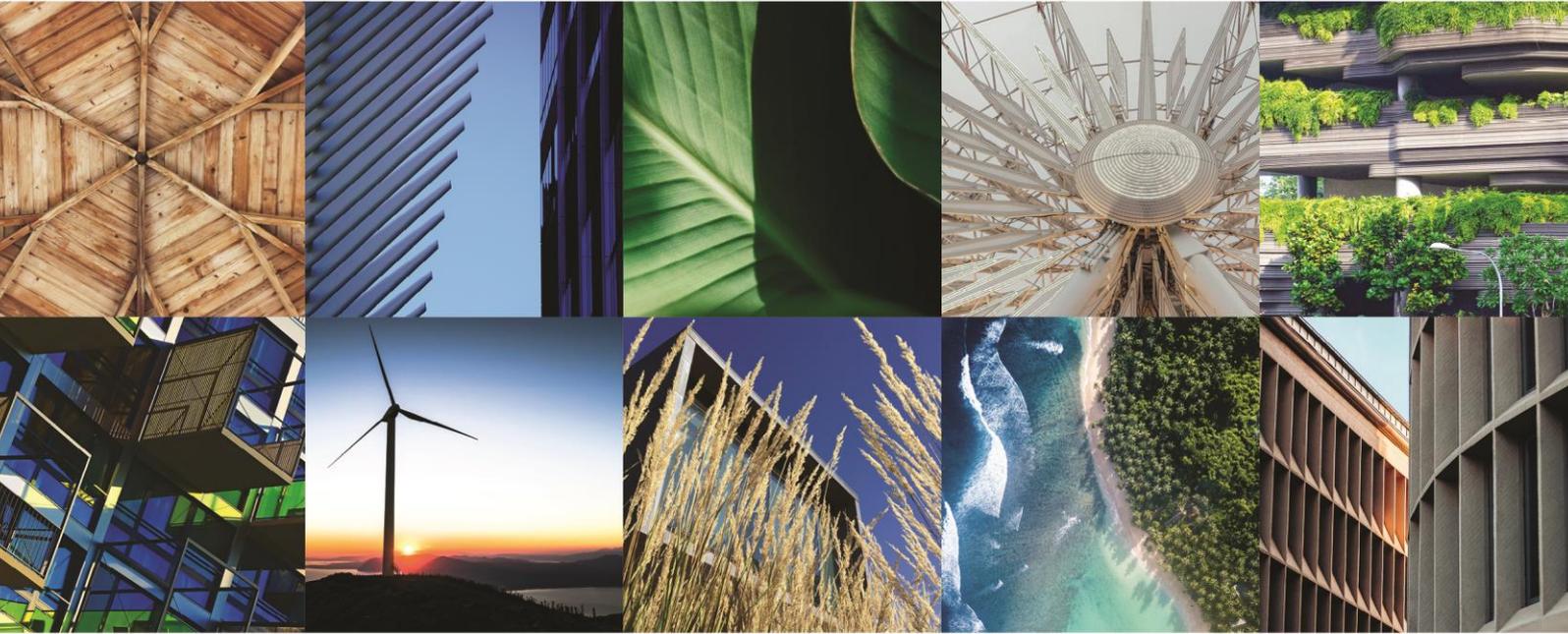




efficient
LIVING

NatHERS & Basix Assessment



Green Homes Australia Proposed Residential Development

To be built at **57 MacMillan Street Seaforth, NSW 2092**

Issue	File Ref	Description	Author	Date
A	18-1683	NatHERS & Basix Assessment	NM	26/11/2018
B	19-0735	Update NatHERS & Basix Assessment	HE	02/09/2019

This report has been prepared by Efficient Living Pty Ltd on behalf of our client Green Homes Australia. 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.



