



RFM Constructions Pty Ltd and Sally Gardner Design & Draft Proposed Residential Development

To be built at 4A Cambridge Avenue, Narrabeena NSW 2099

Issue	File Ref	Description	Author	Date
A	20-0519	NatHERS Thermal Comfort Assessment	DG	19/06/20

This report has been prepared by Efficient Living Pty Ltd on behalf of our client RFM Constructions. Efficient Living prepares all reports in accordance with the BASIX Thermal Comfort Protocol and is backed by professional indemnity insurance. This report takes into account our Client's instructions and preferred building inclusions.

If there is a change to this specification during design or construction phases, please contact Efficient Living and quote the above file reference for advice, and to obtain an updated Certificate if required.



Assessor: Dani Grumont
Email: dani@efficientliving.com.au

License Holder: Tracey Cools
Accreditation Number: HERA10033

BASIX Details:

NatHERS Certificate Number: 0004941530

BASIX adjusted conditioned area: 22m²

BASIX adjusted un-conditioned area: 202m²

Area adjusted heating load: 37.9MJ/ m²/pa

Area adjusted cooling load: 25.7MJ/ m²/pa

Specification

Heating and cooling loads for the development have been determined using BERS Pro Plus 4.4 thermal comfort simulation software, and assessed under the thermal simulation method of the BASIX Protocol.

The following specification was used to achieve the thermal performance values. Modelling proxies are used at times and if the buildings element details vary the thermal performance specification below shall take precedence.

If there is a change to this specification during design or construction phases, please contact Efficient Living for advice and if required an updated Certificate will be issued.

Floors

Garage: Enclosed suspended concrete slab, no insulation required

Ground level: Enclosed suspended timber floor with R2.0 insulation (insulation only value)

Timber between levels, no insulation required where habitable rooms are above and below (R2.0 insulation required to Garage ceiling where habitable rooms above; refer to 'ceilings' below)

External Walls

Lightweight cladding on framed walls with R2.5 insulation (insulation only value)

Note: No insulation is required to external Garage walls

External Colour:

Medium ($0.475 < SA < 0.7$)

Walls within dwellings

Plasterboard on studs, no insulation required

Plasterboard on studs with R2.0 insulation between Garage and habitable areas, and internal Laundry walls.

Glazing Doors/Windows

Aluminium framed glazing throughout:

Group A – awning + bifold + casement windows + hinged glazed doors

U-value: 5.20 (equal to or lower than) SHGC: 0.35 ($\pm 10\%$)

Group B – sliding doors/windows + fixed glazing + louvred windows

U-value: 5.20 (equal to or lower than) SHGC: 0.39 ($\pm 10\%$)

Given values are AFRC total window system values (glass and frame)

Roof and Ceilings

Metal roof with foil/sarking

Plasterboard ceiling with R3.5 insulation (insulation only value) where roof above, excluding Garage

Garage: no insulation required where roof above. Plasterboard ceiling with R2.0 insulation to garage ceiling where habitable rooms above.

External Colour

Light ($SA < 0.75$)

Ceiling Penetrations

Sealed LED downlights, one every 2.5m²

Floor coverings

Tiles to wet areas, carpet and timber elsewhere as per drawings

External Shading

Covered Deck and Utility Deck. Eaves as per stamped drawings

Ventilation

All external doors have weather seals, all exhaust fans and chimneys have dampers, and down lights proposed will have capped fittings

Nationwide House Energy Rating Scheme* Certificate

Certificate number: 0004941530

Certificate Date: 19 Jun 2020

★ Star rating: 5.2



Assessor details

Accreditation number: **HERA10033**
Name: **Tracey Cools**
Organisation: **Efficient Liiving Pty Ltd**
Email: **admin@efficientliving.com.au**
Phone: **(02) 9970 6181**
Declaration of interest: **None**
Software: **BERS Pro v4.4.0.0 (3.21)**
AAO: **HERA**

