efficient LIVING

NatHERS and BASIX Assessment

Watershed Design
Proposed Residential Development

To be built at **2 Ellery Parade, Seaforth NSW 2092**

Issue	File Ref	Description	Author	Date
A	19-0095	NatHERS and BASIX Assessment	HE	16/04/2019

This report has been prepared by Efficient Living Pty Ltd on behalf of our client Watershed Design. 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
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www.efficientliving.com.au

16 April 2019

Watershed Design
2 Ellery Parade, Seaforth NSW 2092

Assessor: Haylea Edawrds
Email: haylea@efficientliving.com.au

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

BASIX Details:

NatHERS Certificate Number: 0003782125

BASIX adjusted conditioned area: 296.8m^2

BASIX adjusted un-conditioned area: 26.9m^2

Area adjusted heating load: 39.4MJ/ m^2/pa

Area adjusted cooling load: 26.0MJ/ m^2/pa

Specification

Heating and cooling loads for the development have been determined using BERS Pro Plus 4.3 thermal comfort simulation software, and assessed under the thermal simulation method of the BASIX Protocol.

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

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

Floors

Concrete slab on ground no insulation required

Suspended concrete with a minimum R2.0 insulation (insulation only value)

Concrete between levels, no insulation required

External Walls

Brick veneer with R2.7 insulation (insulation only value)

Lightweight weatherboard and metal cladding on framed walls with R2.7 insulation (insulation only value)

Note: No insulation is required to Garage walls

External Colour

Light colour modelled (SA<0.475)

Walls within dwellings

Plasterboard on studs – no insulation

Plasterboard on studs with R2.0 insulation to garage, bathrooms and laundry (does not include ensuite)

Glazing Doors/Windows

Improved aluminium framed double glazing: to living, dining kitchen room, kitchen void and entry void

U-value: 3.10 (equal to or lower than) SHGC: 0.49 (±10%)

Aluminium framed performance glazing elsewhere

U-value: 4.5 (equal to or lower than) SHGC: 0.50 (±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 regards to restricted openings

Roof

Metal roof with foil backed blanket (R_u1.3 and R_d1.3) first floor

Concrete roof no insulation required to ground floor

External Colour

Medium (0.475 < SA < 0.7)

Ceilings

Plasterboard ceiling with R4.0 insulation (insulation only value) where roof above

Ceiling Penetrations

As per NatHERS certificate

Floor coverings

Carpet to bedrooms, tiles to bathrooms and laundry, timber elsewhere

External Shading

Shading as per stamped documentation

Ventilation

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

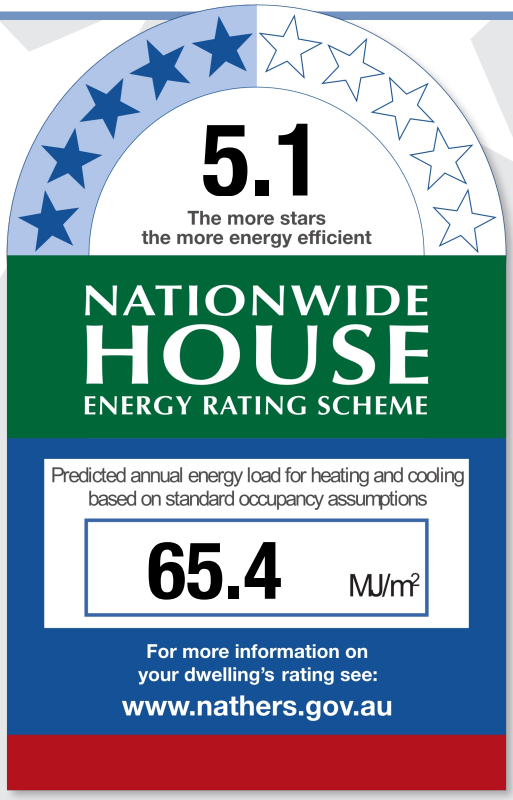
Nationwide House Energy Rating Scheme* Certificate