Sustainable Building Consultants

p. 02 9970 6181 e. admin@efficientliving.com.au
www.efficientliving.com.au



Assessor: Niall Madden
Email: niall@efficientliving.com.au

License Holder: Tracey Cools
Accreditation Number: VIC/BDAV/12/1473

BASIX Details

NatHERS Certificate Number: 0004179107

BASIX adjusted conditioned area: 204 m²

BASIX adjusted un-conditioned area: 20 m²

Area adjusted heating load: 33.9 MJ/m²/pa

Area adjusted cooling load 16.7 MJ/m²/pa

Specification

Heating and cooling loads for the development have been determined using BERS Pro Plus 4.3 thermal comfort simulation software, and assess 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 specifications 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

Concrete slab on ground no insulation required

Suspended concrete with a minimum R1.2 insulation (insulation only value).

External Walls

Brick veneer with a minimum R 2.0 insulation to walls to sub floor and first floor external walls (insulation only value)

Cavity brick with AIR-CELL Permican insulation Minimum Total system R-Value of Rt 1.79

(Note: no insulation is required to garage walls)

External Colour

Default colour modelled

Walls within dwellings

Single skin brick as per plans

Plasterboard on studs with a R2.0 to internal garage walls.



Windows

Aluminium framed single clear glazing to external garage wall:

B -fixed glazing

U-Value: 6.70 (equal to or lower than) SHGC: 0.70 ($\pm 10\%$)

UPVC framed double glazing:

A - awning windows + hinged glazed doors

U-Value: 3.50 (equal to or lower than) SHGC: 0.47 ($\pm 10\%$)

B - sliding doors/windows + fixed glazing + louvre windows

U-Value: 3.50 (equal to or lower than) SHGC: 0.64 ($\pm 10\%$)

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

NOTE: Openability modelled as per BASIX Thermal Protocol - 4.14.2 and NatHERS Technical Note 1.2 - 10.11 with regard to restricted openings.

Skylights

Double glazed throughout

Ceilings

Plasterboard ceiling, with an R 4.1 insulation (insulation value only) where roof is above.

Plasterboard ceiling with R2.5 insulation to areas of raked ceiling with roof above.

Ceiling penetrations

Loss of ceiling insulation has been accounted for in accordance with BASIX Thermal Protocol 4.13.1 and NatHERS Technical Note 1.2

Assumed sealed LED downlights every 1/2.5m²

Roof

Tiled roof no insulation required

External Colour

Dark (SA > 0.7)



Floor coverings

As per stamped plans

Default floor coverings modelled as per NatHERS Technical Note 1.2 – 10.5

External Shading

Shading as per stamped documentation

Ventilation

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

Nationwide House Energy Rating Scheme* Certificate



Certificate number: **0004179107**

Certificate Date: **02 Sep 2019**

★ Star rating: **6.1**

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 v4.3.0.2d (3.13)**
AAO: **BDAV**

Overview

Dwelling details

Street: **57 MacMillan Street**
Suburb: **Seaforth**
State: **NSW** Postcode: **2092**
Type: **New Dwelling** NCC Class: **1A**
NatHERS climate zone: **56**
Lot/DP number: **11/18517** Exposure: **Suburban**

Key construction and insulation materials

(see following pages for details)

Construction: **Brick Veneer**
Roof Tiles
Suspended Concrete Slab
Insulation: **R2.0 wall insulation**
R4.1 ceiling insulation
R1.2 floor insulation
Glazing: **ATB-005-01 B AI Thermally Broken A**
DG Argon Fill Clear-Clear

Net floor area (m²)

