

# BASIX<sup>®</sup>Certificate

Building Sustainability Index [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

## Single Dwelling

Certificate number: 1195996S

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 10/09/2020 published by the Department. This document is available at [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

Secretary

Date of issue: Tuesday, 29 June 2021

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



Planning,  
Industry &  
Environment

### Project summary

Project name	2103009
Street address	1 Tutus Street BALGOWLAH HEIGHTS 2093
Local Government Area	Northern Beaches Council
Plan type and plan number	deposited 9561
Lot no.	23
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: Building Sustainability

ABN (if applicable): 39109172545

# Description of project

## Project address

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## Site details

Site area (m <sup>2</sup> )	1286
Roof area (m <sup>2</sup> )	229
Conditioned floor area (m2)	360.3
Unconditioned floor area (m2)	65.2
Total area of garden and lawn (m2)	424

## Assessor details and thermal loads

Assessor number	20824
Certificate number	0006164057-01
Climate zone	56
Area adjusted cooling load (MJ/m <sup>2</sup> .year)	19
Area adjusted heating load (MJ/m <sup>2</sup> .year)	40
Ceiling fan in at least one bedroom	No
Ceiling fan in at least one living room or other conditioned area	No

## 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
<b>Fixtures</b>			
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 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.		✓	
<b>Alternative water</b>			
<b>Rainwater tank</b>			
The applicant must install a rainwater tank of at least 12000 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 229 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"> <li>all toilets in the development</li> <li>the cold water tap that supplies each clothes washer in the development</li> <li>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.)</li> <li>a tap that is located within 10 metres of the swimming pool in the development</li> </ul>		✓ ✓ ✓ ✓	✓ ✓ ✓ ✓
<b>Swimming pool</b>			
The swimming pool must not have a volume greater than 115 kilolitres.	✓	✓	

Water Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
The swimming pool must have a pool cover.		✓	
The swimming pool must be outdoors.	✓	✓	

Thermal Comfort Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
<b>Simulation Method</b>			
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	207.0 square metres
floor - suspended floor/enclosed subfloor	9.0 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
<b>Hot water</b>			
The applicant must install the following hot water system in the development, or a system with a higher energy rating: solar (electric boosted) with a performance of 21 to 25 STCs or better.	✓	✓	✓
<b>Cooling system</b>			
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 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: 3-phase airconditioning; Energy rating: EER 3.0 - 3.5		✓	✓
<b>Heating system</b>			
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 3.5 - 4.0		✓	✓
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 3.5 - 4.0		✓	✓
<b>Ventilation</b>			
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		✓	✓
<b>Artificial lighting</b>			
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 5 of the bedrooms / study;		✓	✓
• at least 4 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"> <li>• all bathrooms/toilets;</li> <li>• the laundry;</li> <li>• all hallways;</li> </ul>		  	  
<b>Natural lighting</b>			
The applicant must install a window and/or skylight in 4 bathroom(s)/toilet(s) in the development for natural lighting.			
<b>Swimming pool</b>			
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): electric heat pump			
The applicant must install a timer for the swimming pool pump in the development.			
<b>Alternative energy</b>			
The applicant must install a photovoltaic system with the capacity to generate at least 4.2 peak kilowatts of electricity as part of the development. The applicant must connect this system to the development's electrical system.			
<b>Other</b>			
The applicant must install an induction cooktop & electric oven in the kitchen of the dwelling.			
The applicant must install a fixed indoor or sheltered clothes drying line as part of the development.			

## Legend

In these commitments, "applicant" means the person carrying out the development.

Commitments identified with a  in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).

Commitments identified with a  in the "Show on CC/CDC plans and specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.

Commitments identified with a  in the "Certifier check" column must be certified by a certifying authority as having been fulfilled, before a final occupation certificate (either interim or final) for the development may be issued.



# Nationwide House Energy Rating Scheme

## NatHERS Certificate No. 0006164057-01

Generated on 29 Jun 2021 using AccuRate Sustainability V2.4.3.21

### Property

**Address** 1 Tutus Street , Balgowlah Heights , NSW  
, 2093  
**Lot/DP** Lot 23 DP 9561  
**NCC Class\*** 1a  
**Type** New Home

### Plans

**Main Plan** proposed new residence for P&A Winters  
**Prepared by** AA

### Construction and environment

<b>Assessed floor area (m<sup>2</sup>)*</b>	<b>Exposure Type</b>
Conditioned* 360.3	Suburban
Unconditioned* 167.7	<b>NatHERS climate zone</b>
Total 528.0	56
Garage 102.5	