Certificate number: **0003782125** Certificate Date: **15 Apr 2019** ★Star rating: **5.1**

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 Pty Ltd
Email:	admin@efficientlivingcom.au
Phone:	02 9970 6181
Declaration of interest:	None
Software:	BERS Pro v4.3.0.2d (3.13)
AAO:	BDAV



Overview

Dwelling details

Street:	2 Ellery Parade		
Suburb:	Seaforth		
State:	NSW	Postcode:	2092
Type:	New Dwelling	NCC Class:	1A
		NatHERS climate zone:	56
Lot/DP number:	2/528368	Exposure:	Suburban

Key construction and insulation materials

(see following pages for details)

Construction:	Brick Veneer Concrete Concrete Slab on Ground
Insulation:	R2.7 wall insulation R4.0 ceiling insulation No floor insulation
Glazing:	ALM-005-01 A Aluminium A DG Argon Fill Clear-Clear

Net floor area (m²)

Conditioned:	297.0
Unconditioned:	74.0
Garage:	47.0
TOTAL:	371.0

Annual thermal performance loads (MJ/m²)

Heating:	39.4
Cooling:	26.0
TOTAL:	65.4

Plan documents

Plan ref/date:	19-0095
Prepared by:	Watershed Design

Ceiling penetrations

(see following pages for details)

Sealed:	81
Unsealed:	0
TOTAL:**	81

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.

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 (NatHERS) is an initiative of the Australian, state and territory governments. For more details see www.nathers.gov.au

Building features

Window type and performance value

Window ID	Window type	U-value	SHGC
ALM-005-01 A	ALM-005-01 A Aluminium A DG Argon Fill Clear-Clear	4.5	0.50
ATB-004-03 B	ATB-004-03 B Al Thermally Broken B DG Air Fill High Solar Gain low-E -Clear	3.1	0.49

Window schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Orientation	Outdoor shade
Ldry	ALM-005-01 A	n/a	2400	900	W	No Shading
family/tv room	ALM-005-01 A	n/a	2400	1800	W	No Shading
bath	ALM-005-01 A	n/a	2400	900	W	No Shading
corridor	ATB-004-03 B	n/a	1600	2170	W	No Shading
corridor	ALM-005-01 A	n/a	2900	1700	E	Vertical Louvres, Vertical Blades
corridor	ALM-005-01 A	n/a	3000	500	S	No Shading
Bedroom 1	ALM-005-01 A	n/a	2400	3400	E	No Shading
ens	ALM-005-01 A	n/a	2400	900	E	No Shading
Kitchen/Living	ATB-004-03 B	n/a	3000	4000	N	No Shading
Kitchen/Living	ALM-005-01 A	n/a	3000	850	N	No Shading
Kitchen/Living	ATB-004-03 B	n/a	3000	4400	E	No Shading
Kitchen/Living	ATB-004-03 B	n/a	3000	5300	N	No Shading
pantry	ALM-005-01 A	n/a	2400	900	E	No Shading
storage	ALM-005-01 A	n/a	2400	900	E	No Shading
Bedroom 2	ALM-005-01 A	n/a	1900	3400	S	No Shading
ens2	ALM-005-01 A	n/a	1050	1800	W	No Shading
bathroom	ALM-005-01 A	n/a	1050	1800	W	No Shading
Bedroom 3	ALM-005-01 A	n/a	450	850	S	No Shading
Bedroom 3	ALM-005-01 A	n/a	450	2550	S	No Shading
Bedroom 3	ALM-005-01 A	n/a	1900	860	E	No Shading
Bedroom 3	ALM-005-01 A	n/a	1900	1900	E	No Shading
Bedroom 4	ALM-005-01 A	n/a	1900	1900	E	No Shading
Bedroom 4	ALM-005-01 A	n/a	1900	860	E	No Shading
FF corridor	ATB-004-03 B	n/a	2700	1380	S	No Shading
FF corridor	ATB-004-03 B	n/a	1700	2170	W	No Shading
FF corridor	ATB-004-03 B	n/a	2400	5300	N	No Shading
FF corridor	ALM-005-01 A	n/a	500	5300	N	No Shading
FF corridor	ATB-004-03 B	n/a	1900	4800	E	No Shading
Master Bedroom	ALM-005-01 A	n/a	1500	2500	N	No Shading
Master Bedroom	ALM-005-01 A	n/a	1500	860	N	No Shading
Master Bedroom	ALM-005-01 A	n/a	1500	860	E	No Shading
Master Bedroom	ALM-005-01 A	n/a	1500	1650	E	No Shading
Master Ens	ALM-005-01 A	n/a	1050	2400	W	No Shading
Master WIR	ALM-005-01 A	n/a	2650	900	W	No Shading