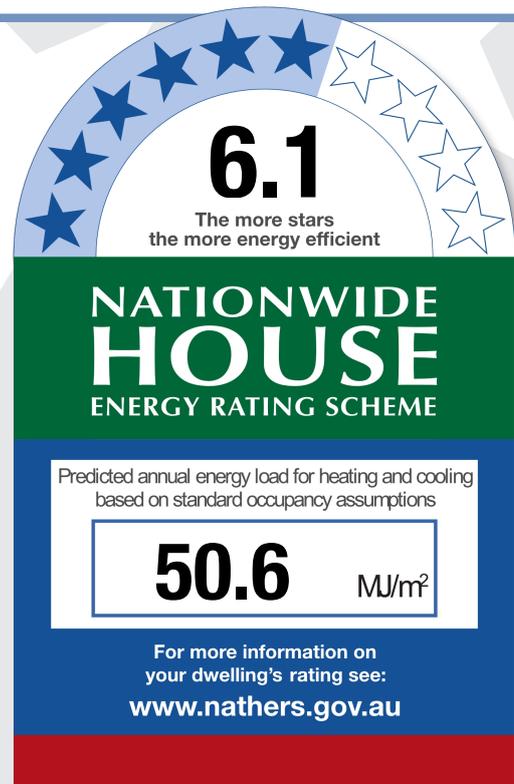
Conditioned: **204.0**
Unconditioned: **57.0**
Garage: **37.0**
TOTAL: **262.0**

Annual thermal performance loads (MJ/m²)

Heating: **33.9**
Cooling: **16.7**
TOTAL: **50.6**

Plan documents

Plan ref/date: **1809**
Prepared by: **Green Homes**



Ceiling penetrations

(see following pages for details)

Sealed: **92**
Unsealed: **1**
TOTAL:** **93**

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: **0004179107**

Certificate Date:

02 Sep 2019

★ Star rating:

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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	6.7	0.70
ATB-005-01 B	ATB-005-01 B AI Thermally Broken A DG Argon Fill Clear-Clear	3.5	0.47
ATB-006-01 B	ATB-006-01 B AI Thermally Broken B DG Argon Fill Clear-Clear	3.5	0.64

Window schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Orientation	Outdoor shade
Garage	ALM-002-01 A	n/a	870	1580	W	No Shading
Foyer	ATB-005-01 B	n/a	2100	440	N	No Shading
Sitting/Guest	ATB-005-01 B	n/a	1025	2700	N	No Shading
Sitting/Guest	ATB-006-01 B	n/a	600	2700	E	No Shading
PWD	ATB-005-01 B	n/a	1200	1500	E	No Shading
Kitchen/Living	ATB-005-01 B	n/a	850	1800	W	No Shading
Kitchen/Living	ATB-005-01 B	n/a	700	1200	W	No Shading
Kitchen/Living	ATB-006-01 B	n/a	2400	2240	E	No Shading
Kitchen/Living	ATB-005-01 B	n/a	1500	1750	S	No Shading
Kitchen/Living	ATB-006-01 B	n/a	2400	4200	S	No Shading
Laundry	ATB-005-01 B	n/a	700	1200	W	No Shading
Bedroom 2	ATB-006-01 B	n/a	1200	2700	E	No Shading
Bath	ATB-005-01 B	n/a	1200	1500	E	No Shading
Bedroom 3	ATB-006-01 B	n/a	1200	2400	E	No Shading
Ens	ATB-005-01 B	n/a	1030	850	E	No Shading
Living	ATB-005-01 B	n/a	1030	850	W	No Shading
Living	ATB-006-01 B	n/a	2100	3540	N	No Shading
Bedroom 1	ATB-005-01 B	n/a	1050	2100	N	No Shading
Bedroom 1	ATB-006-01 B	n/a	600	2100	E	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 (m ²)	Orientation	Outdoor shade	Indoor shade/diffuser
Kitchen/Living	GEN-04-008a	1	1.2	W	None	No
Kitchen/Living	GEN-04-008a	2	1.2	W	None	No
Hall/Linen	GEN-04-008a	1	2.5	W	None	No
Hall/Linen	GEN-04-008a	2	2.5	W	None	No

External wall type

ID	Wall type	Insulation	Wall wrap or foil
EW-1	Single Skin Brick	No insulation	No
EW-2	Cavity Brick	No insulation	No
EW-3	Cavity Brick	Foil Anti-glare one side and Reflective other of the Bulk Insulation R0.8	Yes

Nationwide House Energy Rating Scheme* Certificate

Certificate number: **0004179107**

Certificate Date:

02 Sep 2019

★ Star rating:

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Building features continued

EW-4 Brick Veneer Bulk Insulation R2 No

External wall schedule

Location	ID	Width (mm)	Height (mm)	Orientation	Fixed Shade	Eaves (mm)
Garage	EW-1	5345	3000	S	No	0
Garage	EW-2	700	3000	S	No	0
Garage	EW-2	6100	3000	W	No	700
Garage	EW-2	6095	3000	N	No	2100
Foyer	EW-3	1590	3000	N	No	2400
Foyer	EW-4	1490	3000	S	No	0
Sitting/Guest	EW-3	795	3000	N	No	2400
Sitting/Guest	EW-3	1700	3000	W	No	9200
Sitting/Guest	EW-3	3400	3000	N	No	700
Sitting/Guest	EW-3	5045	3000	E	No	600
Sitting/Guest	EW-4	2340	3000	S	No	0
PWD	EW-3	2645	3000	E	No	600
PWD	EW-4	1745	3000	S	No	0
Kitchen/Living	EW-4	3700	2700	W	No	600
Kitchen/Living	EW-4	700	2700	N	No	9500
Kitchen/Living	EW-4	2800	2700	W	No	1300
Kitchen/Living	EW-4	600	2700	S	No	9200
Kitchen/Living	EW-4	4295	2700	W	No	700
Kitchen/Living	EW-4	2500	2700	E	No	4900
Kitchen/Living	EW-4	7200	3800	S	No	2700
Laundry	EW-4	2295	2700	W	No	700
Laundry	EW-4	1200	2700	N	No	8900
Bedroom 2	EW-4	3895	2700	E	No	700
Bedroom 2	EW-4	4195	2700	S	No	5200
Bath	EW-4	3390	2700	E	No	700
Bedroom 3	EW-4	1100	2700	N	No	7400
Bedroom 3	EW-4	3295	2700	E	No	700
Ens	EW-4	1690	2700	E	No	700
Living	EW-4	6095	2700	W	No	700
Living	EW-4	4295	2700	N	No	2800
Bedroom 1	EW-4	3195	2700	N	No	700
Bedroom 1	EW-4	4995	2700	E	No	700
WIR	EW-4	600	2700	W	No	5000
WIR	EW-4	1495	2700	N	No	700

Internal wall type

Wall type	Area (m ²)	Insulation	Wall wrap or foil
IW-1 - Cavity wall, direct fix plasterboard, single gap	11.0	Bulk Insulation, No Air Gap R2	No
IW-2 - Brick Veneer	8.0	Bulk Insulation, No Air Gap R2	No
IW-3 - Cavity wall, direct fix plasterboard, single gap	181.0	No insulation	No

Nationwide House Energy Rating Scheme* Certificate

Certificate number: **0004179107**

Certificate Date:

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★ Star rating:

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Building features continued

IW-4 - Single Skin Brick 25.0 No insulation No

Floors

Location	Construction	Area (m ²)	Sub floor ventilation	Added insulation	Covering
Garage	Concrete Slab on Ground 110mm	36.8	None	No Insulation	Bare
Foyer	Concrete Slab on Ground 110mm	9.0	None	No Insulation	Cork Tiles or Parquetry 8mm
Sitting/Guest	Concrete Slab on Ground 110mm	25.1	None	No Insulation	Cork Tiles or Parquetry 8mm
PWD	Concrete Slab on Ground 110mm	5.5	None	No Insulation	Ceramic Tiles 8mm
Kitchen/Living	Suspended Concrete Slab 150mm	65.5	Enclosed	Bulk Insulation in Contact with Floor R1.2	Cork Tiles or Parquetry 8mm
WIP	Suspended Concrete Slab 150mm	5.9	Enclosed	Bulk Insulation in Contact with Floor R1.2	Cork Tiles or Parquetry 8mm
Laundry	Suspended Concrete Slab 150mm	5.9	Enclosed	Bulk Insulation in Contact with Floor R1.2	Ceramic Tiles 8mm
Bedroom 2	Suspended Concrete Slab 150mm	19.2	Enclosed	Bulk Insulation in Contact with Floor R1.2	Cork Tiles or Parquetry 8mm
Bath	Suspended Concrete Slab 150mm	9.1	Enclosed	Bulk Insulation in Contact with Floor R1.2	Ceramic Tiles 8mm
Bedroom 3	Suspended Concrete Slab 150mm	13.4	Enclosed	Bulk Insulation in Contact with Floor R1.2	Cork Tiles or Parquetry 8mm
Ens/Sitting/Guest	Concrete Above Plasterboard 150mm	3.4		No Insulation	Ceramic Tiles 8mm
Ens/PWD	Concrete Above Plasterboard 150mm	1.5		No Insulation	Ceramic Tiles 8mm
Living/Garage	Concrete Above Plasterboard 150mm	22.8		Bulk Insulation R1.5	Cork Tiles or Parquetry 8mm
Hall/Linen/Garage	Concrete Above Plasterboard 150mm	2.8		Bulk Insulation R1.5	Cork Tiles or Parquetry 8mm
Hall/Linen/Foyer	Concrete Above Plasterboard 150mm	4.1		No Insulation	Cork Tiles or Parquetry 8mm
Hall/Linen	Suspended Concrete Slab 150mm	13.4	Enclosed	Bulk Insulation in Contact with Floor R1.2	Cork Tiles or Parquetry 8mm
Bedroom 1/Foyer	Concrete Above Plasterboard 150mm	2.1		No Insulation	Carpet 10mm
Bedroom 1/Sitting/Guest	Concrete Above Plasterboard 150mm	13.4		No Insulation	Carpet 10mm
Bedroom 1/PWD	Concrete Above Plasterboard 150mm	1.2		No Insulation	Carpet 10mm
Bedroom 1	Suspended Concrete Slab 150mm	0.5	Totally Open	Bulk Insulation in Contact with Floor R1.2	Carpet 10mm
WIR/Foyer	Concrete Above Plasterboard 150mm	3.1		No Insulation	Cork Tiles or Parquetry 8mm

Nationwide House Energy Rating Scheme* Certificate



Certificate number: **0004179107**

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Building features continued

WIR	Suspended Concrete Slab 150mm	0.8	Totally Open	Bulk Insulation Cork Tiles or in Contact with Parquetry 8mm Floor R1.2
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Ceiling type

Location	Construction	Added insulation	Roof space above
Garage	Plasterboard	No insulation	Yes
Garage	Concrete Above Plasterboard	Bulk Insulation R1.5	No
Foyer	Concrete Above Plasterboard	No Insulation	No
Sitting/Guest	Plasterboard	Bulk Insulation R2	Yes
Sitting/Guest	Concrete Above Plasterboard	No Insulation	No
PWD	Plasterboard	Bulk Insulation R2	Yes
PWD	Concrete Above Plasterboard	No Insulation	No
Kitchen/Living	Plasterboard	Bulk Insulation R2.5	Yes
WIP	Plasterboard	Bulk Insulation R4.1	Yes
Laundry	Plasterboard	Bulk Insulation R4.1	Yes
Bedroom 2	Plasterboard	Bulk Insulation R4.1	Yes
Bath	Plasterboard	Bulk Insulation R4.1	Yes
Bedroom 3	Plasterboard	Bulk Insulation R4.1	Yes
Ens	Plasterboard	Bulk Insulation R4.1	Yes
Living	Plasterboard	Bulk Insulation R4.1	Yes
Hall/Linen	Plasterboard	Bulk Insulation R4.1	Yes
Bedroom 1	Plasterboard	Bulk Insulation R4.1	Yes
WIR	Plasterboard	Bulk Insulation R4.1	Yes

Ceiling penetrations

Location	Number	Type	Diameter (mm)	Sealed/unsealed
Foyer	3	Downlights - LED	150	Sealed
Sitting/Guest	10	Downlights - LED	150	Sealed
Sitting/Guest	1	Exhaust Fans	300	Unsealed
PWD	2	Downlights - LED	150	Sealed
PWD	1	Exhaust Fans	300	Sealed
Kitchen/Living	27	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed

