

BASIX® Certificate

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

Single Dwelling

Certificate number: 913673S

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, 26 March 2018

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



Project summary

Project name	1712
Street address	836-842 Richmond Road Berkshire Park 2765
Local Government Area	Penrith City Council
Plan type and plan number	deposited 1097876
Lot no.	2
Section no.	-
Project type	separate dwelling house
No. of bedrooms	4

Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 50	Target 50

Certificate Prepared by

Name / Company Name: Efficient Living

ABN (if applicable): 82116346082

Description of project

Project address	
Project name	1712
Street address	836-842 Richmond Road Berkshire Park 2765
Local Government Area	Penrith City Council
Plan type and plan number	Deposited Plan 1097876
Lot no.	2
Section no.	-
Project type	
Project type	separate dwelling house
No. of bedrooms	4
Site details	
Site area (m ²)	22570
Roof area (m ²)	451
Conditioned floor area (m ²)	237.0
Unconditioned floor area (m ²)	18.0
Total area of garden and lawn (m ²)	680

Assessor details and thermal loads		
Assessor number	BDAV/12/1473	
Certificate number	0002587236	
Climate zone	28	
Area adjusted cooling load (MJ/m ² .year)	28	
Area adjusted heating load (MJ/m ² .year)	49	
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
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 5000 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 451 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: solar (gas boosted, flat plate) with a performance of 21 to 25 STCs 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: ceiling fans + 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: ceiling fans + 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			
The applicant must install the following exhaust systems in the development:			
At least 1 Bathroom: individual fan, ducted to façade or roof; Operation control: interlocked to light		✓	✓
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 4 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; dedicated • the kitchen; • all bathrooms/toilets; • the laundry; • all hallways; dedicated 		✓	✓
		✓	✓
		✓	✓
		✓	✓
		✓	✓
Natural lighting			
The applicant must install a window and/or skylight in the kitchen of the dwelling 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: **0002587236**

Certificate Date: **26 Mar 2018**

★ Star rating: **6.6**

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: **0299706181**
Declaration of interest: **None**
Software: **BERS Pro v4.3.0.2b (3.13)**
AAO: **BDAV**

Overview

Dwelling details

Street: **836-842 Richmond Road**
Suburb: **Berkshire Park**
State: **NSW** Postcode: **2765**
Type: **New Dwelling** NCC Class: **1A**
NatHERS climate zone: **28**
Lot/DP number: **2/1097876** Exposure: **Open**

Key construction and insulation materials

(see following pages for details)

Construction: **Brick Veneer**
Corrugated Iron
Waffle pod slab 225 mm
Insulation: **R2.0 wall insulation**
R3.3 ceiling insulation
No floor insulation
Glazing: **STG-007-01 A Aluminium Sliding Window SG 3Clr**

Net floor area (m²)

Conditioned: **237.0**
Unconditioned: **78.0**
Garage: **60.0**
TOTAL: **315.0**

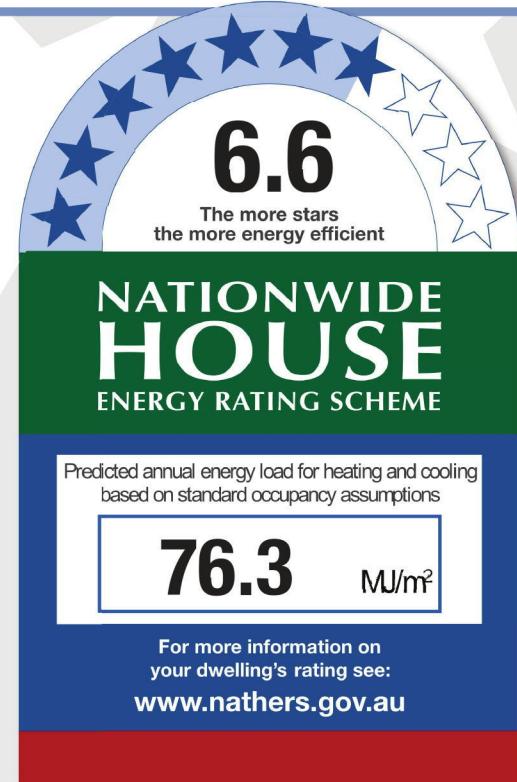
Annual thermal performance loads (MJ/m²)

Heating: **48.7**
Cooling: **27.6**
TOTAL: **76.3**

Plan documents

Plan ref/date: **Single storey dwelling**

Prepared by: **SR**



Ceiling penetrations

(see following pages for details)

Sealed: **91**
Unsealed: **0**
TOTAL: **91**

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.