Roof window and skylight type and performance value

ID	Window type	U-value	SHGC
None Present			

Building features continued

Roof window and skylight schedule

Location	ID	Roof window/skylight no.	Area (m²)	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	Brick Veneer	Bulk Insulation R2.7	No
EW-3	Weatherboard Cavity Panel Direct Fix	Bulk Insulation R2.7	No

External wall schedule

Location	ID	Width (mm)	Height (mm)	Orientation	Fixed Shade	Eaves (mm)
Garage 1	EW-1	6900	3000	W	No	0
Garage 1	EW-1	1600	3000	N	No	0
Garage 1	EW-1	6295	3000	E	No	100
Garage 1	EW-1	7000	3000	S	No	0
Ldry	EW-2	2590	3000	W	No	1400
family/tv room	EW-2	4790	3000	W	No	1400
bath	EW-2	2390	3000	W	No	1400
corridor	EW-2	2290	3000	W	No	1400
corridor	EW-2	1695	3000	E	No	3400
corridor	EW-2	2000	3000	S	No	900
corridor	EW-2	895	3000	E	No	5400
Bedroom 1	EW-2	3995	3000	E	No	400
ens	EW-2	1995	3000	E	No	400
ens	EW-2	2995	3000	S	No	2600
Kitchen/Living	EW-2	900	3000	S	No	19000
Kitchen/Living	EW-2	8700	3000	W	No	500
Kitchen/Living	EW-2	4900	3000	N	No	2000
Kitchen/Living	EW-2	4700	3000	E	No	6800
Kitchen/Living	EW-2	6400	3000	N	No	6650
Kitchen/Living	EW-2	800	3000	E	No	400
Kitchen/Living	EW-2	700	3000	N	No	7400
Kitchen/Living	EW-2	3200	3000	E	No	0
Kitchen/Living	EW-2	700	3000	S	No	12700
pantry	EW-2	2290	3000	E	No	400
storage	EW-2	1790	3000	E	No	400
Bedroom 2	EW-2	4395	2700	W	No	1400
Bedroom 2	EW-3	1800	2700	E	No	6800
Bedroom 2	EW-3	4100	2700	S	No	1200
ens2	EW-2	1790	2700	W	No	1400
bathroom	EW-2	3190	2700	W	No	1400
Bedroom 3	EW-2	4895	2700	S	No	3000
Bedroom 3	EW-2	3695	2700	E	No	500

Building features continued

Bedroom 4	EW-2	3590	2700	E	No	500
FF corridor	EW-2	1390	2700	S	No	3000
FF corridor	EW-3	2490	2700	W	No	1400
FF corridor	EW-2	6395	3000	N	No	6300
FF corridor	EW-2	6795	2700	E	No	500
Master Bedroom	EW-2	3995	2700	W	No	500
Master Bedroom	EW-3	800	2700	W	No	500
Master Bedroom	EW-3	4900	2700	N	No	1000
Master Bedroom	EW-3	5300	2700	E	No	6900
Master Ens	EW-2	2390	2700	W	No	500
Master WIR	EW-2	900	2700	S	No	13100
Master WIR	EW-2	2095	2700	W	No	500

