energy rating solutions
JMK ENERGY RATING
VIC/BDAV/10/0254
Division of JMK Design & Construction Pty Ltd
A.C.N 007 103 675

- Energy Rating Requirements For Residential Buildings -
- Assessments - Advice -
- Comprehensive Reports - Section J Reports -
- Deemed To Satisfy Reports -

Thermal Performance Assessment Report

Client: Greg & Alison Lord

Job Address: 4 Florida Ave,

Beaumaris VIC 3193

Akritidis Group Building Consultants
"Approved Plans and Documentation"

AKRITIDIS GROUP BUILDING CONSULTANTS

Permit No.: 20150189/0
Issue Date: 25/02/2015

Ari Akritidis
BS-U 1573

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INSPECTION BOOKINGS: 95682992

Thermal Performance Assessment

ADDRESS: 4 Florida Ave, Beaumaris Vic 3193

Table of Contents

Document Record

Issue	Date	Description
A	05.02. 2015	Preliminary 1
B	13.05.2015	Preliminary 2
C	18.05.2015	Final FirstRate5 Compliance Certificate

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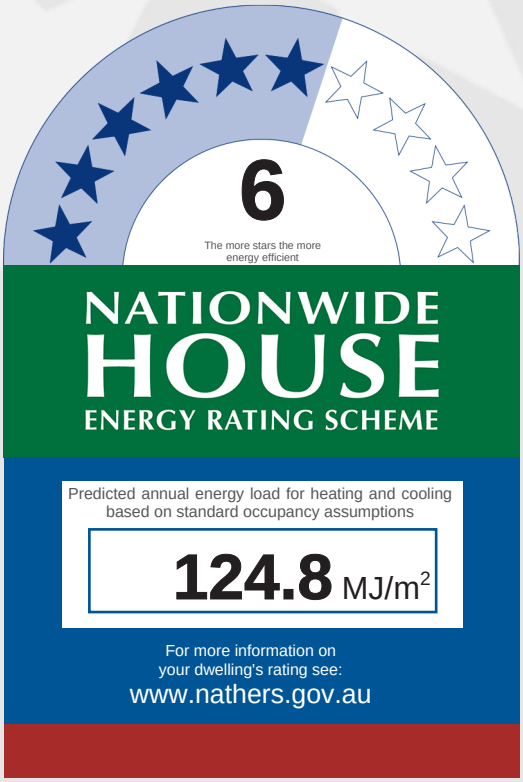
Nationwide House Energy Rating Scheme* Certificate

Certificate Number: **3XUZ2Z5J0S** Date of Certificate: **18 Feb 2015** ★ Star rating: **6**

Assessor details

Accreditation number:	**VIC/BDAV/10/0254**
Name:	**MARY KARAVASIL**
Organisation:	**Jmk Energy Rating**
Email:	**jmkenergy@iprimus.com.au**
Phone:	**03 9589 4407**
Declaration of interest:	**Employed by designer of the building**
Software:	**FirstRate5: 5.2.0 (3.13)**
AAO:	**BDAV**



Overview

Dwelling details

Address:	**4 FLORIDA AVE,**		
Suburb:	**BEAUMARIS**		
State:	**VIC**	Postcode:	**3193**
Type:	**New Home**	NCC Class:	**Class 1a**
Lot/DP number:	**-**	NatHERS climate zone:	**62**
Exposure:	**suburban**		

Key construction and insulation materials

(see following pages for details)

Construction:	Wall:	**Brick Venner & Block Work**
	Roof:	**Flat Metal Deck & Skillion**
	Floor:	**Concrete Slab on Ground**
Insulation:	Wall:	**90mm R2.5 & R2.7 Sound Ins**
	Roof:	**R5 + R1.5 BLANKET**
	Floor:	**Underslab and Edge Slab**
Glazing:		**ALUM Thermally Broken DOUBLE GLAZED**

Ceiling penetrations

(see following pages for details)

Sealed:	**70**
Unsealed:	**0**
TOTAL:**	**70**

Principal downlight type: **LED**

NOTE: This total is the maximum number of ceiling penetrations allowed to a ceiling (under a roof) for this certificate. **If this number is exceded 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.

Net floor area (m^2)

Conditioned:	**308.3**
Unconditioned:	**7.5**
Garage:	**41.7**
TOTAL:	**357.5**

Annual thermal performance loads (MJ/m^2)

Heating:	**96.6**
Cooling:	**28.2**
TOTAL:	**124.8**

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. This allowance is only applicable to dwellings [illegible] FirstRate5 before 1 May 2015.