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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-005-02 A	STG-005-02 A Aluminium Sliding Door SG 5Clr	6.3	0.72

Window schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Orientation	Outdoor shade
Garage	STG-007-01 A	n/a	1400	1500	SE	No Shading
Garage	STG-007-01 A	n/a	1400	1500	SE	No Shading
Master Suite	STG-007-01 A	n/a	1800	1200	NE	No Shading
Master Suite	STG-007-01 A	n/a	1800	1200	NE	No Shading
Ens WC	STG-007-01 A	n/a	1800	900	NE	No Shading
Kitchen/Living	STG-007-01 A	n/a	2100	3600	SW	No Shading
Kitchen/Living	STG-007-01 A	n/a	2100	3600	SW	No Shading
Kitchen/Living	STG-007-01 A	n/a	700	2600	SW	No Shading
Theatre	STG-007-01 A	n/a	1800	1200	NE	No Shading
Theatre	STG-007-01 A	n/a	1800	1200	NE	No Shading
Corridor	STG-007-01 A	n/a	1000	1800	NW	No Shading
Bedroom 2	STG-007-01 A	n/a	1800	2400	NE	No Shading
Bedroom 3	STG-007-01 A	n/a	1800	2400	NE	No Shading
Bedroom 4	STG-007-01 A	n/a	2000	2400	SW	No Shading
Ldry	STG-005-02 A	n/a	2000	1500	SW	No Shading
Bath	STG-007-01 A	n/a	600	2200	SW	No Shading
WC	STG-007-01 A	n/a	1000	700	SW	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	Bulk Insulation R2	No
EW-2	Single Skin Brick	No insulation	No

External wall schedule

Location	ID	Width (mm)	Height (mm)	Orientation	Fixed Shade	Eaves (mm)
Garage	EW-1	4600	2700	SW	No	600
Garage	EW-2	8495	2700	NE	No	600
Garage	EW-1	7500	2700	SE	No	600
Master Suite	EW-1	1100	2700	NW	No	15600

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

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6.6

Building features continued

Master Suite	EW-1	4400	2700	NE	No	1800
Master Suite	EW-1	700	2700	SE	No	11200
Ens WC	EW-1	2090	2700	NE	No	600
Pantry	EW-1	2095	2700	SW	No	600
Pantry	EW-1	3695	2700	SE	No	600
Kitchen/Living	EW-1	13890	2700	SW	No	4600
Foyer	EW-1	2490	2700	NE	No	2900
Theatre	EW-1	700	2700	NW	No	8700
Theatre	EW-1	4400	2700	NE	No	1800
Theatre	EW-1	1100	2700	SE	No	18100
Corridor	EW-1	2990	2700	NW	No	600
Bedroom 2	EW-1	4090	2700	NE	No	600
Bedroom 3	EW-1	4095	2700	NW	No	600
Bedroom 3	EW-1	3995	2700	NE	No	600
Bedroom 4	EW-1	4095	2700	NW	No	600
Bedroom 4	EW-1	3695	2700	SW	No	600
Ldry	EW-1	2090	2700	SW	No	600
Bath	EW-1	2390	2700	SW	No	600
WC	EW-1	1190	2700	SW	No	600

Internal wall type

Wall type	Area (m ²)	Insulation	Wall wrap or foil
IW-1 - Cavity wall, direct fix plasterboard, single gap	28.0	Bulk Insulation, No Air Gap R2	No
IW-2 - Cavity wall, direct fix plasterboard, single gap	236.0	No insulation	No