Internal wall type

Wall type	Area (m²)	Insulation	Wall wrap or foil
IW-1 - Cavity wall, direct fix plasterboard, single gap	94.0	Bulk Insulation, No Air Gap R2	No
IW-2 - Cavity wall, direct fix plasterboard, single gap	261.0	No insulation	No

Floors

Location	Construction	Area (m²)	Sub floor ventilation	Added insulation	Covering
Garage 1	Concrete Slab on Ground 200mm	47.3	None	No Insulation	Bare
Ldry	Concrete Slab on Ground 200mm	10.2	None	No Insulation	Ceramic Tiles 8mm
family/tv room	Concrete Slab on Ground 200mm	19.1	None	No Insulation	Carpet 10mm
bath	Concrete Slab on Ground 200mm	8.5	None	No Insulation	Ceramic Tiles 8mm
corridor	Concrete Slab on Ground 200mm	30.7	None	No Insulation	Cork Tiles or Parquetry 8mm
Bedroom 1	Concrete Slab on Ground 200mm	19.0	None	No Insulation	Carpet 10mm
ens	Concrete Slab on Ground 200mm	5.8	None	No Insulation	Ceramic Tiles 8mm
WIR	Concrete Slab on Ground 100mm	3.5	None	No Insulation	Carpet 10mm
Kitchen/Living	Concrete Slab on Ground 200mm	72.7	None	No Insulation	Cork Tiles or Parquetry 8mm
pantry	Concrete Slab on Ground 200mm	6.9	None	No Insulation	Cork Tiles or Parquetry 8mm
storage	Concrete Slab on Ground 200mm	8.3	None	No Insulation	Ceramic Tiles 8mm
Bedroom 2/Ldry	Concrete Above Plasterboard 19mm	9.7		No Insulation	Carpet 10mm
Bedroom 2/family/tv room	Concrete Above Plasterboard 19mm	8.1		No Insulation	Carpet 10mm

Building features continued

ens2/family/tv room	Concrete Above Plasterboard 19mm	5.1		No Insulation	Ceramic Tiles 8mm
bathroom/family/tv room	Concrete Above Plasterboard 19mm	2.3		No Insulation	Ceramic Tiles 8mm
bathroom/bath	Concrete Above Plasterboard 19mm	6.2		No Insulation	Ceramic Tiles 8mm
Bedroom 3/Bedroom 1	Concrete Above Plasterboard 19mm	7.5		No Insulation	Carpet 10mm
Bedroom 3/ens	Concrete Above Plasterboard 19mm	5.9		No Insulation	Carpet 10mm
Bedroom 3/WIR	Concrete Above Plasterboard 19mm	3.7		No Insulation	Carpet 10mm
Bedroom 4/Bedroom 1	Concrete Above Plasterboard 19mm	10.2		No Insulation	Carpet 10mm
Bedroom 4/storage	Concrete Above Plasterboard 19mm	6.1		No Insulation	Carpet 10mm
FF corridor/family/tv room	Concrete Above Plasterboard 19mm	3.6		No Insulation	Cork Tiles or Parquetry 8mm
FF corridor/bath	Concrete Above Plasterboard 19mm	2.5		No Insulation	Cork Tiles or Parquetry 8mm
FF corridor/corridor	Concrete Above Plasterboard 19mm	25.0		No Insulation	Cork Tiles or Parquetry 8mm
FF corridor/Bedroom 1	Concrete Above Plasterboard 19mm	1.3		No Insulation	Cork Tiles or Parquetry 8mm
FF corridor/Kitchen/Living	Concrete Above Plasterboard 19mm	27.8		No Insulation	Cork Tiles or Parquetry 8mm
FF corridor/pantry	Concrete Above Plasterboard 19mm	7.2		No Insulation	Cork Tiles or Parquetry 8mm
FF corridor/storage	Concrete Above Plasterboard 19mm	2.4		No Insulation	Cork Tiles or Parquetry 8mm
Master Bedroom/Kitchen/Living	Concrete Above Plasterboard 150mm	24.5		No Insulation	Carpet 10mm
Master Bedroom	Suspended Concrete Slab 150mm	2.9	Totally Open	Bulk Insulation in Contact with Floor R2	Carpet 10mm
Master Ens/Kitchen/Living	Concrete Above Plasterboard 19mm	8.9		No Insulation	Ceramic Tiles 8mm
Master WIR/Kitchen/Living	Concrete Above Plasterboard 19mm	7.8		No Insulation	Carpet 10mm

