

BASIX[®] Certificate

Building Sustainability Index www.basix.nsw.gov.au

Single Dwelling

Certificate number: 1018810S

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 06/10/2017 published by the Department. This document is available at www.basix.nsw.gov.au

Secretary
Date of issue: Tuesday, 28 May 2019
To be valid, this certificate must be lodged within 3 months of the date of issue.



Project summary		
Project name	Liu - 29913475	
Street address	BUBALO Street WARRIEWOOD 2102	
Local Government Area	Northern Beaches Council	
Plan type and plan number	deposited UNREG	
Lot no.	15	
Section no.	n/a	
Project type	separate dwelling house	
No. of bedrooms	4	
Project score		
Water	✓ 48	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 50	Target 50

Certificate Prepared by
Name / Company Name: Frys Energywise
ABN (if applicable): 61012522051

Description of project

Project address	
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Street address	n/a BUBALO Street WARRIEWOOD 2102
Local Government Area	Northern Beaches Council
Plan type and plan number	Deposited Plan UNREG
Lot no.	15
Section no.	n/a
Project type	
Project type	separate dwelling house
No. of bedrooms	4
Site details	
Site area (m ²)	350
Roof area (m ²)	130
Conditioned floor area (m ²)	168.0
Unconditioned floor area (m ²)	16.0
Total area of garden and lawn (m ²)	122

Assessor details and thermal loads		
Assessor number	BDAV/12/1441	
Certificate number	0003890274	
Climate zone	56	
Area adjusted cooling load (MJ/m ² .year)	26	
Area adjusted heating load (MJ/m ² .year)	35	
Project score		
Water	✓ 48	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 50	Target 50

Schedule of BASIX commitments



















The commitments set out below regulate how the proposed development is to be carried out. It is a condition of any development consent granted, or complying development certificate issued, for the proposed development, that BASIX commitments be complied with.

Water Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Fixtures			
The applicant must install showerheads with a minimum rating of 3 star (> 7.5 but <= 9 L/min) in all showers in the development.		✓	✓
The applicant must install a toilet flushing system with a minimum rating of 4 star in each toilet in the development.		✓	✓
The applicant must install taps with a minimum rating of 4 star in the kitchen in the development.		✓	
The applicant must install basin taps with a minimum rating of 4 star in each bathroom in the development.		✓	
Alternative water			
Rainwater tank			
The applicant must install a rainwater tank of at least 4000 litres on the site. This rainwater tank must meet, and be installed in accordance with, the requirements of all applicable regulatory authorities.	✓	✓	✓
The applicant must configure the rainwater tank to collect rain runoff from at least 130 square metres of the roof area of the development (excluding the area of the roof which drains to any stormwater tank or private dam).		✓	✓
The applicant must connect the rainwater tank to: <ul style="list-style-type: none"> • all toilets in the development • the cold water tap that supplies each clothes washer in the development • at least one outdoor tap in the development (Note: NSW Health does not recommend that rainwater be used for human consumption in areas with potable water supply.) 		✓ ✓ ✓	✓ ✓ ✓

Thermal Comfort Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Simulation Method			
The applicant must attach the certificate referred to under "Assessor Details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for an occupation certificate for the proposed development.			
The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX certificate, including the Cooling and Heating loads shown on the front page of this certificate.			
The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Assessor Certificate requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor to certify that this is the case. The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.	✓	✓	✓
The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✓	✓
The applicant must construct the floors and walls of the dwelling in accordance with the specifications listed in the table below.	✓	✓	✓

Floor and wall construction	Area
floor - concrete slab on ground	All or part of floor area square metres
floor - suspended floor above garage	All or part of floor area

