

Thermal Comfort Assessment

**BUILDING
SUSTAINABILITY
CONSULTANTS**



■ FRIENDLY ■ INFORMATIVE ■ EFFICIENT ■ KNOWLEDGEABLE

RSL Life Care

Development application for:

Unit 4 Cutler Village,

Narrabeen, NSW 2101

Issue	File Ref	Description	Author	Date
A	9203	Original Thermal Comfort Assessment	EB	11/08/15
B	9416	Update: Hot water system, removal of zoning operation requirements, addition of a solar tube and removal of refrigeration ventilation	HE	24/08/15
C	17-0065	Update due to layout change	PV	17/02/17

This report has been prepared by Efficient Living Pty Ltd on behalf of our client TSA Management. 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.



Nationwide House Energy Rating Scheme* Certificate



Certificate number: 0001247758-01

Certificate Date: 17 Feb 2017

★ Star rating: 4.7

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/12/1473

Name: Tracey Cools

Organisation: Efficient Living

Email: admin@efficientliving.com.au

Phone: 02 9970 6181

Declaration of interest: None

Software: BERS Pro v4.3.0.2 (3.13)

AAO: BDAV

Overview

Dwelling details

Street: Cutler Village

Suburb: Narrabeen

State: NSW

Postcode: 2101

Type: New Dwelling

NCC Class: 1A

NatHERS

climate zone: 56

Lot/DP

number: 2641/752038

Exposure: Suburban

Key construction and insulation materials

(see following pages for details)

Construction: Brick Veneer

Roof Tiles

Concrete Slab on Ground

Insulation:

R2.0 wall insulation

R3.5 ceiling insulation

No floor insulation

Glazing:

ALM-002-01 A Aluminium B SG Clear

Net floor area (m²)

Conditioned: 102

Unconditioned: 31

Garage: 19

TOTAL: 133

Annual thermal performance loads (MJ/m²)

Heating: 44

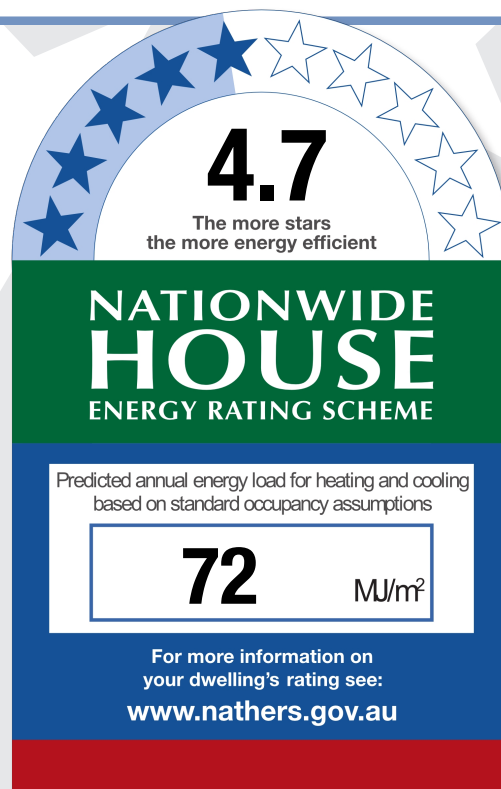
Cooling: 27

TOTAL: 72

Plan documents

Plan ref/date: 2007.14

Prepared by: Humel Architects



Ceiling penetrations

(see following pages for details)

Sealed: 34

Unsealed: 0

TOTAL:** 34

****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.



Nationwide House Energy Rating Scheme* Certificate

Certificate number: **0001247758-01**

Certificate Date:

17 Feb 2017

★ Star rating:

4.7



Building features

Window type and performance value

Window ID	Window type	U-value	SHGC
ALM-002-01 A	ALM-002-01 A Aluminium B SG Clear	6.70	0.70

Window schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Orientation	Outdoor shade
Garage	ALM-002-01 A	n/a	1050	1210	E	No Shading
study	ALM-002-01 A	n/a	1690	1810	N	No Shading
study	ALM-002-01 A	n/a	1500	1210	E	No Shading
Sleeping 1	ALM-002-01 A	n/a	2000	1810	E	No Shading
Sleeping 1	ALM-002-01 A	n/a	570	1810	S	No Shading
ens	ALM-002-01 A	n/a	1000	730	S	No Shading
Ldry	ALM-002-01 A	n/a	1000	970	S	No Shading
Sleeping 2	ALM-002-01 A	n/a	570	1810	W	No Shading
Sleeping 2	ALM-002-01 A	n/a	1000	1810	S	No Shading
Bathroom	ALM-002-01 A	n/a	1100	730	W	No Shading
Kitchen/Living	ALM-002-01 A	n/a	2400	4500	N	No Shading
Kitchen/Living	ALM-002-01 A	n/a	2200	1505	E	No Shading
Kitchen/Living	ALM-002-01 A	n/a	470	4500	N	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	0.00	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	1.3	W	None	No
Kitchen/Living	GEN-04-008a	2	0.8	N	None	No