Floors

Location	Construction	Area (m ²)	Sub floor ventilation	Added insulation	Covering
Garage	Waffle pod slab 225 mm 100mm	59.8	None	Waffle Pod 225mm	Bare
Master Suite	Waffle pod slab 225 mm 100mm	18.0	None	Waffle Pod 225mm	Carpet 10mm
Ens	Waffle pod slab 225 mm 100mm	9.1	None	Waffle Pod 225mm	Ceramic Tiles 8mm
Ens WC	Waffle pod slab 225 mm 100mm	1.9	None	Waffle Pod 225mm	Ceramic Tiles 8mm
WIR	Waffle pod slab 225 mm 100mm	6.4	None	Waffle Pod 225mm	Carpet 10mm
Pantry	Waffle pod slab 225 mm 100mm	7.5	None	Waffle Pod 225mm	Ceramic Tiles 8mm
Kitchen/Living	Waffle pod slab 225 mm 100mm	90.1	None	Waffle Pod 225mm	Ceramic Tiles 8mm
Foyer	Waffle pod slab 225 mm 100mm	5.9	None	Waffle Pod 225mm	Ceramic Tiles 8mm
Theatre	Waffle pod slab 225 mm 100mm	20.6	None	Waffle Pod 225mm	Carpet 10mm

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Nationwide House Energy Rating Scheme* Certificate



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26 Mar 2018

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6.6

Building features continued

Corridor	Waffle pod slab 225 mm 100mm	25.7	None	Waffle Pod 225mm	Ceramic Tiles 8mm
Bedroom 2	Waffle pod slab 225 mm 100mm	16.3	None	Waffle Pod 225mm	Carpet 10mm
Bedroom 3	Waffle pod slab 225 mm 100mm	16.0	None	Waffle Pod 225mm	Carpet 10mm
Bedroom 4	Waffle pod slab 225 mm 100mm	14.8	None	Waffle Pod 225mm	Carpet 10mm
Ldry	Waffle pod slab 225 mm 100mm	8.1	None	Waffle Pod 225mm	Ceramic Tiles 8mm
Linen	Waffle pod slab 225 mm 100mm	4.6	None	Waffle Pod 225mm	Ceramic Tiles 8mm
Bath	Waffle pod slab 225 mm 100mm	7.7	None	Waffle Pod 225mm	Ceramic Tiles 8mm
WC	Waffle pod slab 225 mm 100mm	2.6	None	Waffle Pod 225mm	Ceramic Tiles 8mm

Ceiling type

Location	Construction	Added insulation	Roof space above
Garage	Plasterboard	No insulation	Yes
Master Suite	Plasterboard	Bulk Insulation R3.3	Yes
Ens	Plasterboard	Bulk Insulation R3.3	Yes
Ens WC	Plasterboard	Bulk Insulation R3.3	Yes
WIR	Plasterboard	Bulk Insulation R3.3	Yes
Pantry	Plasterboard	Bulk Insulation R3.3	Yes
Kitchen/Living	Plasterboard	Bulk Insulation R3.3	Yes
Foyer	Plasterboard	Bulk Insulation R3.3	Yes
Theatre	Plasterboard	Bulk Insulation R3.3	Yes
Corridor	Plasterboard	Bulk Insulation R3.3	Yes
Bedroom 2	Plasterboard	Bulk Insulation R3.3	Yes
Bedroom 3	Plasterboard	Bulk Insulation R3.3	Yes
Bedroom 4	Plasterboard	Bulk Insulation R3.3	Yes
Ldry	Plasterboard	Bulk Insulation R3.3	Yes
Linen	Plasterboard	Bulk Insulation R3.3	Yes
Bath	Plasterboard	Bulk Insulation R3.3	Yes
WC	Plasterboard	Bulk Insulation R3.3	Yes

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Nationwide House Energy Rating Scheme* Certificate

Certificate number: 0002587236

Certificate Date:

26 Mar 2018

★ Star rating:

6.6



Building features continued

Ceiling penetrations

Location	Number	Type	Diameter (mm)	Sealed/unsealed
Master Suite	6	Downlights - LED	150	Sealed
Ens	4	Downlights - LED	150	Sealed
Ens	1	Exhaust Fans	300	Sealed
WIR	3	Downlights - LED	150	Sealed
Pantry	3	Downlights - LED	150	Sealed
Kitchen/Living	35	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Foyer	3	Downlights - LED	150	Sealed
Theatre	8	Downlights - LED	150	Sealed
Corridor	10	Downlights - LED	150	Sealed
Bedroom 2	4	Downlights - LED	150	Sealed
Bedroom 3	4	Downlights - LED	150	Sealed
Bedroom 4	4	Downlights - LED	150	Sealed
Ldry	1	Exhaust Fans	300	Sealed
Bath	3	Downlights - LED	150	Sealed
WC	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, Anti-glare Up R1.2	Dark

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Additional information

Proxy window codes have been used, please refer to SHGC and Uvalues for compliance

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

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