### Accredited assessor

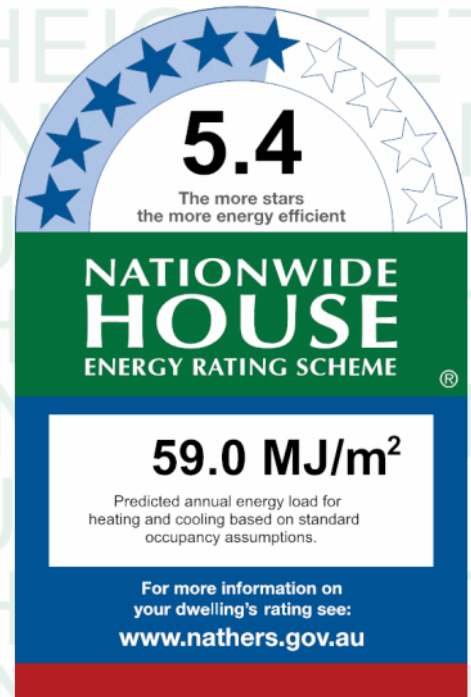
**Name** Rachel Clarke  
**Business name** Building Sustainability  
**Email** rclarke@buildingsustainability.com.au  
**Phone** 0294204414  
**Accreditation No.** 20824  
**Assessor Accrediting Organisation**  
ABSA  
**Declaration of interest** Declaration completed: no conflicts

### National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated houses are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at [www.abcb.gov.au](http://www.abcb.gov.au).

State and territory variations and additions to the NCC may also apply.



### Thermal performance

<b>Heating</b>	<b>Cooling</b>
<b>39.8</b>	<b>19.2</b>
<b>MJ/m<sup>2</sup></b>	<b>MJ/m<sup>2</sup></b>

### About the rating

NatHERS software models the expected thermal energy loads using information about the design and construction, climate and common patterns of household use. The software does not take into account appliances, apart from the airflow impacts from ceiling fans.

### Verification

To verify this certificate, scan the QR code or visit [hstar.com.au/QR/Generate?p=DwBPBIrWH](http://hstar.com.au/QR/Generate?p=DwBPBIrWH).

When using either link, ensure you are visiting [hstar.com.au](http://hstar.com.au)



## Certificate check

Ensure the dwelling is designed and then built as per the NatHERS Certificate. While you need to check the accuracy of the whole Certificate, the following spot check covers some important items impacting the dwelling's rating.

### Genuine certificate

Does this Certificate match the one available at the web address or QR code in the verification box on the front page? Does the set of NatHERS-stamped plans for the dwelling have a Certificate number on the stamp that matches this Certificate?

### Ceiling penetrations\*

Does the 'number' and 'type' of ceiling penetrations (e.g. downlights, exhaust fans, etc) shown on the stamped plans or installed, match what is shown in this Certificate?

### Windows

Does the installed window meet the substitution tolerances (SHGC and U-value) and window type, of the window shown on this Certificate?

### Apartment entrance doors

Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.

### Exposure\*

Has the appropriate exposure level (terrain) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".

### Provisional\* values

Have provisional values been used in the assessment and, if so, noted in "additional notes" below?

## Additional notes

## Window and glazed door *type and performance*

### Default\* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61
ALM-004-03 A	Aluminium B DG Air Fill High Solar Gain low-E - Clear	4.3	0.53	0.50	0.56