Overview

Dwelling details

Street: **4A Cambridge Avenue**
Suburb: **Narraweena**
State: **NSW** Postcode: **2099**
Type: **New Dwelling** NCC Class: **1A**
NatHERS climate zone: **56**
Lot/DP number: **1230126** Exposure: **Suburban**

Key construction and insulation materials

(see following pages for details)

Construction: **Weatherboard Cavity Panel Direct Fix**
Corrugated Iron
Suspended Timber Floor
Insulation: **R2.7 wall insulation**
R3.5 ceiling insulation
R2.0 floor insulation
Glazing: **ALM-004-02 A Aluminium B DG Air Fill**
Tint-Clear

Net floor area (m²)

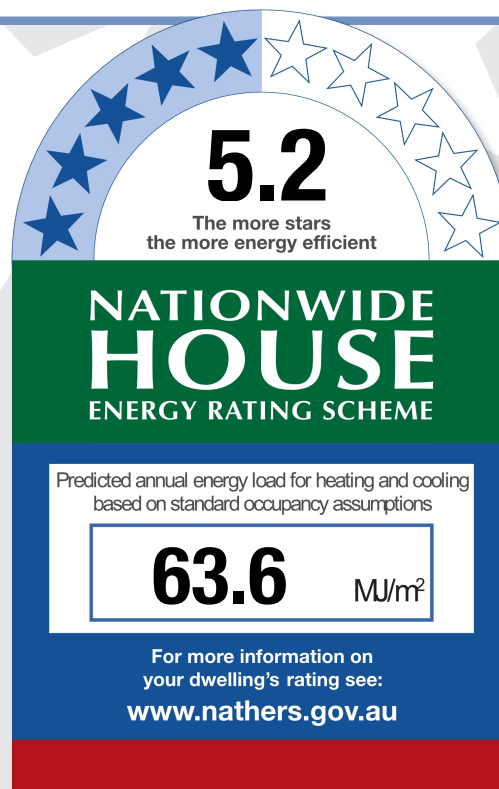
Conditioned: **202.0**
Unconditioned: **65.0**
Garage: **43.0**
TOTAL: **267.0**

Annual thermal performance loads (MJ/m²)

Heating: **37.9**
Cooling: **25.7**
TOTAL: **63.6**

Plan documents

Plan ref/date: **20-0519**
Prepared by: **Sally Gardner Design Draft**



Ceiling penetrations

(see following pages for details)

Sealed: **91**
Unsealed: **0**
TOTAL:** **91**

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.

Principle downlight type: **LED**

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 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.

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



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Building features

Window type and performance value

Window ID	Window type	U-value	SHGC
ALM-004-02 A	ALM-004-02 A Aluminium B DG Air Fill Tint-Clear	5.2	0.39
ALM-003-02 A	ALM-003-02 A Aluminium A DG Air Fill Tint-Clear	5.2	0.35

