



The Rubix Collective Proposed Residential Development

To be built at 128 Elanora Road, Elanora Heights

Issue	File Ref	Description	Author	Date
A	20-0135	NatHERS Thermal Comfort and BASIX Assessment	MP	03/03/2020

This report has been prepared by Efficient Living Pty Ltd on behalf of our client The Rubix Collective. 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.

If there is a change to this specification during design or construction phases, please contact Efficient Living and quote the above file reference for advice, and to obtain an updated Certificate if required.



Assessor: Manoela Place
Email: manoela@efficientliving.com.au

License Holder: Tracey Cools
Accreditation Number: HERA10033

BASIX Details:

NatHERS Certificate Number: 0004643268

BASIX adjusted conditioned area: 136m²

BASIX adjusted un-conditioned area: 5m²

Area adjusted heating load: 38 MJ/ m²/pa

Area adjusted cooling load: 21 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 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 with K3 insulation or R1.4 insulation equivalent

Suspended concrete with R2.5 insulation (insulation only value) to open and enclosed suspended areas

Timber between levels, no insulation required where habitable rooms are above and below

Concrete between garage and habitable rooms with R3.0 insulation (insulation only value)

External Walls

Concrete block walls with R2.7 bulk insulation (insulation value only) to stairs on lower ground

Lightweight cladding on framed walls with R2.7 bulk insulation (insulation value only)

Note: No insulation is required to external garage walls

External Colour: Default

Walls within dwellings

Plasterboard on studs, no insulation required

Single skin brick, no insulation required

Plasterboard on studs, R2.0 insulation between garage and stairs

Plasterboard on stud, R2.0 insulation to walls adjacent to roof cavity

Glazing Doors/Windows

High performance glazing and frame system to bifold doors D3,D6 and D7 in living kitchen areas

U-value: 2.69(equal to or lower than) SHGC: 0.41 (±10%)

Performance clear glazing with aluminium frame to remainder windows

U-value: 2.90 (equal to or lower than) SHGC: 0.51 (±10%)

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

Skylights

Skytube systems (single clear)

Ceilings

Timber ceiling with R3.0 insulation (insulation only value) to raked ceiling where roof above

Plasterboard ceiling with R5.0 insulation (insulation only value) where roof above

Ceiling Penetrations

Sealed LED downlights as per NatHERS certificate

Roof

Metal roof with foil backed blanket ($R_{u1.3}$ and $R_{d1.3}$)

External Colour

Light ($SA < 0.475$)

Floor coverings

Tiles to bathrooms and laundry, floorboards to bedrooms and entry, polished concrete elsewhere

External Shading

Shading as per stamped drawings

Ventilation

All external doors 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: 0004643268

Certificate Date: 03 Mar 2020

★ Star rating: 5.4



Assessor details

Accreditation number: **HERA10033**
Name: **Tracey Cools**
Organisation: **Efficient Living**
Email: **admin@efficientliving.com.au**
Phone: **02 9970 6181**
Declaration of interest: **None**
Software: **BERS Pro v4.4.0.0 (3.21)**
AAO: **HERA**

Overview

Dwelling details

Street: **128 Elanora Road**
Suburb: **Elanora Heights**
State: **NSW** Postcode: **2101**
Type: **New Dwelling** NCC Class: **1A**
NatHERS climate zone: **56**
Lot/DP number: **1/1237847** Exposure: **Open**

Key construction and insulation materials

(see following pages for details)

Construction: **Weatherboard Cavity Panel Direct Fix Corrugated Iron Concrete Slab on Ground**
Insulation: **R2.7 wall insulation R3.0 ceiling insulation No floor insulation**
Glazing: **ATB-006-03 B Al Thermally Broken B DG Argon Fill High Solar Gain low-E**

Net floor area (m²)