External wall type

ID	Wall type	Insulation	Wall wrap or foil
EW-1	Brick Veneer	No insulation	No
EW-2	Brick Veneer	Bulk Insulation R2	No

External wall schedule

Location	ID	Width (mm)	Height (mm)	Orientation	Fixed Shade	Eaves (mm)
Garage	EW-1	3200	2400	N	No	700
Garage	EW-1	3750	2400	E	No	700
Garage	EW-1	6095	2400	W	No	700
study	EW-2	3095	2695	N	No	700
study	EW-2	2945	2695	E	No	5650
Sleeping 1	EW-2	4395	2695	E	No	700
Sleeping 1	EW-2	4245	900	S	No	0
Sleeping 1	EW-2	4245	1795	S	No	700

Nationwide House Energy Rating Scheme* Certificate

Certificate number: **0001247758-01**

Certificate Date:

17 Feb 2017

★ Star rating:

4.7



Building features continued

ens	EW-2	2190	1000	S	No	0
ens	EW-2	2190	1695	S	No	700
Ldry	EW-2	1895	1200	S	No	0
Ldry	EW-2	1895	1495	S	No	700
Ldry	EW-2	350	1200	W	No	0
Ldry	EW-2	350	1495	W	No	4200
Sleeping 2	EW-2	3895	600	W	No	0
Sleeping 2	EW-2	3895	2095	W	No	700
Sleeping 2	EW-2	3495	1200	S	No	0
Sleeping 2	EW-2	3495	1495	S	No	700
Bathroom	EW-2	2290	2695	W	No	700
Kitchen/Living	EW-2	4950	2695	N	No	4150
Kitchen/Living	EW-2	4595	2695	E	No	700
Kitchen/Living	EW-2	3045	2695	W	No	700
Kitchen/Living	EW-2	600	2695	N	No	6800

Internal wall type

Wall type	Area (m²)	Insulation	Wall wrap or foil
IW-1 - Cavity wall, direct fix plasterboard, single gap	104	No insulation	No

Floors

Location	Construction	Area (m²)	Sub floor ventilation	Added insulation	Covering
Garage	Concrete Slab on Ground	19.3	None	No Insulation	Bare
study	Concrete Slab on Ground	8.9	None	No Insulation	Carpet 10mm
Sleeping 1	Concrete Slab on Ground	18.3	None	No Insulation	Carpet 10mm
ens	Concrete Slab on Ground	4.1	None	No Insulation	Ceramic Tiles 8mm
Ldry	Concrete Slab on Ground	3.9	None	No Insulation	Ceramic Tiles 8mm
Sleeping 2	Concrete Slab on Ground	13.3	None	No Insulation	Carpet 10mm
WIR	Concrete Slab on Ground	4.9	None	No Insulation	Carpet 10mm
Bathroom	Concrete Slab on Ground	7.4	None	No Insulation	Ceramic Tiles 8mm
Kitchen/Living	Concrete Slab on Ground	52.5	None	No Insulation	60/40 Carpet 10mm/Ceramic

Ceiling type

Location	Construction	Added insulation	Roof space above
Garage	Plasterboard	No insulation	Yes
study	Plasterboard	Bulk Insulation R3.5	Yes
Sleeping 1	Plasterboard	Bulk Insulation R3.5	Yes

Nationwide House Energy Rating Scheme* Certificate

Certificate number: **0001247758-01**

Certificate Date:

17 Feb 2017

★ Star rating:

4.7

Building features continued

ens	Plasterboard	Bulk Insulation R3.5	Yes
Ldry	Plasterboard	Bulk Insulation R3.5	Yes
Sleeping 2	Plasterboard	Bulk Insulation R3.5	Yes
WIR	Plasterboard	Bulk Insulation R3.5	Yes
Bathroom	Plasterboard	Bulk Insulation R3.5	Yes
Kitchen/Living	Plasterboard	Bulk Insulation R3.5	No