Energy Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Hot water			
The applicant must install the following hot water system in the development, or a system with a higher energy rating: gas instantaneous with a performance of 5 stars.	✓	✓	✓
Cooling system			
The applicant must install the following cooling system, or a system with a higher energy rating, in at least 1 living area: 3-phase airconditioning; Energy rating: EER 3.0 - 3.5		✓	✓
The applicant must install the following cooling system, or a system with a higher energy rating, in at least 1 bedroom: 3-phase airconditioning; Energy rating: EER 3.0 - 3.5		✓	✓
The cooling system must provide for day/night zoning between living areas and bedrooms.		✓	✓
Heating system			
The applicant must install the following heating system, or a system with a higher energy rating, in at least 1 living area: 3-phase airconditioning; Energy rating: EER 3.0 - 3.5		✓	✓
The applicant must install the following heating system, or a system with a higher energy rating, in at least 1 bedroom: 3-phase airconditioning; Energy rating: EER 3.0 - 3.5		✓	✓
The heating system must provide for day/night zoning between living areas and bedrooms.		✓	✓
Ventilation			
<p>The applicant must install the following exhaust systems in the development:</p> <p>At least 1 Bathroom: individual fan, ducted to façade or roof; Operation control: manual switch on/off</p> <p>Kitchen: individual fan, not ducted; Operation control: manual switch on/off</p> <p>Laundry: natural ventilation only, or no laundry; Operation control: n/a</p>		<p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p>	<p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p>
Artificial lighting			
<p>The applicant must ensure that the "primary type of artificial lighting" is fluorescent or light emitting diode (LED) lighting in each of the following rooms, and where the word "dedicated" appears, the fittings for those lights must only be capable of accepting fluorescent or light emitting diode (LED) lamps:</p> <ul style="list-style-type: none"> at least 5 of the bedrooms / study; 		✓	✓

Energy Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
<ul style="list-style-type: none"> • at least 2 of the living / dining rooms; • the kitchen; • all bathrooms/toilets; • the laundry; • all hallways; 		    	    
Natural lighting			
The applicant must install a window and/or skylight in the kitchen of the dwelling for natural lighting.			
The applicant must install a window and/or skylight in 4 bathroom(s)/toilet(s) in the development for natural lighting.			
Other			
The applicant must install a gas cooktop & electric oven in the kitchen of the dwelling.			
The applicant must install a fixed outdoor clothes drying line as part of the development.			

Legend

In these commitments, "applicant" means the person carrying out the development.

Commitments identified with a ✓ in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).

Commitments identified with a ✓ in the "Show on CC/CDC plans and specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.

Commitments identified with a ✓ in the "Certifier check" column must be certified by a certifying authority as having been fulfilled, before a final occupation certificate (either interim or final) for the development may be issued.

Nationwide House Energy Rating Scheme* Certificate



Certificate number: **0003890274**

Certificate Date: **27 May 2019**

★ Star rating: **5.4**

BERS Pro v4.3.0.0 (3.13) cannot be used to model 'roof windows'. Roof windows are 'openable or fixed windows in a roof' and do not have a shaft, as distinct from skylights which incorporate a built-in shaft and are not ventilated. BERS Pro v4.3 can only model skylights. If a roof window is present on the floor plan then this certificate is not valid.

Assessor details

Accreditation

number: **VIC/BDAV/12/1441**

Name: **Ian Fry**

Organisation: **Frys Energywise**

Email: **comply@frysenergywise.com.au**

Phone: **02 9899 2825**

Declaration of interest: **The Assessor has provided design advice to the Applicant**

Software: **BERS Pro v4.3.0.2d (3.13)**

AAO: **BDAV**

Overview

Dwelling details

Street: **Proposed Road**

Suburb: **Warriewood**

State: **NSW**

Postcode: **2102**

Type: **New Dwelling**

NCC Class: **1A**

NatHERS

climate zone: **56**

Lot/DP

number: **15/0**

Exposure: **Suburban**

Key construction and insulation materials

(see following pages for details)

Construction: **Brick Veneer**

Corrugated Iron

Suspended Timber Floor

Insulation:

R2.0 wall insulation

R4.0 ceiling insulation

No floor insulation

Glazing:

STG-007-01 A Aluminium Sliding

Window SG 3Clr

Net floor area (m²)

Conditioned: **168.0**

Unconditioned: **40.0**

Garage: **24.0**

TOTAL: **208.0**

Annual thermal performance loads (MJ/m²)