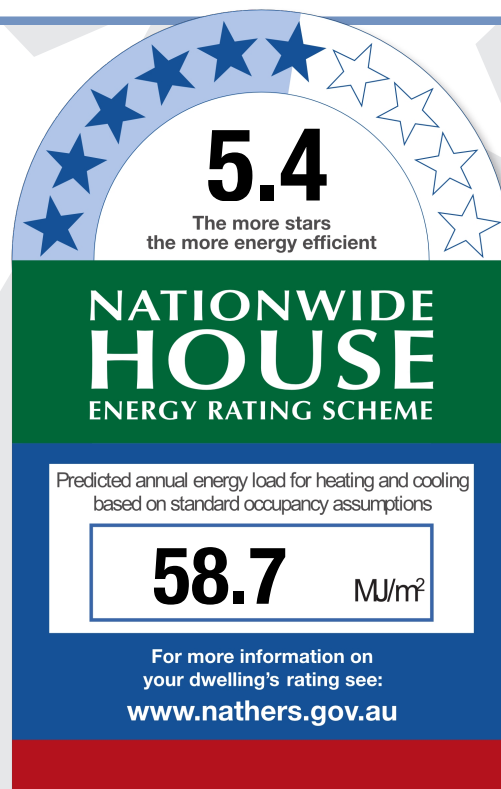
Conditioned: **136.0**
Unconditioned: **44.0**
Garage: **38.0**
TOTAL: **181.0**

Annual thermal performance loads (MJ/m²)

Heating: **38.1**
Cooling: **20.7**
TOTAL: **58.7**

Plan documents

Plan ref/date: **20-0135**
Prepared by: **The Rubix Collective**



Ceiling penetrations

(see following pages for details)

Sealed: **38**
Unsealed: **0**
TOTAL:** **38**

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

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03 Mar 2020

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Building features

Window type and performance value

Window ID	Window type	U-value	SHGC
ATB-006-03 B	ATB-006-03 B AI Thermally Broken B DG Argon Fill High Solar Gain low-E -Clear	2.9	0.51
AWS-062-07 B	AWS-062-07 B THERMALHEART COMM 831-832 BIFOLD DOOR DG 6.38CPClr/12/6	2.7	0.41

Window schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Orientation	Outdoor shade
Garage 1	ATB-006-03 B	n/a	857	2650	NW	No Shading
Garage 2	ATB-006-03 B	n/a	857	1810	SE	No Shading
Bedroom 3	ATB-006-03 B	n/a	1200	1810	SW	No Shading
Bedroom 2	ATB-006-03 B	n/a	1200	1810	SW	No Shading
Bathroom GF	ATB-006-03 B	n/a	857	850	NE	No Shading
Entry	ATB-006-03 B	n/a	2147	1500	SW	No Shading
Entry	ATB-006-03 B	n/a	1500	800	NE	No Shading
Entry	ATB-006-03 B	n/a	1870	1500	NE	No Shading
Kitchen/Living	ATB-006-03 B	n/a	1457	2410	SE	No Shading
Kitchen/Living	ATB-006-03 B	n/a	1457	2650	SW	No Shading
Kitchen/Living	AWS-062-07 B	n/a	2400	6300	SW	No Shading
Kitchen/Living	AWS-062-07 B	n/a	2400	4500	NW	No Shading
Kitchen/Living	AWS-062-07 B	n/a	2400	6300	NE	No Shading
Master	ATB-006-03 B	n/a	1457	2650	NW	No Shading
Master	ATB-006-03 B	n/a	2400	2700	NE	No Shading
Ensuite Master	ATB-006-03 B	n/a	514	850	SE	No Shading
Office	ATB-006-03 B	n/a	1200	2650	SW	No Shading
Office	ATB-006-03 B	n/a	1500	800	NE	No Shading
Office	ATB-006-03 B	n/a	2100	3500	NE	No Shading
Office	ATB-006-03 B	n/a	2947	1500	SW	No Shading
Office	ATB-006-03 B	n/a	857	2650	SE	No Shading

Roof window and skylight type and performance value

ID	Window type	U-value	SHGC
GEN-04-010a	Tubular single-glazed clear, Timber and Aluminium Frame	0.0	0.00
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 (m²)	Orientation	Outdoor shade	Indoor shade/diffuser
Bathroom GF	GEN-04-010a	1	0.1	SE	None	No
Study	GEN-04-010a	1	0.1	SE	None	No
Study	GEN-04-010a	2	0.1	NW	None	No
Ensuite Master	GEN-04-008a	1	0.1	SE	None	No

