and noted on the electrical plan by the building designer or architect, then there is no need to allow for the ceiling penetration

NSW ADDITIONS: BUILDING FABRIC THERMAL INSULATION

NSW 3.12.1 APPLICATION OF NSW PART 3.12.1

- (a) Compliance with NSW 3.12.1.1 satisfies NSW P2.6.1(a) for thermal insulation and thermal breaks.
- (b) NSW PART 3.12.1 only applies to thermal insulation in a Class 1 or 10 building where a development consent specifies that the insulation is to be provided as part of the development.
- (c) In (b), the term development consent has the meaning given by the Environmental Planning and Assessment Act 1979.
- (d) The Deemed-to-Satisfy Provisions of this Part for thermal breaks apply to all Class 1 buildings and Class 10a buildings with a conditioned space.

NSW 3.12.1.1 COMPLIANCE WITH BCA PROVISIONS

- (a) Thermal insulation in a building must comply with the national BCA provisions of 3.12.1.1.
- (b) A thermal break must be provided between the external cladding and framing in accordance with national BCA provisions of—
 - (i) 3.12.1.2(c) for a metal framed roof; and
 - (ii) 3.12.1.4(b) for a metal framed wall.
- (c) Compensation for reduction in ceiling insulation must comply with the national BCA provisions of 3.12.1.2(e).
- (d) A floor with an in-slab or in-screed heating or cooling system must comply with the national BCA provisions of—
 - (i) 3.12.1.5(a)(ii), (iii) and (e) for a suspended floor; or
 - (ii) 3.12.1.5(c), (d) and (e) for a concrete slab-on-ground.

BUILDING SEALING & SERVICES

NSW 3.12.3 APPLICATION OF NSW PART 3.12.3

- (a) Compliance with NSW 3.12.3.1 satisfies NSW P2.6.1(b) for building sealing.
- (b) NSW Part 3.12.3 is not applicable to—
 - (i) existing buildings being relocated; or
 - (ii) Class 10a buildings—
 - (A) without a conditioned space; or
 - (B) for the accommodation of vehicles; or
 - (iii) parts of buildings that cannot be fully enclosed; or
 - (iv) a permanent building opening, in a space where a gas appliance is located, that is necessary for the safe operation of a gas appliance; or
 - (v) a building in climate zones 2 and 5 where the only means of air-conditioning is by using an evaporative cooler.

NSW 3.12.3.1 COMPLIANCE WITH BCA PROVISIONS

The sealing of a building must comply with the national BCA provisions 3.12.3.1 to 3.12.3.6.

NSW 3.12.5 SERVICES: APPLICATION OF NSW PART 3.12.5

- (a) Compliance with NSW 3.12.5.1 satisfies NSW P2.6.2 for services.
- (b) NSW Part 3.12.5 is not applicable to existing services associated with existing buildings being relocated.

NSW 3.12.5.1 COMPLIANCE WITH BCA PROVISIONS

Services must comply with the national BCA provisions 3.12.5.0 to 3.12.5.3.



Nationwide House Energy Rating Scheme* Certificate

Certificate Number: 6U2JPBC4IT

Date of Certificate: 9 Dec 2019

★ Star rating: 5.6



Assessor details

Accreditation number: VIC/BDAV/14/1662
Name: Claude-Francois Sookloll
Organisation: Energy Advance
Email: energy@energyadvance.com.au
Phone: 1300 850 228
Declaration of interest: No potential conflicts of interest to declare
Software: FirstRate5: 5.2.11 (3.13)
AAO: BDAV

Overview

Dwelling details

Address: Lot 1101 (#16) Chapman Street
WERRINGTON
Suburb: Penrith City Council
State: NSW Postcode: 2747
Type: New Home NCC Class: Class 1a
Lot/DP number: 1101|1226122 NatHERS climate zone: 28
Exposure: suburban

Key construction and insulation materials

(see following pages for details)

Construction: Wall: Brick Veneer & Framed
Roof: Colorbond
Insulation: Floor: Waffle Pod 300-85
Wall: R1.5 Batts (excl. Garage)
Roof: R2.5 Bulk (excl. Garage)
Floor: Waffle Pod 300-85
Glazing: Aluminium
Single Glazed