Heating: **34.9**

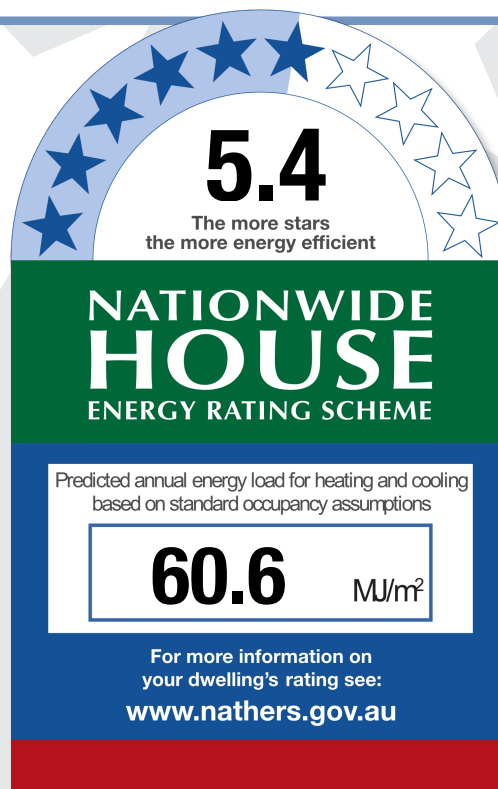
Cooling: **25.8**

TOTAL: **60.6**

Plan documents

Plan ref/date: **29913475**

Prepared by: **PG**



Ceiling penetrations

(see following pages for details)

Sealed: **1**

Unsealed: **0**

TOTAL:** **1**

****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: **Unknown**

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.



Nationwide House Energy Rating Scheme* Certificate

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27 May 2019

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Building features

Window type and performance value

Window ID	Window type	U-value	SHGC
STG-007-01 A	STG-007-01 A Aluminium Sliding Window SG 3Clr	6.3	0.73
STG-002-01 A	STG-002-01 A Aluminium Awning Window SG 3Clr	6.5	0.65
STG-007-07 A	STG-007-07 A Aluminium Sliding Window SG 638CP	4.5	0.44
STG-005-06 A	STG-005-06 A Aluminium Sliding Door SG 638CP	4.4	0.45

Window schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Orientation	Outdoor shade
Garage	STG-007-01 A	n/a	2000	800	SE	No Shading
Entry	STG-007-01 A	n/a	690	800	NE	No Shading
Study	STG-002-01 A	n/a	2000	1500	NW	No Shading
Powder	STG-007-01 A	n/a	2000	800	NE	No Shading
WIP	STG-007-07 A	n/a	514	1210	NE	No Shading
Kitchen/Family	STG-007-01 A	n/a	514	3010	NE	No Shading
Kitchen/Family	STG-005-06 A	n/a	2400	5300	SE	No Shading
Kitchen/Family	STG-007-07 A	n/a	600	2400	SW	No Shading
Bed 3	STG-002-01 A	n/a	600	2600	SE	No Shading
Ensuite	STG-007-01 A	n/a	1200	1500	SE	No Shading
Bath	STG-007-01 A	n/a	1200	800	SW	No Shading
Bed 4	STG-002-01 A	n/a	600	2600	SW	No Shading
Bed 2	STG-002-01 A	n/a	600	1800	SW	No Shading
Ensuite	STG-002-01 A	n/a	1200	1400	NW	No Shading
Bed 1	STG-002-01 A	n/a	1300	1500	NW	No Shading
Bed 1	STG-002-01 A	n/a	1300	1500	NW	No Shading
Bed 1	STG-007-01 A	n/a	1300	800	NE	No Shading
Leisure	STG-007-01 A	n/a	1310	800	NE	No Shading
Leisure	STG-007-01 A	n/a	600	3000	NE	No Shading

Roof window and skylight type and performance value

ID	Window type	U-value	SHGC
None Present			

Roof window and skylight schedule

Location	ID	Roof window/skylight no.	Area (m ²)	Orientation	Outdoor shade	Indoor shade/diffuser
None Present						

External wall type

ID	Wall type	Insulation	Wall wrap or foil
EW-1	Brick Veneer	No insulation	No
EW-2	Single Skin Brick	No insulation	No
EW-3	Brick Veneer	Bulk Insulation R2	No
EW-4	Fibro Cavity Panel Direct Fix	Bulk Insulation R2	No