Ceiling type

Location	Construction	Added insulation	Roof space above
Garage 1	Plasterboard	No insulation	Yes
Ldry	Plasterboard	Bulk Insulation R4	Yes
Ldry	Concrete Above Plasterboard	No Insulation	No
family/tv room	Concrete Above Plasterboard	No Insulation	No
bath	Concrete Above Plasterboard	No Insulation	No
corridor	Plasterboard		Yes

Building features continued

		Bulk Insulation R4	
corridor	Concrete Above Plasterboard	No Insulation	No
Bedroom 1	Concrete Above Plasterboard	No Insulation	No
ens	Concrete Above Plasterboard	No Insulation	No
WIR	Concrete Above Plasterboard	No Insulation	No
Kitchen/Living	Plasterboard	Bulk Insulation R4	Yes
Kitchen/Living	Concrete Above Plasterboard	No Insulation	No
pantry	Concrete Above Plasterboard	No Insulation	No
storage	Concrete Above Plasterboard	No Insulation	No
Bedroom 2	Plasterboard	Bulk Insulation R4	Yes
ens2	Plasterboard	Bulk Insulation R4	Yes
bathroom	Plasterboard	Bulk Insulation R4	Yes
Bedroom 3	Plasterboard	Bulk Insulation R4	Yes
Bedroom 4	Plasterboard	Bulk Insulation R4	Yes
FF corridor	Plasterboard	Bulk Insulation R4	Yes
Master Bedroom	Plasterboard	Bulk Insulation R4	Yes
Master Ens	Plasterboard	Bulk Insulation R4	Yes
Master WIR	Plasterboard	Bulk Insulation R4	Yes

Ceiling penetrations

Location	Number	Type	Diameter (mm)	Sealed/unsealed
Ldry	3	Downlights - LED	150	Sealed
Ldry	1	Exhaust Fans	300	Sealed
family/tv room	6	Downlights - LED	150	Sealed
bath	3	Downlights - LED	150	Sealed
bath	1	Exhaust Fans	300	Sealed
corridor	4	Downlights - LED	150	Sealed
Bedroom 1	4	Downlights - LED	150	Sealed
ens	2	Downlights - LED	150	Sealed
ens	1	Exhaust Fans	300	Sealed
WIR	1	Downlights - LED	150	Sealed
Kitchen/Living	15	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
pantry	1	Downlights - LED	150	Sealed
storage	2	Downlights - LED	150	Sealed
Bedroom 2	4	Downlights - LED	150	Sealed
ens2	2	Downlights - LED	150	Sealed
ens2	1	Exhaust Fans	300	Sealed
bathroom	3	Downlights - LED	150	Sealed

Building features continued

bathroom	1	Exhaust Fans	300	Sealed
Bedroom 3	4	Downlights - LED	150	Sealed
Bedroom 4	4	Downlights - LED	150	Sealed
FF corridor	6	Downlights - LED	150	Sealed
Master Bedroom	5	Downlights - LED	150	Sealed
Master Ens	3	Downlights - LED	150	Sealed
Master Ens	1	Exhaust Fans	300	Sealed
Master WIR	2	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	Medium
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1.3	Medium

Nationwide House Energy Rating Scheme* Certificate

Certificate number: 0003782125 **Certificate Date:** 15 Apr 2019 ★Star rating: 5.1