External wall type

ID	Wall type	Insulation	Wall wrap or foil
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Building features continued

EW-1	Concrete block, lined	Bulk Insulation R2.5	No
EW-2	Concrete block, lined	No insulation	No
EW-3	Concrete block, lined	Bulk Insulation R2.7	No
EW-4	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	2995	2400	SW	No	0
Garage 1	EW-2	4500	2400	NW	No	0
Garage 1	EW-2	700	2400	NW	No	0
Garage 1	EW-2	2995	600	NE	No	0
Garage 1	EW-2	2995	1800	NE	No	0
Garage 2	EW-2	3095	600	NE	No	0
Garage 2	EW-2	3095	1800	NE	No	0
Garage 2	EW-2	6400	2400	SE	No	0
Garage 2	EW-2	3095	2400	SW	No	0
Garage Stairs	EW-3	2295	2400	SW	No	0
Garage Stairs	EW-3	1200	2400	NW	No	0
Garage Stairs	EW-3	2295	2400	NE	No	0
Bedroom 3	EW-4	3095	2400	SE	No	700
Bedroom 3	EW-4	3295	2400	SW	No	600
Bedroom 2	EW-4	2795	2400	SW	No	600
Bedroom 2	EW-4	3095	2400	NW	No	800
Bathroom GF	EW-4	1400	2400	NE	No	700
Bathroom GF	EW-4	3295	2400	SE	No	700
Study	EW-4	1395	2400	NW	No	800
Entry	EW-4	2295	2700	SW	No	0
Entry	EW-4	900	2700	NW	No	8400
Entry	EW-4	900	2700	NE	No	800
Entry	EW-4	1100	2700	NW	No	9300
Entry	EW-4	4395	2700	NE	No	1000
Kitchen/Living	EW-4	4345	2700	SE	No	1500
Kitchen/Living	EW-4	3000	2700	SW	No	0
Kitchen/Living	EW-4	1100	2700	NW	No	8400
Kitchen/Living	EW-4	6800	2700	SW	No	1700
Kitchen/Living	EW-4	4500	2700	NW	No	2500
Kitchen/Living	EW-4	6795	2700	NE	No	1700
Master	EW-4	4400	2700	NW	No	800
Master	EW-4	4700	2700	NE	No	600
Master	EW-4	3995	2700	SE	No	700
Ensuite Master	EW-4	1690	2400	SE	No	700
Office	EW-4	3000	2400	SW	No	700
Office	EW-4	6500	3000	NW	No	700
Office	EW-4	5300	2400	NE	No	700
Office	EW-4	2100	3000	SE	No	500
Office	EW-4	2300	3000	SW	No	1000
Office	EW-4	4400	2400	SE	No	800

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Building features continued

Internal wall type

Wall type	Area (m ²)	Insulation	Wall wrap or foil
IW-1 - Cavity wall, direct fix plasterboard, single gap	3.0	Bulk Insulation, No Air Gap R2	No
IW-2 - Cavity wall, direct fix plasterboard, single gap	85.0	No insulation	No
IW-3 - Single Skin Brick	8.0	No insulation	No