Window schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Orientation	Outdoor shade
Kitchen/Living	ALM-004-02 A	n/a	450	2500	N	No Shading
Kitchen/Living	ALM-003-02 A	n/a	2400	870	E	No Shading
Kitchen/Living	ALM-004-02 A	n/a	2400	630	E	No Shading
Kitchen/Living	ALM-003-02 A	n/a	2700	4000	E	No Shading
Kitchen/Living	ALM-004-02 A	n/a	2000	3000	E	No Shading
Kitchen/Living	ALM-004-02 A	n/a	600	2700	S	No Shading
Kitchen/Living	ALM-003-02 A	n/a	2400	876	W	No Shading
Powder	ALM-004-02 A	n/a	600	1500	N	No Shading
Laundry	ALM-004-02 A	n/a	1200	1700	N	No Shading
Laundry	ALM-003-02 A	n/a	2400	870	N	No Shading
Kitchen/Living	ALM-004-02 A	n/a	750	3000	SE	No Shading
Kitchen/Living	ALM-004-02 A	n/a	2400	600	SW	No Shading
Ens 2	ALM-004-02 A	n/a	600	1000	S	No Shading
Guest	ALM-004-02 A	n/a	1500	1250	S	No Shading
Guest	ALM-004-02 A	n/a	1500	900	W	No Shading
Garage Worksh	ALM-004-02 A	n/a	1000	900	NE	No Shading
Bedroom 3	ALM-004-02 A	n/a	1250	1800	N	No Shading
Bedroom 3	ALM-004-02 A	n/a	450	2400	W	No Shading
Bedroom 2	ALM-004-02 A	n/a	1250	1800	N	No Shading
Living	ALM-004-02 A	n/a	450	6000	N	No Shading
Living	ALM-004-02 A	n/a	1250	3000	E	No Shading
Living	ALM-004-02 A	n/a	1150	600	W	No Shading
Living	ALM-004-02 A	n/a	400	3000	N	No Shading
Living	ALM-004-02 A	n/a	400	3000	N	No Shading
Bathroom	ALM-004-02 A	n/a	1050	1700	W	No Shading
Ens 1	ALM-004-02 A	n/a	450	2700	S	No Shading
Master Suite	ALM-004-02 A	n/a	1250	3000	E	No Shading
Master Suite	ALM-004-02 A	n/a	450	2500	S	No Shading

Roof window and skylight type and performance value

ID	Window type	U-value	SHGC
GEN-04-008a	Double-glazed clear, Timber and Aluminium Frame	0.0	0.00

Roof window and skylight schedule

Location	ID	Roof window/skylight no.	Area (m²)	Orientation	Outdoor shade	Indoor shade/diffuser
Kitchen/Living	GEN-04-008a	1	0.7	N	None	No
Kitchen/Living	GEN-04-008a	2	0.7	N	None	No
Kitchen/Living	GEN-04-008a	3	0.7	N	None	No

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External wall type

ID	Wall type	Insulation	Wall wrap or foil
EW-1	Weatherboard Cavity Panel Direct Fix	Bulk Insulation R2.7	No
EW-2	Weatherboard Cavity Panel Direct Fix	No insulation	No

External wall schedule

Location	ID	Width (mm)	Height (mm)	Orientation	Fixed Shade	Eaves (mm)
Kitchen/Living	EW-1	3600	2750	N	No	200
Kitchen/Living	EW-1	1750	2750	E	No	7200
Kitchen/Living	EW-1	2350	2750	N	No	1950
Kitchen/Living	EW-1	4550	2750	E	No	4850
Kitchen/Living	EW-1	2700	2750	N	No	6500
Kitchen/Living	EW-1	4100	2750	E	No	600
Kitchen/Living	EW-1	8045	2750	S	No	550
Kitchen/Living	EW-1	1750	2750	W	No	7500
Powder	EW-1	1840	2750	N	No	1350
Laundry	EW-1	3090	2750	N	No	1350
Kitchen/Living	EW-1	650	2750	S	No	425
Kitchen/Living	EW-1	6590	2750	SE	No	621
Kitchen/Living	EW-1	2055	2750	SW	No	1505
Kitchen/Living	EW-1	1026	2750	NW	No	4533
Ens 2	EW-1	1590	2750	S	No	550
Guest	EW-1	3245	2750	S	No	550
Guest	EW-1	4145	2750	W	No	50
Garage Worksh	EW-2	5414	2750	SW	No	691
Garage Worksh	EW-2	6021	2750	NW	No	708
Garage Worksh	EW-2	1204	2750	NE	No	727
Garage Worksh	EW-2	4345	2750	N	No	1350
Bedroom 3	EW-1	3145	2550	N	No	750
Bedroom 3	EW-1	3145	2550	S	No	650
Bedroom 3	EW-1	4500	2550	W	No	750
Bedroom 2	EW-1	4240	2550	N	No	750
Store/linen	EW-1	1190	2550	N	No	750
Living	EW-1	7445	2550	N	No	750
Living	EW-1	3395	2550	E	No	800
Living	EW-1	1145	2550	W	No	3900
Bathroom	EW-1	3095	2550	S	No	600
Bathroom	EW-1	2045	2550	W	No	800
Ens 1	EW-1	3090	2550	S	No	600
Dressing	EW-1	2540	2550	S	No	600
Master Suite	EW-1	4295	2550	E	No	800
Master Suite	EW-1	4145	2550	S	No	600