Net floor area (m²)

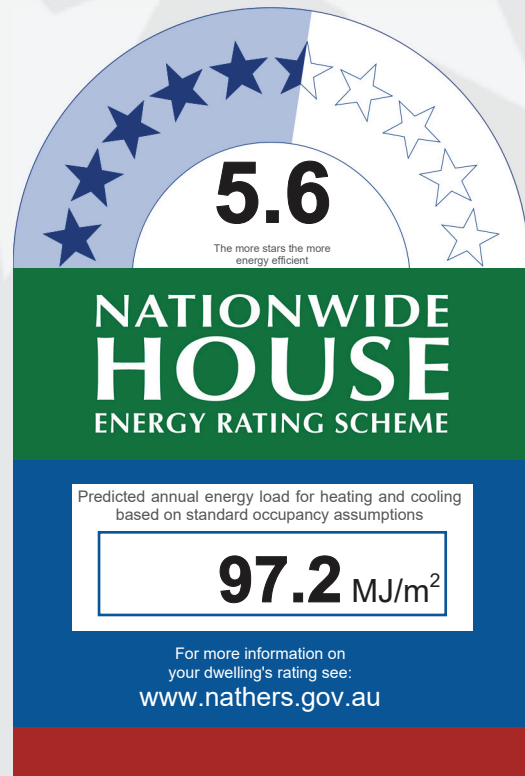
Conditioned: 117.8
Unconditioned: 6.9
Garage: 30.4
TOTAL: 155.1

Annual thermal performance loads (MJ/m²)

Heating: 46.3
Cooling: 50.9
TOTAL: 97.2

Plan documents

Plan ref/date: 1101Werrington | 09/12/2019
Prepared by: Creation Homes Pty Ltd



Ceiling penetrations

(see following pages for details)

Sealed: 2
Unsealed: 0
TOTAL:** 2

Principal daylight type: No downlights modelled

NOTE: This total is the maximum number of ceiling penetrations allowed to a ceiling (under a roof) for this certificate. **If this number is exceeded in construction then this certificate IS NOT VALID and a new certificate is required. Loss of ceiling insulation for the penetrations listed has been taken into account with the rating.

Window selection - default windows only

Note on allowable window values: Only a 5% tolerance to the nominated SHGC window values shown on page 2 can be used with this rating.

Note: Only a +/-5% SHGC tolerance is allowed with this rating.

NB: This tolerance ONLY applies to SHGC, the U-value can always be lower but not higher than the values stated on page 2.

If any of the windows selected are outside the 5% tolerance then this certificate is no longer valid and the dwelling will need to be re-rated to confirm compliance.

Scan to access this certificate online and confirm this is valid.



<https://www.fr5.com.au/QRCodeLand ing?PublicId=6U2JPBC4IT>

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Building Features

Windows type and performance value

Window ID	Window type	U-value	SHGC
WID-005-01 A	AI Residential Internal Sliding Door SG 4mm Clear	6.25	0.72
ALM-001-01 A	Aluminium A SG Clear	6.7	0.57
WID-006-01 A	AI Residential Sliding Window SG 3mm Clear	6.42	0.76
WID-001-01 A	AI Residential Awning Window SG 3mm Clear	6.5	0.63

Windows schedule

Window ID	Window no.	Height (mm)	Width (mm)	Orientation	Zone name	Outdoor shade
WID-005-01 A	WD2	2100	2410	WNW	Entry	No
ALM-001-01 A	WD1	2100	880	SSW	Entry	No
WID-006-01 A	W7	1800	2170	NNE	Bedroom 1	No
WID-006-01 A	W9	1200	1570	ESE	Bedroom 2	No
WID-006-01 A	W10	1200	1570	ESE	Bedroom 3	No
WID-001-01 A	W4	1030	1810	WNW	Bedroom 4	No
WID-001-01 A	W1	1030	1810	SSW	Living	No
WID-001-01 A	W3	1030	1570	NNE	Living	No
WID-005-01 A	WD3	2100	3610	NNE	Kitchen/Dining/Family	No
WID-001-01 A	W5	1800	850	WNW	Kitchen/Dining/Family	No
WID-006-01 A	W6	1800	2170	WNW	Kitchen/Dining/Family	No
WID-001-01 A	w11	1030	850	NNE	Bathroom	No
WID-001-01 A	W8	1030	610	ESE	Ensuite	No