Floors

Location	Construction	Area (m ²)	Sub floor ventilation	Added insulation	Covering
Garage 1	Concrete Slab on Ground 100mm	18.9	None	No Insulation	Bare
Garage 2	Concrete Slab on Ground 100mm	19.6	None	No Insulation	Bare
Garage Stairs	Concrete Slab on Ground 100mm	2.7	None	Bulk Insulation in Contact with Floor R1.4	Bare
Bedroom 3/Garage	Timber Above Plasterboard 100mm	8.7		Bulk Insulation R2	Cork Tiles or Parquetry 8mm
Bedroom 2/Garage	Timber Above Plasterboard 100mm	8.7		Bulk Insulation R2	Cork Tiles or Parquetry 8mm
Bedroom 2/Garage	Timber Above Plasterboard 100mm	0.6		Bulk Insulation R2	Cork Tiles or Parquetry 8mm
Bathroom GF/Garage 2	Timber Above Plasterboard 100mm	6.0		Bulk Insulation R2	Ceramic Tiles 8mm
Study/Garage 1	Timber Above Plasterboard 100mm	9.4		Bulk Insulation R2	Cork Tiles or Parquetry 8mm
Study/Garage 2	Timber Above Plasterboard 100mm	3.8		Bulk Insulation R2	Cork Tiles or Parquetry 8mm
Entry/Garage Stairs	Timber Above Plasterboard 150mm	2.7		No Insulation	Bare
Entry	Suspended Concrete Slab 150mm	12.9	Open	Bulk Insulation in Contact with Floor R2.5	Cork Tiles or Parquetry 8mm
Kitchen/Living	Concrete Slab on Ground 100mm	30.6	None	Bulk Insulation in Contact with Floor R1.4	Bare
Kitchen/Living	Suspended Concrete Slab 150mm	13.0	Totally Open	Bulk Insulation in Contact with Floor	Bare
Master	Suspended Concrete Slab 150mm	20.4	Open	Bulk Insulation in Contact with Floor R2.5	Cork Tiles or Parquetry 8mm
Ensuite Master	Suspended Concrete Slab 150mm	5.2	Open	Bulk Insulation in Contact with Floor R2.5	Ceramic Tiles 8mm
Office/Entry	Timber Above Plasterboard 100mm	11.1		No Insulation	Cork Tiles or Parquetry 8mm
Office/Kitchen/Living	Timber Above Plasterboard 100mm	13.2		No Insulation	Cork Tiles or Parquetry 8mm

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Building features continued

Ceiling type

Location	Construction	Added insulation	Roof space above
Garage 1	Timber Above Plasterboard	Bulk Insulation R2	No
Garage 2	Timber Above Plasterboard	Bulk Insulation R2	No
Garage Stairs	Timber Above Plasterboard	No Insulation	No
Bedroom 3	Plasterboard	Bulk Insulation R5	Yes
Bedroom 2	Plasterboard	Bulk Insulation R5	Yes
Bathroom GF	Plasterboard	Bulk Insulation R5	Yes
Study	Plasterboard	Bulk Insulation R5	Yes
Entry	Plasterboard	Bulk Insulation R5	Yes
Entry	Timber Above Plasterboard	No Insulation	No
Kitchen/Living	Timber	Bulk Insulation R3	No
Kitchen/Living	Timber Above Plasterboard	No Insulation	No
Master	Timber	Bulk Insulation R3	No
Ensuite Master	Plasterboard	Bulk Insulation R5	Yes
Office	Timber	Bulk Insulation R3	No

Ceiling penetrations

Location	Number	Type	Diameter (mm)	Sealed/unsealed
Garage Stairs	1	Downlights - LED	150	Sealed
Bedroom 3	2	Downlights - LED	150	Sealed
Bedroom 2	2	Downlights - LED	150	Sealed
Bathroom GF	2	Downlights - LED	150	Sealed
Bathroom GF	1	Exhaust Fans	300	Sealed
Study	3	Downlights - LED	150	Sealed
Study	1	Exhaust Fans	300	Sealed
Entry	3	Downlights - LED	150	Sealed
Kitchen/Living	10	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Master	5	Downlights - LED	150	Sealed
Ensuite Master	2	Downlights - LED	150	Sealed
Ensuite Master	1	Exhaust Fans	300	Sealed
Office	4	Downlights - LED	150	Sealed

Ceiling fans

Location	Number	Diameter (mm)
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Nationwide House Energy Rating Scheme* Certificate

Certificate number: **0004643268**

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★ Star rating:

5.4



Building features continued

None Present

Roof type

Construction	Added insulation	Roof colour
Corrugated Iron	Bulk, Reflective Side Down, Anti-glare Up R1	Light
Corrugated Iron	Bulk, Reflective Side Down, No Air Gap Above R1.3	Light
Waterproofing Membrane	No Added Insulation, No air Gap	Light

Nationwide House Energy Rating Scheme* Certificate

Certificate number: 0004643268

Certificate Date: 03 Mar 2020

★ Star rating: 5.4



Additional information

Explanatory notes

About this report

Residential energy ratings address the quality of the building fabric i.e. walls, windows, floors and roof/ceilings. Ratings do not cover the energy or water efficiency of appliances including heating and cooling, hot water, dishwashers, ovens, fridges, TVs etc. or solar panel or water tank requirements. The efficiency or specification of these items is generally covered by other regulations, standards or guidelines.