### Custom\* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

## Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
bed 4	ALM-002-03 A	1	2400	1000	Louvre	90	N	None
bed 4	ALM-002-03 A	2	2400	2200	Sliding	45	E	None
study	ALM-002-03 A	3	2400	1300	Louvre	90	N	None
study	ALM-004-03 A	4	2400	2800	Sliding	45	E	None
lobby/bath 4/stair void	ALM-004-03 A	13	1600	2300	Other	00	N	None
lobby/bath 4/stair void	ALM-004-03 A	14	1000	2600	Other	00	E	None
rumpus	ALM-004-03 A	8	2400	3000	Sliding	45	E	None
pantry	ALM-002-03 A	25	1200	900	Louvre	30	W	None
kitchen/breakfast	ALM-001-03 A	10	2400	900	Casement	100	N	None
kitchen/breakfast	ALM-002-03 A	11	2400	3700	Sliding	30	E	None
kitchen/breakfast	ALM-002-03 A	24	1500	1800	Other	00	W	None
dining/lobby/upper void	ALM-004-03 A	12a	1300	800	Other	00	E	None
dining/lobby/upper void	ALM-002-03 A	12b	1300	600	Louvre	90	E	None
dining/lobby/upper void	ALM-002-03 A	18a	2400	600	Louvre	90	S	None
dining/lobby/upper void	ALM-001-03 A	18b	2400	1800	Casement	100	S	None
dining/lobby/upper void	ALM-002-03 A	18c	2400	600	Louvre	90	S	None
dining/lobby/upper void	ALM-004-03 A	19	1500	1650	Other	00	W	None
dining/lobby/upper void	ALM-004-03 A	39	900	3600	Other	00	W	None
family	ALM-004-03 A	15	2400	2800	Sliding	45	E	None
family	ALM-004-03 A	16	2400	1800	Sliding	45	W	None
guest WC	ALM-002-03 A	17	1200	600	Louvre	90	S	None
living	ALM-004-03 A	20a	2700	3300	Sliding	45	S	None
living	ALM-002-03 A	20b	2700	600	Louvre	90	S	None
living	ALM-004-03 A	21	2700	3700	Sliding	65	W	None
living	ALM-004-03 A	22a	2250	3400	Other	00	N	None
living	ALM-002-03 A	22b	450	3400	Louvre	90	N	None
bath 1	ALM-002-03 A	26	1300	550	Louvre	90	N	None
bath 1	ALM-002-03 A	40	1200	1000	Louvre	30	W	None
bath 1	ALM-002-03 A	42	1200	1000	Louvre	30	W	None
bed 1	ALM-002-03 A	27	2400	900	Louvre	90	N	None
bed 1	ALM-002-03 A	28	2400	2800	Sliding	45	E	None
bath 2	ALM-002-03 A	29	1300	600	Louvre	90	E	None
bed 2	ALM-002-03 A	30	1200	500	Other	00	N	None
bed 2	ALM-002-03 A	31a	2400	1200	Sliding	90	E	None
bed 2	ALM-002-03 A	31b	2400	600	Louvre	60	E	None
bed 3	ALM-002-03 A	32a	2400	1200	Sliding	90	E	None
bed 3	ALM-002-03 A	32b	2400	600	Louvre	60	E	None

\* Refer to glossary.

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
bed 3	ALM-002-03 A	33	1200	450	Other	90	S	None
bed 3	ALM-002-03 A	34	2400	1100	Sliding	90	W	None
bed 3	ALM-002-03 A	35	2400	450	Louvre	90	S	None
bath 3	ALM-002-03 A	36	1200	600	Louvre	90	S	None
laundry	ALM-002-03 A	37	1200	1200	Louvre	90	S	None
laundry	ALM-002-03 A	38	2400	2200	Sliding	45	W	None

## Roof window type and performance

### Default\* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

### Custom\* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

## Roof window schedule

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

## Skylight type and performance

Skylight ID	Skylight description
No Data Available	

## Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m <sup>2</sup> )	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
garage/cellar/services	2600	4800	0	E
lower entry	2600	950	100	N
lobby/bath 4/stair void	2400	1800	66	E

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-001	Retaining Concrete block	50	Medium		No
EW-002	Brick wall	50	Medium	Polystyrene extruded (k = 0.028): R0.9	No
EW-005	Brick wall	50	Medium	Polystyrene extruded (k = 0.028): R0.9	No
EW-006	Retaining Concrete block	50	Medium	Polystyrene extruded (k = 0.028): R0.9	No
EW-007	Sandstone	50	Medium		No

## External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
garage/cellar/services	EW-001	6750	3500	N		No
garage/cellar/services	EW-002	300	3500	N		No
garage/cellar/services	EW-001	3700	7200	N		No
garage/cellar/services	EW-001	2050	6700	N		No
garage/cellar/services	EW-002	1650	6700	N		No
garage/cellar/services	EW-002	3700	6700	E	400	Yes
garage/cellar/services	EW-001	7050	4100	W		No
lower entry	EW-002	3700	2100	N	650	Yes
lower entry	EW-002	3700	700	S		No
lower entry	EW-001	3700	16200	S		No
lower entry	EW-001	3700	4700	W		No
bed 4	EW-005	2900	4000	N		No
bed 4	EW-005	2900	2200	E		Yes
study	EW-005	2900	4400	N		Yes
study	EW-005	2900	3500	E	300	Yes
study	EW-005	2900	1100	S	1950	Yes
lobby/bath 4/stair void	EW-005	2900	1950	E	500	Yes
lobby/bath 4/stair void	EW-006	2900	2500	S		No
lobby/bath 4/stair void	EW-006	2900	2100	W		No
lobby/bath 4/stair void	EW-005	2800	3300	N		No
lobby/bath 4/stair void	EW-005	550	1700	N		No
lobby/bath 4/stair void	EW-005	1800	2600	E	1200	Yes
lobby/bath 4/stair void	EW-005	1100	2600	E		No
lobby/bath 4/stair void	EW-005	550	1700	S		No
rumpus	EW-005	2900	750	N	1950	Yes
rumpus	EW-005	2900	5200	E	300	Yes
rumpus	EW-006	2000	4850	S		No
rumpus	EW-005	900	4850	S		No

\* Refer to glossary.