Scan to access this certificate online and confirm this is

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https://www.fr5.com.au/QRCodeLand
Reference:3XUZ2Z5J0S

Plan documents

Plan ref/date:	**Reference:14405 Date: August 2014**

* Nationwide House Energy Rating Scheme (NatHERS) is an initiative of the Australian, state and territory governments. For more details see www.nathers.gov.au

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Prepared by: **Jmk Design & Contruction Pty Ltd**

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Building Features

Windows type and performance value

Window ID	Window type	U-value	SHGC
ATB-005-03 B	Al Thermally Broken A DG Argon Fill High Solar Gain low-E -Clear	2.91	0.44
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58
ATB-006-03 B	Al Thermally Broken B DG Argon Fill High Solar Gain low-E -Clear	2.9	0.51

Windows schedule

Window ID	Window no.	Height (mm)	Width (mm)	Orientation	Zone name	Outdoor shade
ATB-005-03 B	W7	2400	2999	W	Studio	No
ATB-005-03 B	D12	2400	819	S	Laundry	No
ALM-002-03 A	W3A	2100	1499	N	Study	No
ALM-002-03 A	W4	2100	450	N	Study	No
ALM-002-03 A	W3B	2100	399	W	Study	No
ATB-006-03 B	W5	2400	2999	E	Hallway	No
ATB-006-03 B	W6	2400	2235	S	Hallway	No
ALM-002-03 A	W2A	2100	1500	N	Bedroom 1	No
ATB-005-03 B	W1A	2100	1650	N	Bedroom 1	No
ALM-002-03 A	W1B	2100	750	N	Bedroom 1	No
ALM-002-03 A	2B	2100	749	E	Bedroom 1	No
ALM-002-03 A	W8	600	3199	E	Kitchen	No
ATB-005-03 B	W9	2100	749	E	Kitchen	No
ATB-005-03 B	W10	2100	2399	E	Bedroom 2	No
ATB-005-03 B	W11	2100	1999	E	Bathroom	No
ATB-005-03 B	W12	1000	899	E	WC to Bedrooms	No
ATB-005-03 B	W13	2100	2399	E	Bedroom 3	No
ATB-005-03 B	W14	2100	2399	W	Bedroom 4	No
ATB-006-03 B	D25	2700	4500	N	Media Room	No
ATB-006-03 B	D13 STACKER	2700	4000	W	Living Dining Area	No
ATB-006-03 B	D14 STACKER	2700	4000	W	Living Dining Area	No
ATB-005-03 B	BIFOLDS D8	2700	3499	N	Living Dining Area	No
ATB-006-03 B	W20A	325	1830	N	Living Dining Area	Yes
ATB-006-03 B	W20B	325	970	N	Living Dining Area	No
ATB-006-03 B	W21	1100	4000	SW	Living Dining Area	No
ATB-006-03 B	W22	800	4000	SW	Living Dining Area	No
ALM-002-03 A	W19b	2400	1100	W	Bathroom 1	No
ATB-005-03 B	D4	2400	800	W	Bathroom 1	No

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Building Features

ALM-002-03 A	W19a	2400	2000	S	Bathroom 1	No
ALM-002-03 A	W15	2400	599	W	Hallway to bedrooms	No
ALM-002-03 A	W16	2400	600	W	Hallway to bedrooms	No
ALM-002-03 A	W17	2400	600	W	Hallway to bedrooms	No
ALM-002-03 A	W18	2400	599	W	Hallway to bedrooms	No
ATB-005-03 B	D1	2400	2000	N	Entry foyer	No
ATB-006-03 B	W26	400	3050	W	Entry foyer	No
ATB-006-03 B	W25	400	2000	S	Entry foyer	No
ATB-006-03 B	W24	400	3050	E	Entry foyer	No
ATB-006-03 B	W23	400	2000	N	Entry foyer	No

Roof windows and skylight type and performance value

ID	Window type	U-value	SHGC
DG-Generic-02 A	Clear Al DG DEFAULT ROOF WINDOW System 02	4.22	0.72

Roof window and skylight schedule

ID	Roof window/ skylight no.	Area (m^2)	Orientation	Zone name	Outdoor shade	Indoor shade/ diffuser
DG-Generic-02 A	Element 3	1.6	NE	Hallway to bedrooms	None	None