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

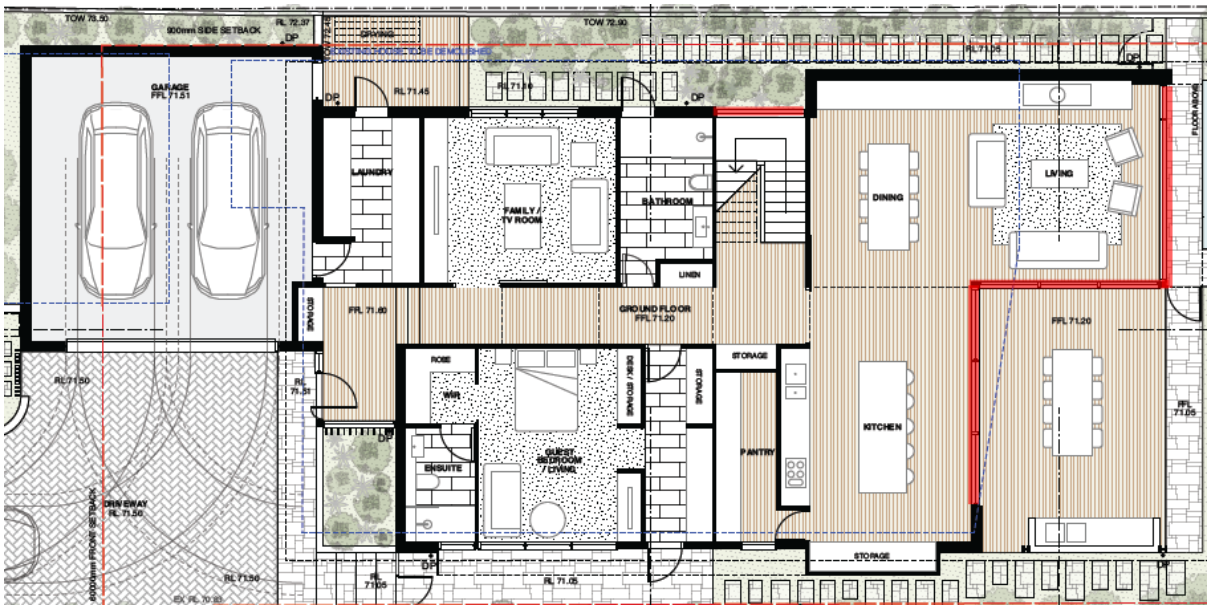
For more information on the Nationwide House Energy Rating Scheme (NatHERS), visit www.nathers.gov.au

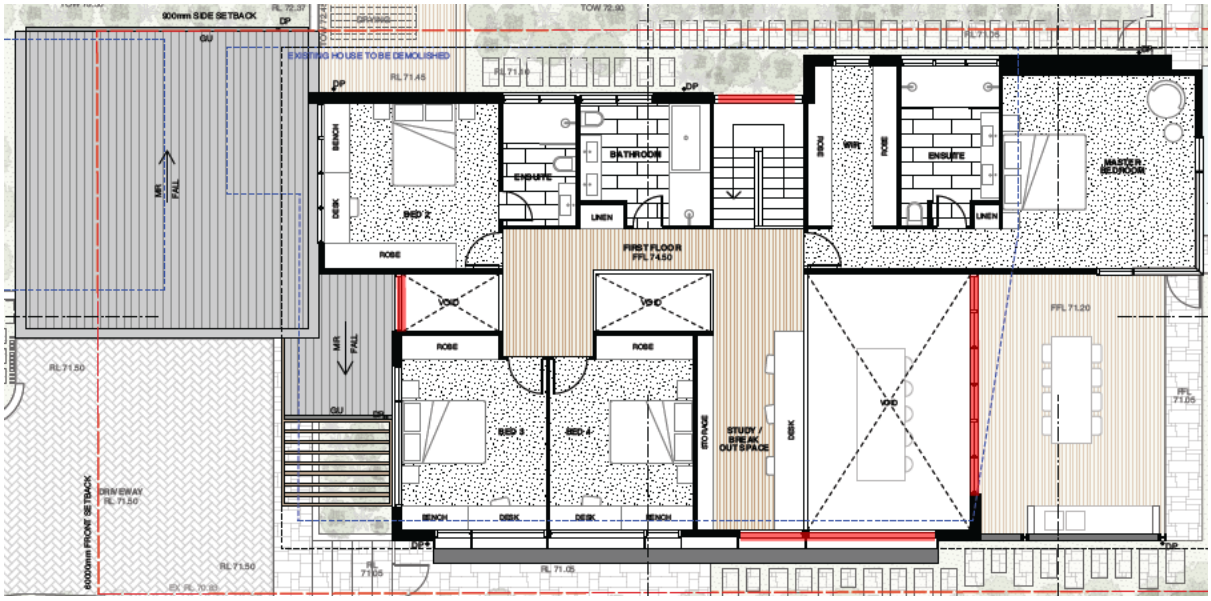
For more information on energy efficient design and insulation visit www.yourhome.gov.au