General Information

A NatHERS House Energy Rating is a comprehensive, dynamic computer modelling evaluation of the floorplans, elevations and specifications to predict an energy load of a home. Not all of us use our homes in the same way, so ratings are generated using standard assumptions. This means homes can be compared across the country.

The actual energy consumption of your home may vary significantly from the predicted energy load figures in the report depending on issues such as the size of your household and your personal preferences, e.g. in terms of heating or cooling.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparative purposes between different house designs and for demonstrating that the design meets the required regulatory compliance.

Homes that are energy efficient use less energy, are warmer in winter, cooler in summer and cost less to run. The higher the star rating the more energy efficient.

This NatHERS House Energy Rating report was carefully prepared by your assessor on the basis of comprehensive modelling using standard procedures to rate your home using the underlying engine developed by the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO).

All information relating to energy loads presented in this report is based on a range of standard assumptions in order to allow for comparisons with reports prepared for other homes and to demonstrate minimum regulatory compliance.

The standard assumptions include figures for occupancy, indoor air temperature and are based on a unique climate file for your region.

Accredited Assessors

To ensure you get a high-quality, professional NatHERS House Energy Rating report, you should always use an accredited assessor, accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO).

AAOs have specific quality assurance processes in place and continuing professional development requirements to maintain a high and consistent standard of assessments across the country. Non-accredited assessors do not have this level of quality assurance or any on-going training requirements.

If you have any questions or concerns about this report, please direct them to your assessor in the first instance.

If your assessor is unable to address your questions or concerns, please contact their AAO listed under 'assessor details'. You can also find a range of information about accredited assessors on the AAO websites.

Disclaimer

The energy values quoted are for comparison purposes only; they are not a prediction of actual energy use. This rating only applies to the floor plan, construction details, orientation and climate as submitted and included in the attached drawing set that bears a stamp with the same number as this certificate. Changes to any of these details could affect the rating.

Contact

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

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

BASIX[®]Certificate

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

Single Dwelling

Certificate number: 1082706S_02

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, 09 March 2020

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



Planning,
Industry &
Environment

Project summary

Project name	128 Elanora Road, Elanora Heights_02
Street address	128 Elanora Road Elanora Heights 2101
Local Government Area	Northern Beaches Council
Plan type and plan number	deposited 1237847
Lot no.	1
Section no.	-
Project type	separate dwelling house
No. of bedrooms	3

Project score

Water	✓ 48	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 58	Target 50

Certificate Prepared by

Name / Company Name: Efficient Living Pty Ltd

ABN (if applicable): 82116346082

Description of project

Project address

Project name	128 Elanora Road, Elanora Heights_02
Street address	128 Elanora Road Elanora Heights 2101
Local Government Area	Northern Beaches Council
Plan type and plan number	Deposited Plan 1237847
Lot no.	1
Section no.	-

Project type

Project type	separate dwelling house
No. of bedrooms	3

Site details

Site area (m ²)	763
Roof area (m ²)	188
Conditioned floor area (m2)	136.0
Unconditioned floor area (m2)	5.0
Total area of garden and lawn (m2)	135

Assessor details and thermal loads

Assessor number	HERA10033
Certificate number	0004643268
Climate zone	56
Area adjusted cooling load (MJ/m ² .year)	21
Area adjusted heating load (MJ/m ² .year)	38

Project score

Water	✓ 48	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 58	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 135 square metres of the site.	✓	✓	
Fixtures			
The applicant must install showerheads with a minimum rating of 4 star (> 6 but ≤ 7.5 L/min plus spray force and/or coverage tests) 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 61 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	31.0 square metres
floor - suspended floor/open subfloor	53.0 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: electric heat pump with a performance of 26 to 30 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 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 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		✓	✓
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 4 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
<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.			
Alternative energy			
The applicant must install a photovoltaic system with the capacity to generate at least 1 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 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.