External wall type

Type	Insulation	Wall wrap
1 : 150170 - Double Brick		No
2 : 150170 - DULUX EXSUULITE 100mm Expanded Polystyrene Clad	Glass fibre batt: R2.5 (R2.5)	Yes
3 : 150170 - DULUX EXSUULITE 100mm Expanded Polystyrene Clad	Glass fibre batt: R2.5 (R2.5)	Yes
4 : 150170 - Internal Sound Plasterboard Stud Wall 2x16PB	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.0)	No
5 : 150170 - Brick Veneer	Glass fibre batt: R2.5 (R2.5);Polyethylene foam (k = 0.04) (R2.0)	
6 : 150170 - CONCRETE BLOCK 90	Glass fibre batt: R2.5 (R2.5);Polyethylene foam (k = 0.04) (R2.0)	Yes
7 : 150170 - CONCRETE BLOCK 90	Glass fibre batt: R2.5 (R2.5);Polyethylene foam (k = 0.04) (R2.0)	Yes
8 : 150170 - Brick Veneer + CORTEN	Glass fibre batt: R2.5 (R2.5);Polyethylene foam (k = 0.04) (R2.0)	Yes
9 : FR5 - Internal Plasterboard Stud Wall		No
10 : 150170 - CONCRETE BLOCK 90 FC	Glass fibre batt: R2.5 (R2.5);Polyethylene foam (k = 0.04) (R2.0)	Yes

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Building Features

External wall schedule

Wall type	Area (m^2)	Orientation	Zone name	Fixed shade	Eaves
1 : 150170 - Double Brick	17.7	N	Garage	No	No
1 : 150170 - Double Brick	1.9	N	Garage	No	Yes
1 : 150170 - Double Brick	3.6	W	Garage	No	No
2 : 150170 - DULUX EXSUULITE 100mm Expanded Polystyrene Clad	3.4	S	Garage	Yes	No
1 : 150170 - Double Brick	18.7	E	Garage	No	No
3 : 150170 - DULUX EXSUULITE 100mm Expanded Polystyrene Clad	10.4	W	Studio	Yes	No
4 : 150170 - Internal Sound Plasterboard Stud Wall 2x16PB	0.5	S	Studio	Yes	No
5 : 150170 - Brick Veneer	11.9	E	Studio	No	No
5 : 150170 - Brick Veneer	1.2	E	Laundry	Yes	No
5 : 150170 - Brick Veneer	5.7	S	Laundry	Yes	No
5 : 150170 - Brick Veneer	7.3	ESE	Laundry	No	No
5 : 150170 - Brick Veneer	8.6	N	Study	Yes	Yes
6 : 150170 - CONCRETE BLOCK 90	2.7	W	Study	Yes	No
7 : 150170 - CONCRETE BLOCK 90	0.7	N	Study	Yes	No
3 : 150170 - DULUX EXSUULITE 100mm Expanded Polystyrene Clad	10.1	E	Hallway	Yes	No
3 : 150170 - DULUX EXSUULITE 100mm Expanded Polystyrene Clad	6.5	S	Hallway	Yes	No
2 : 150170 - DULUX EXSUULITE 100mm Expanded Polystyrene Clad	0.8	E	Hallway	Yes	No
8 : 150170 - Brick Veneer + CORTEN	4.3	N	Bedroom 1	No	Yes
8 : 150170 - Brick Veneer + CORTEN	9.5	N	Bedroom 1	No	No
8 : 150170 - Brick Veneer + CORTEN	2	W	Bedroom 1	No	No
5 : 150170 - Brick Veneer	10.6	W	Bedroom 1	No	No
8 : 150170 - Brick Veneer + CORTEN	6	E	Bedroom 1	Yes	No
5 : 150170 - Brick Veneer	21	ESE	Kitchen	Yes	No
5 : 150170 - Brick Veneer	9	ESE	Bedroom 2	Yes	No
3 : 150170 - DULUX EXSUULITE 100mm Expanded Polystyrene Clad	0.7	S	Bedroom 2	No	No
5 : 150170 - Brick Veneer	4.4	E	WIR B2	Yes	Yes
5 : 150170 - Brick Veneer	8	E	Bathroom	Yes	No
5 : 150170 - Brick Veneer	2.5	ESE	WC to Bedrooms	Yes	No