Ceiling penetrations

Location	Number	Type	Diameter (mm)	Sealed/unsealed
study	3	Downlights - LED	150	Sealed
ens	2	Downlights - LED	150	Sealed
ens	1	Exhaust Fans	300	Sealed
Ldry	1	Downlights - LED	150	Sealed
Ldry	1	Exhaust Fans	300	Sealed
Bathroom	3	Downlights - LED	150	Sealed
Bathroom	1	Exhaust Fans	300	Sealed
Kitchen/Living	21	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed

Ceiling fans

Location	Number	Diameter (mm)
None Present		

Roof type

Construction	Added insulation	Roof colour
Roof Tiles	No Insulation, Only an Air Gap	Dark

Nationwide House Energy Rating Scheme* Certificate

Certificate number: 0001247758-01

Certificate Date: 17 Feb 2017

★ Star rating: 4.7



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

BASIX[®]Certificate

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

Single Dwelling

Certificate number: 641647S_04

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 18/09/2014 published by the Department. This document is available at www.basix.nsw.gov.au

This certificate is a revision of certificate number 641647S_02 lodged with the consent authority or certifier on 24 August 2015 with application DA2008/0802.




It is the responsibility of the applicant to verify with the consent authority that the original, or any revised certificate, complies with the requirements of Schedule 1 Clause 2A, 4A or 6A of the Environmental Planning and Assessment Regulation 2000

Secretary

Date of issue: Friday, 17 February 2017

To be valid, this certificate must be lodged within 3 months of the date of issue.



Project summary		
Project name	Unit 4, Cutler Village, Narrabeen_04	
Street address	4 Cutler Circuit Narrabeen 2101	
Local Government Area	Warringah Council	
Plan type and plan number	deposited 752038	
Lot no.	2641	
Section no.	-	
Project type	separate dwelling house	
No. of bedrooms	2	
Project score		
Water	 41	Target 40
Thermal Comfort	 Pass	Target Pass
Energy	 41	Target 40

Certificate Prepared by

Name / Company Name: Efficient Living

ABN (if applicable): 82116346082

Description of project

Project address

Project name	Unit 4, Cutler Village, Narrabeen_04
Street address	4 Cutler Circuit Narrabeen 2101
Local Government Area	Warringah Council
Plan type and plan number	Deposited Plan 752038
Lot no.	2641
Section no.	-

Project type

Project type	separate dwelling house
No. of bedrooms	2

Site details

Site area (m ²)	400
Roof area (m ²)	195
Conditioned floor area (m2)	102.0
Unconditioned floor area (m2)	12.0
Total area of garden and lawn (m2)	28

Assessor details and thermal loads

Assessor number	BDAV/12/1473
Certificate number	0001247758
Climate zone	56
Area adjusted cooling load (MJ/m ² .year)	27
Area adjusted heating load (MJ/m ² .year)	44

Other

none	n/a
------	-----

Project score

Water	✓ 41	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 41	Target 40

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 3 star in each toilet in the development.		✓	✓
The applicant must install taps with a minimum rating of 3 star in the kitchen in the development.		✓	
The applicant must install basin taps with a minimum rating of 3 star in each bathroom in the development.		✓	
Alternative water			
Rainwater tank			
The applicant must install a rainwater tank of at least 2000 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 100 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:			
• all toilets 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


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: solar (electric boosted) with a performance of 26 to 30 RECs or better.	✓	✓	✓
Cooling system			
The applicant must install the following cooling system, or a system with a higher energy rating, in at least 1 living area: 1-phase airconditioning; Energy rating: EER 2.5 - 3.0		✓	✓
The applicant must install the following cooling system, or a system with a higher energy rating, in at least 1 bedroom: 1-phase airconditioning; Energy rating: EER 2.5 - 3.0		✓	✓
Heating system			
The applicant must install the following heating system, or a system with a higher energy rating, in at least 1 living area: 1-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: 1-phase airconditioning; Energy rating: EER 3.0 - 3.5		✓	✓
Ventilation			
The applicant must install the following exhaust systems in the development:			
At least 1 Bathroom: individual fan, ducted to façade or roof; Operation control: manual switch on/off		✓	✓
Kitchen: individual fan, ducted to façade or roof; Operation control: manual switch on/off		✓	✓
Laundry: natural ventilation only, or no laundry; Operation control: n/a		✓	✓
Artificial lighting			
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:			
• at least 3 of the bedrooms / study;		✓	✓
• at least 2 of the living / dining rooms;		✓	✓
• the kitchen;		✓	✓


Energy Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
<ul style="list-style-type: none"> • 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 2 bathroom(s)/toilet(s) in the development for natural lighting.			
Other			
The applicant must install a fixed indoor or sheltered 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.