Nationwide House Energy Rating Scheme* Certificate

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Building features continued

WIP	2	Downlights - LED	150	Sealed
Laundry	2	Downlights - LED	150	Sealed
Bedroom 2	7	Downlights - LED	150	Sealed
Bath	3	Downlights - LED	150	Sealed
Bath	1	Exhaust Fans	300	Sealed
Bedroom 3	5	Downlights - LED	150	Sealed
Ens	2	Downlights - LED	150	Sealed
Ens	1	Exhaust Fans	300	Sealed
Living	9	Downlights - LED	150	Sealed
Hall/Linen	8	Downlights - LED	150	Sealed
Bedroom 1	7	Downlights - LED	150	Sealed
WIR	1	Downlights - LED	150	Sealed

Ceiling fans

Location	Number	Diameter (mm)
None Present		

Roof type

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

Nationwide House Energy Rating Scheme* Certificate

Certificate number: 0004179107

Certificate Date: 02 Sep 2019

★ Star rating: 6.1



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: 980763S_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 06/10/2017 published by the Department. This document is available at www.basix.nsw.gov.au

Secretary
Date of issue: Monday, 02 September 2019
To be valid, this certificate must be lodged within 3 months of the date of issue.



Project summary		
Project name	57 MacMillan Street _04	
Street address	57 MacMillan Street Seaforth 2092	
Local Government Area	Northern Beaches Council	
Plan type and plan number	deposited 18517	
Lot no.	11	
Section no.	-	
Project type	separate dwelling house	
No. of bedrooms	3	
Project score		
Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 50	Target 50

Certificate Prepared by

Name / Company Name: Efficient Living Pty Ltd

ABN (if applicable): 82116346082

Description of project

Project address

Project name	57 MacMillan Street _04
Street address	57 MacMillan Street Seaforth 2092
Local Government Area	Northern Beaches Council
Plan type and plan number	Deposited Plan 18517
Lot no.	11
Section no.	-

Project type

Project type	separate dwelling house
No. of bedrooms	3

Site details

Site area (m ²)	727
Roof area (m ²)	312
Conditioned floor area (m2)	204.0
Unconditioned floor area (m2)	20.0
Total area of garden and lawn (m2)	150

Assessor details and thermal loads

Assessor number	BDAV/12/1473
Certificate number	0004179107
Climate zone	56
Area adjusted cooling load (MJ/m ² .year)	17
Area adjusted heating load (MJ/m ² .year)	34

Project score

Water	 40	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
Landscape			
The applicant must plant indigenous or low water use species of vegetation throughout 140 square metres of the site.	✓	✓	
Fixtures			
The applicant must install showerheads with a minimum rating of 3 star (> 6 but <= 7.5 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 1000 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 50 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"> 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	79.0 square metres
floor - suspended floor/open subfloor	10.0 square metres
floor - suspended floor/enclosed subfloor	128.0 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: gas instantaneous with a performance of 6 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: ceiling fans + 1-phase airconditioning; Energy rating: 3.5 Star		✓	✓
The applicant must install the following cooling system, or a system with a higher energy rating, in at least 1 bedroom: ceiling fans + 1-phase airconditioning; Energy rating: 3.5 Star		✓	✓
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: 1-phase airconditioning; Energy rating: 4 Star		✓	✓
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: 4 Star		✓	✓
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, ducted to façade or roof; Operation control: manual switch on/off</p> <p>Laundry: individual fan, ducted to façade or roof; Operation control: manual switch on/off</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 3 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 3 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 3 bathroom(s)/toilet(s) in the development for natural lighting.			
Other			
The applicant must install an induction cooktop & electric oven in the kitchen of the dwelling.			
The applicant must construct each refrigerator space in the development so that it is "well ventilated", as defined in the BASIX definitions.			
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.