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Building Features

5 : 150170 - Brick Veneer	12	S	Bedroom 3	No	No
5 : 150170 - Brick Veneer	9.3	E	Bedroom 3	Yes	No
5 : 150170 - Brick Veneer	10.1	W	Bedroom 4	Yes	Yes
5 : 150170 - Brick Veneer	12	S	Bedroom 4	No	No
5 : 150170 - Brick Veneer	14.8	N	Media Room	Yes	No
5 : 150170 - Brick Veneer	13.6	W	Media Room	No	No
5 : 150170 - Brick Veneer	1.3	S	Media Room	Yes	No
5 : 150170 - Brick Veneer	4.3	W	Living Dining Area	Yes	Yes
5 : 150170 - Brick Veneer	28.5	WSW	Living Dining Area	Yes	Yes
5 : 150170 - Brick Veneer	2.7	S	Living Dining Area	Yes	Yes
9 : FR5 - Internal Plasterboard Stud Wall	0.6	N	Living Dining Area	Yes	No
3 : 150170 - DULUX EXSUULITE 100mm Expanded Polystyrene Clad	10.1	N	Living Dining Area	Yes	No
9 : FR5 - Internal Plasterboard Stud Wall	0.4	N	Living Dining Area	Yes	No
5 : 150170 - Brick Veneer	1.3	W	Living Dining Area	No	No
5 : 150170 - Brick Veneer	1.9	S	Living Dining Area	No	No
3 : 150170 - DULUX EXSUULITE 100mm Expanded Polystyrene Clad	0.7	S	Living Dining Area	No	No
3 : 150170 - DULUX EXSUULITE 100mm Expanded Polystyrene Clad	1.9	N	Living Dining Area	No	Yes
3 : 150170 - DULUX EXSUULITE 100mm Expanded Polystyrene Clad	1.1	N	Living Dining Area	No	No
3 : 150170 - DULUX EXSUULITE 100mm Expanded Polystyrene Clad	4	N	Living Dining Area	No	No
5 : 150170 - Brick Veneer	20.6	WSW	Living Dining Area	No	Yes
5 : 150170 - Brick Veneer	4.7	W	Bathroom 1	No	No
5 : 150170 - Brick Veneer	7.5	W	Bathroom 1	No	Yes
5 : 150170 - Brick Veneer	5.7	S	Bathroom 1	Yes	Yes
5 : 150170 - Brick Veneer	12.7	W	Hallway to bedrooms	Yes	No
3 : 150170 - DULUX EXSUULITE 100mm Expanded Polystyrene Clad	1.2	NNE	Hallway to bedrooms	No	No
9 : FR5 - Internal Plasterboard Stud Wall	0.6	S	WC to Bathroom 1	Yes	No
6 : 150170 - CONCRETE BLOCK 90	5.4	N	Entry foyer	Yes	Yes
10 : 150170 - CONCRETE BLOCK 90 FC	1.9	W	Entry foyer	No	Yes
10 : 150170 - CONCRETE BLOCK 90 FC	0.5	W	Entry foyer	No	Yes
3 : 150170 - DULUX EXSUULITE 100mm Expanded Polystyrene Clad	1.4	S	Entry foyer	No	Yes

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Building Features

3 : 150170 - DULUX EXSUULITE 100mm Expanded Polystyrene Clad	2.3	E	Entry foyer	No	Yes
6 : 150170 - CONCRETE BLOCK 90	1.5	N	Entry foyer	No	Yes

Internal wall type

Type	Area (m^2)	Insulation
1 : 150170 - Brick Veneer	22.7	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.7)
2 : 150170 - Internal Sound Plasterboard Stud Wall 2x16PB	34	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.7)
3 : FR5 - Internal Plasterboard Stud Wall	234.6	
4 : 150170 - Brick Veneer	4.3	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.7)
5 : 150170 - CONCRETE BLOCK 90	8.2	Glass fibre batt: R2.5 (R2.5);Polyethylene foam (k = 0.04) (R2.0)