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

U-value: 3.1

SHGC: 0.49





BASIX® Certificate

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

Single Dwelling

Certificate number: 1008466S

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, 16 April 2019
To be valid, this certificate must be lodged within 3 months of the date of issue.

NSW GOVERNMENT Planning & Environment

Project summary	
Project name	2 Ellery Parade, Seaforth
Street address	2 Ellery Parade Seaforth 2092
Local Government Area	Northern Beaches Council
Plan type and plan number	deposited 528368
Lot no.	2
Section no.	-
Project type	separate dwelling house
No. of bedrooms	5

Project score		
Water	✔ 40	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 92	Target 50

Certificate Prepared by
Name / Company Name: Efficient Living Pty Ltd
ABN (if applicable): 82116346082

Description of project

Project address	
Project name	2 Ellery Parade, Seaforth
Street address	2 Ellery Parade Seaforth 2092
Local Government Area	Northern Beaches Council
Plan type and plan number	Deposited Plan 528368
Lot no.	2
Section no.	-
Project type	
Project type	separate dwelling house
No. of bedrooms	5
Site details	
Site area (m²)	739
Roof area (m²)	342
Conditioned floor area (m2)	297.0
Unconditioned floor area (m2)	74.4
Total area of garden and lawn (m2)	200

Assessor details and thermal loads		
Assessor number	BDAV/12/1473	
Certificate number	0003782125	
Climate zone	56	
Area adjusted cooling load (MJ/m².year)	26	
Area adjusted heating load (MJ/m².year)	39	
Project score		
Water	✔ 40	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 92	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 130 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 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 342 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.) • a tap that is located within 10 metres of the swimming pool in the development		✔ ✔ ✔	✔ ✔ ✔
Swimming pool			

Water Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
The swimming pool must not have a volume greater than 42 kilolitres.	✔	✔	
The swimming pool must be shaded.	✔	✔	
The swimming pool must be outdoors.	✔	✔	

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	190.0 square metres
floor - suspended floor/open subfloor	3.0 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: 3-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: ceiling fans + 3-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: 3-phase airconditioning; Energy rating: EER 2.5 - 3.0		✔	✔
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 2.5 - 3.0		✔	✔
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: individual fan, ducted to façade or roof; Operation control: manual switch on/off		✔	✔
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 6 of the bedrooms / study;		✔	✔
• at least 3 of the living / dining rooms;		✔	✔
• the kitchen;		✔	✔

Energy Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
• 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 5 bathroom(s)/toilet(s) in the development for natural lighting.	✔	✔	✔
Swimming pool			
The applicant must install the following heating system for the swimming pool in the development (or alternatively must not install any heating system for the swimming pool): solar (electric boosted)		✔	
Alternative energy			
The applicant must install a photovoltaic system with the capacity to generate at least 10.5 peak kilowatts of electricity as part of the development. The applicant must connect this system to the development's electrical system.	✔	✔	✔
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.