Internal wall type

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Building features continued

Wall type	Area (m²)	Insulation	Wall wrap or foil
IW-1 - Cavity wall, direct fix plasterboard, single gap	63.0	Bulk Insulation, No Air Gap R2	No
IW-2 - Cavity wall, direct fix plasterboard, single gap	149.0	No insulation	No

Floors

Location	Construction	Area (m²)	Sub floor ventilation	Added insulation	Covering
Kitchen/Living	Suspended Timber Floor 19mm	63.9	Enclosed	Bulk Insulation in Contact with Floor R2	Cork Tiles or Parquetry 8mm
Powder	Suspended Timber Floor 19mm	3.9	Enclosed	Bulk Insulation in Contact with Floor R2	Ceramic Tiles 8mm
Laundry	Suspended Timber Floor 19mm	5.6	Enclosed	Bulk Insulation in Contact with Floor R2	Ceramic Tiles 8mm
Kitchen/Living	Suspended Timber Floor 19mm	24.6	Enclosed	Bulk Insulation in Contact with Floor R2	Cork Tiles or Parquetry 8mm
Pantry	Suspended Timber Floor 19mm	2.6	Enclosed	Bulk Insulation in Contact with Floor R2	Cork Tiles or Parquetry 8mm
Ens 2	Suspended Timber Floor 19mm	4.0	Enclosed	Bulk Insulation in Contact with Floor R2	Ceramic Tiles 8mm
Guest	Suspended Timber Floor 19mm	13.2	Enclosed	Bulk Insulation in Contact with Floor R2	Carpet+Rubber Underlay 18mm
Garage Worksh	Suspended Concrete Slab 150mm	43.1	Enclosed	No Insulation	Bare
Bedroom 3/Laundry	Timber Above Plasterboard 19mm	1.2		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3/Kitchen/Living	Timber Above Plasterboard 19mm	4.1		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 3/Garage Worksh	Timber Above Plasterboard 19mm	8.8		Bulk Insulation R2	Carpet+Rubber Underlay 18mm
Bedroom 2/Powder	Timber Above Plasterboard 19mm	4.0		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Laundry	Timber Above Plasterboard 19mm	4.6		No Insulation	Carpet+Rubber Underlay 18mm
Bedroom 2/Kitchen/Living	Timber Above Plasterboard 19mm	5.3		No Insulation	Carpet+Rubber Underlay 18mm
Store/linen/Kitchen/Living	Timber Above Plasterboard 19mm	3.4		No Insulation	Carpet+Rubber Underlay 18mm
Living/Kitchen/Living	Timber Above Plasterboard 19mm	15.8		No Insulation	Carpet+Rubber Underlay 18mm
Living	Suspended Timber Floor 19mm	9.0	Totally Open	Bulk Insulation in Contact with Floor R2	Carpet+Rubber Underlay 18mm
Living/Kitchen/Living	Timber Above Plasterboard 19mm	7.4		No Insulation	Carpet+Rubber Underlay 18mm
Living/Kitchen/Living	Timber Above Plasterboard 19mm	5.5		No Insulation	Carpet+Rubber Underlay 18mm