Floors

Location	Construction	Area (m^2)	Sub floor ventilation	Added insulation	Covering
Garage	CSOG: Slab on Ground	41.7	Enclosed	0.9	none
Studio	CSOG: Slab on Ground	17.2	Enclosed	1.0	Carpet
Laundry	CSOG: Slab on Ground	7.5	Enclosed	1.0	none
Study	CSOG: Slab on Ground	13.5	Enclosed	1.0	floattimber
Hallway	CSOG: Slab on Ground	15.2	Enclosed	1.0	floattimber
Bedroom 1	CSOG: Slab on Ground	23.9	Enclosed	1.0	Carpet
WIR B1	CSOG: Slab on Ground	8.7	Enclosed	1.0	Carpet
Powder Room	CSOG: Slab on Ground	2.8	Enclosed	1.0	floattimber
Kitchen	CSOG: Slab on Ground	26.3	Enclosed	1.0	none
Bedroom 2	CSOG: Slab on Ground	13.9	Enclosed	1.0	Carpet
WIR B2	CSOG: Slab on Ground	2.6	Enclosed	1.0	Carpet
Bathroom	CSOG: Slab on Ground	6	Enclosed	1.0	Tiles
Cupboard	CSOG: Slab on Ground	2.1	Enclosed	1.0	Carpet
WC to Bedrooms	CSOG: Slab on Ground	1.7	Enclosed	1.0	Tiles
Bedroom 3	CSOG: Slab on Ground	16.9	Enclosed	1.0	Carpet
Bedroom 4	CSOG: Slab on Ground	15.8	Enclosed	1.0	Carpet
Media Room	CSOG: Slab on Ground	25.1	Enclosed	1.0	Carpet
Living Dining Area	CSOG: Slab on Ground	73	Enclosed	1.0	none
Bathroom 1	CSOG: Slab on Ground	11.9	Enclosed	1.0	Tiles
Hallway to bedrooms	CSOG: Slab on Ground	23.9	Enclosed	1.0	Carpet

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Building Features

WC to Bathroom 1	CSOG: Slab on Ground	1.8	Enclosed	1.0	none
Entry foyer	CSOG: Slab on Ground	6.1	Enclosed	1.0	floattimber

Ceiling type

Location	Material	Added insulation	Roof space above
Garage	Plasterboard	5.0	No
Studio	Plasterboard	5.0	No
Laundry	Plasterboard	5.0	No
Study	Plasterboard	5.0	No
Hallway	Plasterboard	5.0	No
Bedroom 1	Plasterboard	5.0	No
WIR B1	Plasterboard	5.0	No
Powder Room	Plasterboard	5.0	No
Kitchen	Plasterboard	5.0	No
Bedroom 2	Plasterboard	5.0	No
WIR B2	Plasterboard	5.0	No
Bathroom	Plasterboard	5.0	No
Cupboard	Plasterboard	5.0	No
WC to Bedrooms	Plasterboard	5.0	No
Bedroom 3	Plasterboard	5.0	No
Bedroom 4	Plasterboard	5.0	No
Media Room	Plasterboard	5.0	No
Living Dining Area	Plasterboard	5.0	No
Bathroom 1	Plasterboard	5.0	No
Hallway to bedrooms	Plasterboard	5.0	No
WC to Bathroom 1	Plasterboard	5.0	No
Entry foyer	Plasterboard	5.0	No

Ceiling penetrations

Location	Number	Type	Width (mm)	Length (mm)	Seal/ unsealed
Studio	4	Downlights	50	50	Sealed
Laundry	1	Exhaust Fans	200	200	Sealed
Laundry	2	Downlights	50	50	Sealed
Study	4	Downlights	50	50	Sealed
Hallway	4	Downlights	50	50	Sealed

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Building Features

Bedroom 1	4	Downlights	50	50	Sealed
WIR B1	3	Downlights	50	50	Sealed
Powder Room	1	Exhaust Fans	200	200	Sealed
Powder Room	1	Downlights	50	50	Sealed
Kitchen	7	Downlights	50	50	Sealed
Kitchen	1	Exhaust Fans	200	200	Sealed
Bedroom 2	4	Downlights	50	50	Sealed
WIR B2	1	Downlights	50	50	Sealed
Bathroom	1	Exhaust Fans	200	200	Sealed
Bathroom	1	Downlights	50	50	Sealed
Cupboard	1	Downlights	50	50	Sealed
WC to Bedrooms	1	Exhaust Fans	200	200	Sealed
WC to Bedrooms	1	Downlights	50	50	Sealed
Bedroom 3	4	Downlights	50	50	Sealed
Bedroom 4	4	Downlights	50	50	Sealed
Media Room	6	Downlights	50	50	Sealed
Bathroom 1	3	Downlights	50	50	Sealed
Bathroom 1	1	Exhaust Fans	200	200	Sealed
Hallway to bedrooms	8	Downlights	50	50	Sealed
WC to Bathroom 1	1	Downlights	50	50	Sealed
WC to Bathroom 1	1	Exhaust Fans	200	200	Sealed

Ceiling fans

Location	Number	Diameter (mm)

Roof type

Material	Added Insulation	[illegible]
Framed:Flat - Flat Framed (Metal Deck)	R1.3	[illegible]

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Additional information

Note: Some of the material used for either walls or roofs in the rating may differ from those specified in the design documents. This is due where the material specified is not available in the FirstRate software. Were differing material is used, we have used material with a comparable rating and is for rating purposes only. Refer to architects drawings & specifications for all material and system requirements.