Roof windows and skylight type and performance value

ID	Window type	U-value	SHGC
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Roof window and skylight schedule

ID	Roof window/ skylight no.	Area (m ²)	Orientation	Zone name	Outdoor shade	Indoor shade/ diffuser
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External wall type

Type	Insulation	Wall wrap
1 : CH - Double Brick		No
2 : CH - Brick Veneer -Uninsulated		No
3 : CH - Framed -R1.5 Batts	Glass fibre batt: R1.5 (R1.5)	No

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Building Features

4 : CH - Brick Veneer -R1.5 Batts

Glass fibre batt: R1.5 (R1.5)

No

External wall schedule

Wall type	Area (m ²)	Orientation	Zone name	Fixed shade	Eaves
1 : CH - Double Brick	13.4	SSW	Garage	Yes	Yes
2 : CH - Brick Veneer -Uninsulated	13.4	ESE	Garage	No	No
3 : CH - Framed -R1.5 Batts	8.3	WNW	Entry	Yes	Yes
3 : CH - Framed -R1.5 Batts	2.7	SSW	Entry	No	Yes
3 : CH - Framed -R1.5 Batts	2.6	ESE	Entry	Yes	Yes
4 : CH - Brick Veneer -R1.5 Batts	8.5	ESE	Bedroom 1	Yes	Yes
4 : CH - Brick Veneer -R1.5 Batts	8.7	NNE	Bedroom 1	No	Yes
4 : CH - Brick Veneer -R1.5 Batts	2	WNW	Bedroom 1	Yes	Yes
4 : CH - Brick Veneer -R1.5 Batts	7.3	ESE	Bedroom 2	Yes	Yes
4 : CH - Brick Veneer -R1.5 Batts	7.1	ESE	Bedroom 3	Yes	Yes
3 : CH - Framed -R1.5 Batts	6.7	SSW	Bedroom 4	Yes	No
3 : CH - Framed -R1.5 Batts	7.1	WNW	Bedroom 4	No	Yes
3 : CH - Framed -R1.5 Batts	6.5	SSW	Living	No	Yes
3 : CH - Framed -R1.5 Batts	6.5	NNE	Living	Yes	No
3 : CH - Framed -R1.5 Batts	10.9	WNW	Living	No	Yes
4 : CH - Brick Veneer -R1.5 Batts	10.9	NNE	Kitchen/Dining/Family	Yes	Yes
4 : CH - Brick Veneer -R1.5 Batts	21.5	WNW	Kitchen/Dining/Family	No	Yes
4 : CH - Brick Veneer -R1.5 Batts	6.5	ESE	Bathroom	No	No
4 : CH - Brick Veneer -R1.5 Batts	3.2	NNE	Bathroom	Yes	Yes
4 : CH - Brick Veneer -R1.5 Batts	3.7	ESE	Ensuite	Yes	Yes

Internal wall type

Type	Area (m ²)	Insulation
1 : CH - Internal Stud Walls	132.2	

Floors

Location	Construction	Area (m ²)	Sub floor ventilation	Added insulation	Covering
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.8)	30.4	Enclosed	R0.0	none
Entry	FR5 - 300mm waffle pod, 85mm concrete (R0.8)	16.1	Enclosed	R0.0	Carpet
Bedroom 1	FR5 - 300mm waffle pod, 85mm	12.4	Enclosed	R0.0	Carpet