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Living/Pantry	Timber Above Plasterboard 19mm	2.3	No Insulation	Carpet+Rubber Underlay 18mm
Living/Guest	Timber Above Plasterboard 19mm	3.6	No Insulation	Carpet+Rubber Underlay 18mm
Bathroom/Guest	Timber Above Plasterboard 19mm	6.1	No Insulation	Ceramic Tiles 8mm
Ens 1/Kitchen/Living	Timber Above Plasterboard 19mm	2.6	No Insulation	Ceramic Tiles 8mm
Ens 1/Ens 2	Timber Above Plasterboard 19mm	2.7	No Insulation	Ceramic Tiles 8mm
Dressing/Kitchen/Living	Timber Above Plasterboard 19mm	4.9	No Insulation	Carpet+Rubber Underlay 18mm
Master Suite/Kitchen/Living	Timber Above Plasterboard 19mm	14.4	No Insulation	Carpet+Rubber Underlay 18mm
Master Suite	Suspended Timber Floor 19mm	3.0	Totally Open	Bulk Insulation in Contact with Floor R2 Carpet+Rubber Underlay 18mm

Ceiling type

Location	Construction	Added insulation	Roof space above
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Powder	Plasterboard	Bulk Insulation R3.5	No
Powder	Timber Above Plasterboard	No Insulation	No
Laundry	Plasterboard	Bulk Insulation R3.5	No
Laundry	Timber Above Plasterboard	No Insulation	No
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Pantry	Plasterboard	Bulk Insulation R3.5	No
Pantry	Timber Above Plasterboard	No Insulation	No
Ens 2	Plasterboard	Bulk Insulation R3.5	No
Ens 2	Timber Above Plasterboard	No Insulation	No
Guest	Plasterboard	Bulk Insulation R3.5	No
Guest	Timber Above Plasterboard	No Insulation	No
Garage Worksh	Plasterboard	No insulation	No
Garage Worksh	Timber Above Plasterboard	Bulk Insulation R2	No
Bedroom 3	Plasterboard	Bulk Insulation R3.5	No
Bedroom 2	Plasterboard	Bulk Insulation R3.5	No
Store/linen	Plasterboard	Bulk Insulation R3.5	No
Living	Plasterboard	Bulk Insulation R3.5	No

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Living	Plasterboard	Bulk Insulation R3.5	No
Bathroom	Plasterboard	Bulk Insulation R3.5	No
Ens 1	Plasterboard	Bulk Insulation R3.5	No
Dressing	Plasterboard	Bulk Insulation R3.5	No
Master Suite	Plasterboard	Bulk Insulation R3.5	No

Ceiling penetrations

Location	Number	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Living	26	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Powder	1	Downlights - LED	150	Sealed
Powder	1	Exhaust Fans	300	Sealed
Laundry	2	Downlights - LED	150	Sealed
Laundry	1	Exhaust Fans	300	Sealed
Kitchen/Living	10	Downlights - LED	150	Sealed
Pantry	1	Downlights - LED	150	Sealed
Ens 2	1	Downlights - LED	150	Sealed
Ens 2	1	Exhaust Fans	300	Sealed
Guest	5	Downlights - LED	150	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed
Bedroom 2	4	Downlights - LED	150	Sealed
Store/linen	1	Downlights - LED	150	Sealed
Living	10	Downlights - LED	150	Sealed
Living	7	Downlights - LED	150	Sealed
Bathroom	2	Downlights - LED	150	Sealed
Bathroom	1	Exhaust Fans	300	Sealed
Ens 1	2	Downlights - LED	150	Sealed
Ens 1	1	Exhaust Fans	300	Sealed
Dressing	2	Downlights - LED	150	Sealed
Master Suite	6	Downlights - LED	150	Sealed

Ceiling fans

Location	Number	Diameter (mm)
None Present		

Roof type

Construction	Added insulation	Roof colour
Corrugated Iron	Foil, No Gap,	Light

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Building features continued

	Reflective Side Down, Anti-glare Up	
Corrugated Iron	Foil, No Gap, Reflective Side Down, Anti-glare Up	Dark

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Additional information

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 the 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 the 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