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

Akritidis Group Building Consultants
"Approved Plans and Documentation"

AKRITIDIS GROUP | BUILDING CONSULTANTS

Permit No.: 20150189/0
Issue Date: 25/02/2015

Ari Akritidis
BS-U 1573
INSPECTION BOOKINGS: 95682992

* Nationwide House Energy Rating Scheme (NatHERS) is an initiative of the Australian, state and territory governments. For more details see www.nathers.gov.au

All new homes, additions and alterations must satisfy the following Deemed-to-Satisfy requirements, in addition to achieving a 6-Star energy rating. This came into effect with BCA 2011 on May 1.

The Building Commission's Practice Notes: 2011-55 Part B are attached to this report. "What is reasonable" (9.3) of the Practice Notes relates to this dwellings existing structure

Building Fabric

- Insulation must be installed correctly and to manufacturers specifications e.g. No gaps, bulk insulation not compressed etc.

- Wall Insulation - If existing external wall's plasterboard is replaced or voids are filled in then the walls need to be insulated to this report's
- Suspended Timber/Concrete Floors - The existing dwellings suspended floors, where accessible, need to be insulated to this report'srequirements.

- Roof Insulation - The existing dwellings roof insulation, where accessible, needs to be replaced or upgrade to meet this report's requirements.

- R0.2 thermal breaks must be installed where metal framing is used, and connects directly to metal roofing or lightweight external wall cladding, if;

  - There is no internal lining, or;

  - The internal lining is fixed directly to the same metal framing

- Additional ceiling insulation will be required where many recessed downlights and/or exhaust fans are used. A 200m2 house would permit, without needing extra insulation:

- Incadescent lamp must have a clearance of 50mm above laminar,100mm side clearance and 50mm clearance to thermal insulation with a 50 mm claearance to the supply transformer
- Halagen Lamps must have a clearance of 200mm above the luminair a 200mm side clearance to structural member, a 200mm clearance to therma insulation, And a 50mm clearance to the supply transformer.
- exhaust fans must have a 100mm Clearance
- **Note**: 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

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- If a concrete slab-on-ground is heated, R1.0 insulation must be installed around the vertical edge of its perimeter. Concrete slab edge insulation has been incorporated in this rating to maximise Energy Efficiency requirements.

Building Sealing

- Chimneys and flues must be fitted with dampers
- External windows, doors and roof lights serving habitable rooms must be sealed
- Exhaust fans and evaporative coolers serving habitable rooms must be self-sealing
- Roofs, walls, and floors that are part of the external fabric must be constructed to minimise air leakage
- Holes, rips and penetrations through Sisalation, Reflective Foils and Insulation Warps must be sealed or repaired. Insulation batts and blankets are not to be compressed when being installed and all voids must be completely filled.

Services

- Central heating water piping, and heating and cooling ductwork, that is not within a conditioned room must be insulated and protected from weather
- Heating for a swimming pool must be by solar and not boosted by electric resistance heating
- Heating for a spa pool with a capacity of 680 L or more must be by a solar heater, gas heater or a heat pump
- Circulation pumps and heaters must be controlled with time switches and push buttons

Electrical

- Lighting must have a maximum power density of 5 W/m2 within a house; 4 W/m2 on verandas or balcony's; and 3 W/m2 in a garage or shed
- Where lamps are used that have a transformer or ballast, the transformer or ballast must be of the electric type
- Halogen lamps must be separately switched from fluorescent lamps
- Outdoor lighting must be controlled by a daylight sensor, or have at least 40 Lumens/W
- Electric resistance space heating systems that serve more than one room must have:

- o separate isolating switches for each room
- o separate temperature controller and time switch for each group of rooms with common heating needs (e.g. bedrooms and bathrooms)
- o maximum power loads below 110 W/m2 for living areas, and 150 W/m2 for bathrooms

Rainwater Tank and or Solar Hot Water

- New homes (Class 1) require either a:
- o Rainwater tank of at least 2000 L with a minimum catchment area of 50 m2 connected to all toilets, or;
- o Solar water heater system (gas boosted if gas is available)

Glazing

Glass window and glass door sizes are not to be increased. Glass windows and glass doors U-Values maybe decreased but SHCG Values should not to be changed especially when the windows face a northerly direction on a concrete floor type construction.

Note: The above is a guide and all information shall be confirmed with the Architect/Building Designers drawings and specifications.