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★ Star rating: **5.6**



Building Features

	concrete (R0.8)				
Bedroom 2	FR5 - 300mm waffle pod, 85mm concrete (R0.8)	10.7	Enclosed	R0.0	Carpet
Bedroom 3	FR5 - 300mm waffle pod, 85mm concrete (R0.8)	10.3	Enclosed	R0.0	Carpet
Bedroom 4	FR5 - 300mm waffle pod, 85mm concrete (R0.8)	9.8	Enclosed	R0.0	Carpet
Living	FR5 - 300mm waffle pod, 85mm concrete (R0.8)	11.9	Enclosed	R0.0	Carpet
Kitchen/Dining/Family	FR5 - 300mm waffle pod, 85mm concrete (R0.8)	40.4	Enclosed	R0.0	Tiles
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.8)	2.6	Enclosed	R0.0	Tiles
Bathroom	FR5 - 300mm waffle pod, 85mm concrete (R0.8)	6.9	Enclosed	R0.0	Tiles
Ensuite	FR5 - 300mm waffle pod, 85mm concrete (R0.8)	3.7	Enclosed	R0.0	Tiles

Ceiling type

Location	Material	Added insulation	Roof space above
Garage	Plasterboard	R0.0	Yes
Entry	Plasterboard	R2.5	Yes
Bedroom 1	Plasterboard	R2.5	Yes
Bedroom 2	Plasterboard	R2.5	Yes
Bedroom 3	Plasterboard	R2.5	Yes
Bedroom 4	Plasterboard	R2.5	Yes
Living	Plasterboard	R2.5	Yes
Kitchen/Dining/Family	Plasterboard	R2.5	Yes
Laundry	Plasterboard	R2.5	Yes
Bathroom	Plasterboard	R2.5	Yes
Ensuite	Plasterboard	R2.5	Yes

Ceiling penetrations

Location	Number	Type	Width (mm)	Length (mm)	Seal/ unsealed
Kitchen/Dining/Family	1	Exhaust Fans	185	185	Sealed
Laundry	1	Exhaust Fans	250	250	Sealed

Ceiling fans

Nationwide House Energy Rating Scheme* Certificate

Certificate Number: **6U2JPBC4IT**

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★ Star rating: **5.6**



Building Features

Location	Number	Diameter (mm)
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Roof type

Material	Added insulation	Roof colour
Cont:Attic-Continuous	0.0	dark

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Additional information

BCA Climate Zone: 6

Explanatory notes

About this report

Residential energy ratings address the quality of the building fabric i.e. walls, windows, floors and roof/ceilings. Ratings do not cover the energy or water efficiency of appliances including heating and cooling, hot water, dishwashers, ovens, fridges, TVs etc. or solar panel or water tank requirements. The efficiency or specification of these items is generally covered by other regulations, standards or guidelines.

General Information

A NatHERS House Energy Rating is a comprehensive, dynamic computer modelling evaluation of the floorplans, elevations and specifications to predict an energy load of a home. Not all of us use our homes in the same way, so ratings are generated using standard assumptions. This means homes can be compared across the country.

The actual energy consumption of your home may vary significantly from the predicted energy load figures in this report depending on issues such as the size of your household and your personal preferences, e.g. in terms of heating or cooling.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparative purposes between different house designs and for demonstrating that the design meets the required regulatory compliance.

Homes that are energy efficient use less energy, are warmer in winter, cooler in summer and cost less to run. The higher the star rating the more energy efficient.

This NatHERS House Energy Rating report was carefully prepared by your assessor on the basis of comprehensive modelling using standard procedures to rate your home using an underlying engine developed by the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO).

All information relating to energy loads presented in this report is based on a range of standard assumptions in order to allow for comparisons with reports prepared for other homes and to demonstrate minimum regulatory compliance. The standard assumptions include figures for occupancy, indoor air temperature and are based on a unique climate file for your region.

Accredited Assessors

To ensure you get a high-quality, professional NatHERS House Energy Rating report, you should always use an accredited assessor, accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO).

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 on-going training requirements.

If you have any questions or concerns about this report, please direct them to your assessor in the first instance.

If your assessor is unable to address your questions or concerns, please contact their AAO listed under 'assessor details'. You can also find a range of information about accredited assessors on the AAO websites.

Disclaimer

The energy values quoted are for comparison purposes only; they are not a prediction of actual energy use. This rating only applies to the floor plan, construction details, orientation and climate as submitted and included in the attached drawing set that bears a stamp with the same number as this certificate. Changes to any of these details could affect the rating.

Contact

For more information on the Nationwide House Energy Rating Scheme (NatHERS), visit www.nathers.gov.au

For more information on energy efficient design and insulation visit www.yourhome.gov.au