External wall schedule

Nationwide House Energy Rating Scheme* Certificate

Certificate number: **0003890274**

Certificate Date:

27 May 2019

★ Star rating:

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Building features continued

Location	ID	Width (mm)	Height (mm)	Orientation	Fixed Shade	Eaves (mm)
Garage	EW-1	5600	3093	SW	No	100
Garage	EW-2	4395	3093	NW	No	100
Garage	EW-1	1200	3093	SE	No	100
Entry	EW-3	1390	2750	NW	No	1300
Entry	EW-3	2290	3075	NE	No	100
Study	EW-3	1000	2750	SW	No	1900
Study	EW-3	2400	2750	NW	No	300
Study	EW-3	3200	2750	NE	No	100
Study	EW-3	200	2750	SE	No	100
Powder	EW-3	1390	2750	NE	No	100
WIP	EW-3	2090	2750	NE	No	100
Kitchen/Family	EW-3	7195	2450	NE	No	100
Kitchen/Family	EW-3	700	2450	SE	No	100
Kitchen/Family	EW-3	6100	2750	SE	No	100
Kitchen/Family	EW-3	7695	2750	SW	No	100
Laundry	EW-3	1890	2750	SW	No	100
Bed 3	EW-3	3395	2600	NE	No	100
Bed 3	EW-3	3795	2600	SE	No	600
Ensuite	EW-3	2995	2600	SE	No	600
Ensuite	EW-3	2395	275	SW	No	0
Ensuite	EW-4	2395	2325	SW	No	300
Bath	EW-3	3390	275	SW	No	0
Bath	EW-4	3390	2325	SW	No	300
Bed 4	EW-3	3795	275	SW	No	0
Bed 4	EW-4	3795	2325	SW	No	300
Bed 4	EW-4	1095	2600	SW	No	300
Bed 2	EW-4	2890	2600	SW	No	300
Ensuite	EW-4	1595	2600	SW	No	100
Ensuite	EW-3	2800	535	NW	No	0
Ensuite	EW-4	2800	2065	NW	No	100
Bed 1	EW-4	995	2600	SW	No	100
Bed 1	EW-4	4000	2600	NW	No	500
Bed 1	EW-4	900	2601	NE	No	300
Bed 1	EW-3	300	2601	NE	No	300
Bed 1	EW-3	1495	2600	NE	No	100
WIR	EW-3	1890	2600	NE	No	100
Leisure	EW-3	6290	2600	NE	No	100
WIR	EW-3	1890	2600	NE	No	100

Internal wall type

Wall type	Area (m ²)	Insulation	Wall wrap or foil
IW-1 - Cavity wall, direct fix plasterboard, single gap	24.0	Bulk Insulation, No Air Gap R2	No
IW-2 - Cavity wall, direct fix plasterboard, single gap	179.0	No insulation	No

Nationwide House Energy Rating Scheme* Certificate



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★ Star rating:

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Building features continued

Floors

Location	Construction	Area (m ²)	Sub floor ventilation	Added insulation	Covering
Garage	Waffle pod slab 225 mm 100mm	24.2	None	Waffle Pod 225mm	Bare
Entry	Waffle pod slab 300 mm 100mm	14.5	None	Waffle Pod 300mm	Ceramic Tiles 8mm
Study	Waffle pod slab 300 mm 100mm	7.5	None	Waffle Pod 300mm	Ceramic Tiles 8mm
Powder	Waffle pod slab 300 mm 100mm	2.6	None	Waffle Pod 300mm	Ceramic Tiles 8mm
WIP	Waffle pod slab 300 mm 100mm	4.9	None	Waffle Pod 300mm	Ceramic Tiles 8mm
Kitchen/Family	Waffle pod slab 300 mm 100mm	50.8	None	Waffle Pod 300mm	Ceramic Tiles 8mm
Laundry	Waffle pod slab 300 mm 100mm	5.7	None	Waffle Pod 300mm	Ceramic Tiles 8mm
Bed 3/Kitchen/Family	Timber Above Plasterboard 19mm	14.3		No Insulation	Carpet 10mm
Ensuite/Kitchen/Family	Timber Above Plasterboard 19mm	7.0		No Insulation	Ceramic Tiles 8mm
Bath/Kitchen/Family	Timber Above Plasterboard 19mm	7.9		No Insulation	Ceramic Tiles 8mm
Bed 4/Garage	Timber Above Plasterboard 19mm	3.2		No Insulation	Carpet 10mm
Bed 4/Kitchen/Family	Timber Above Plasterboard 19mm	4.7		No Insulation	Carpet 10mm
Bed 4/Laundry	Timber Above Plasterboard 19mm	5.5		No Insulation	Carpet 10mm
Bed 2/Garage	Timber Above Plasterboard 19mm	8.3		No Insulation	Carpet 10mm
Ensuite/Garage	Timber Above Plasterboard 19mm	4.6		No Insulation	Ceramic Tiles 8mm
Bed 1/Garage	Timber Above Plasterboard 19mm	0.6		No Insulation	Carpet 10mm
Bed 1/Entry	Timber Above Plasterboard 19mm	3.7		No Insulation	Carpet 10mm
Bed 1/Study	Timber Above Plasterboard 19mm	5.7		No Insulation	Carpet 10mm
Bed 1	Suspended Timber Floor 19mm	1.8	Open	No Insulation	Carpet 10mm
WIR/Entry	Timber Above Plasterboard 19mm	1.1		No Insulation	Carpet 10mm
WIR/Study	Timber Above Plasterboard 19mm	1.0		No Insulation	Carpet 10mm
WIR/Powder	Timber Above Plasterboard 19mm	2.6		No Insulation	Carpet 10mm
Leisure/Garage	Timber Above Plasterboard 19mm	0.5		No Insulation	Carpet 10mm
Leisure/Entry	Timber Above Plasterboard 19mm	10.1		No Insulation	Carpet 10mm
Leisure/WIP	Timber Above Plasterboard 19mm	5.1		No Insulation	Carpet 10mm
Leisure/Kitchen/Family	Timber Above Plasterboard 19mm	10.2		No Insulation	Carpet 10mm
WIR/Kitchen/Family	Timber Above Plasterboard 19mm	5.0		No Insulation	Carpet 10mm

Nationwide House Energy Rating Scheme* Certificate

Certificate number: **0003890274**

Certificate Date:

27 May 2019

★ Star rating:

5.4



Building features continued

Ceiling type

Location	Construction	Added insulation	Roof space above
Garage	Plasterboard	No insulation	Yes
Garage	Timber Above Plasterboard	No Insulation	No
Entry	Timber Above Plasterboard	No Insulation	No
Study	Plasterboard	Bulk Insulation R4	Yes
Study	Timber Above Plasterboard	No Insulation	No
Powder	Timber Above Plasterboard	No Insulation	No
WIP	Timber Above Plasterboard	No Insulation	No
Kitchen/Family	Timber Above Plasterboard	No Insulation	No
Laundry	Timber Above Plasterboard	No Insulation	No
Bed 3	Plasterboard	Bulk Insulation R4	Yes
Ensuite	Plasterboard	Bulk Insulation R4	Yes
Bath	Plasterboard	Bulk Insulation R4	Yes
Bed 4	Plasterboard	Bulk Insulation R4	Yes
Bed 2	Plasterboard	Bulk Insulation R4	Yes
Ensuite	Plasterboard	Bulk Insulation R4	Yes
Bed 1	Plasterboard	Bulk Insulation R4	Yes
WIR	Plasterboard	Bulk Insulation R4	Yes
Leisure	Plasterboard	Bulk Insulation R4	Yes
WIR	Plasterboard	Bulk Insulation R4	Yes

Ceiling penetrations

Location	Number	Type	Diameter (mm)	Sealed/unsealed
Bath	1	Exhaust Fans	300	Sealed

Ceiling fans

Location	Number	Diameter (mm)
None Present		

Roof type

Construction	Added insulation	Roof colour
Corrugated Iron	Bulk, Reflective Side Down, No	Light

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5.4



Building features continued

	Air Gap Above R1.3
Corrugated Iron	Bulk, Reflective Light Side Down, No Air Gap Above R1.3

Nationwide House Energy Rating Scheme* Certificate

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★ Star rating: 5.4



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