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
pantry	EW-005	2800	1600	N		No
pantry	EW-005	2800	2200	W		No
kitchen/breakfast	EW-005	2800	7200	N		No
kitchen/breakfast	EW-005	2800	700	E		No
kitchen/breakfast	EW-005	2800	1200	N		No
kitchen/breakfast	EW-005	2800	4200	E	1200	Yes
kitchen/breakfast	EW-005	2800	2200	W		No
dining/lobby/upper void	EW-005	2800	2200	E	1200	Yes
dining/lobby/upper void	EW-005	2800	5900	S		No
dining/lobby/upper void	EW-005	2800	2200	W		No
dining/lobby/upper void	EW-005	2700	1100	E	1600	Yes
dining/lobby/upper void	EW-005	2700	1100	S		No
dining/lobby/upper void	EW-005	1800	5250	W		No
dining/lobby/upper void	EW-005	2800	700	S		No
family	EW-005	2800	4600	E	1200	Yes
family	EW-005	2800	4800	S		No
family	EW-005	2800	2500	W		No
guest WC	EW-005	2800	1500	S		No
living	EW-005	2700	5900	S		No
living	EW-005	2700	5000	W	4700	Yes
living	EW-005	2700	3400	N	270	Yes
living	EW-005	2700	2200	N		No
living	EW-005	2700	300	N		No
bath 1	EW-005	2700	3100	N		No
bath 1	EW-005	2700	4800	W		No
bed 1	EW-005	2700	5800	N		No
bed 1	EW-005	2700	700	E	1000	Yes
bed 1	EW-005	2700	1000	N	700	Yes
bed 1	EW-005	2700	3650	E		No
bath 2	EW-005	2700	600	E		No
bath 2	EW-005	2700	270	N		No
bath 2	EW-005	2700	1800	E		No
bed 2	EW-005	2700	2750	N		No
bed 2	EW-005	2700	3800	E		No
bed 3	EW-005	2700	3800	E		No
bed 3	EW-005	2700	5100	S		No
bed 3	EW-005	2700	2500	W		No
bed 3	EW-005	2700	1200	S		No
bath 3	EW-005	2700	1300	S		No



Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
laundry	EW-005	2700	2400	S		No
laundry	EW-005	2700	3000	W	1600	Yes
upper lobby	EW-005	2700	1700	S	1600	Yes
subfloor	EW-007	2900	1000	N		No
subfloor	EW-007	2900	600	S		No
subfloor	EW-007	2900	4200	W		No
subfloor	EW-007	2900	7400	S		No
subfloor	EW-007	2900	4000	W		No

## Internal wall type

Wall ID	Wall type	Area (m <sup>2</sup> )	Bulk insulation
IW-001	Brick wall	266.15	
IW-002	Brick wall	174.61	
IW-003	Brick wall	75.35	
IW-004	Brick wall	12.47	Polystyrene extruded (k = 0.028): R0.4
IW-005	Brick wall	1.45	
IW-006	Glass	10.59	
IW-007	Brick wall	29.62	Polystyrene extruded (k = 0.028): R0.9

## Floor type

Location	Construction	Area (m <sup>2</sup> )	Sub-floor ventilation	Added insulation (R-value)	Covering
garage/cellar/services/Ground	as_FLOR-B002 #1006 © 150mm Concrete Floor slab (no insul)	102.50			
lower entry/Ground	as_FLOR-B002 #1006 © 150mm Concrete Floor slab (no insul)	50.10			
bed 4/garage/cellar/services	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	16.50		R2.5	Carpet 10 + rubber underlay 8
study/garage/cellar/services	as_FLOR-B006 #2024 © 200mm Concrete Floor slab with parquet timber floor (R2.5 insul underl)	16.20		R2.5	
lobby/bath 4/stair void/garage/cellar/services	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	8.10		R2.5	Ceramic tile
lobby/bath 4/stair void/lower entry	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	14.60		R2.5	Ceramic tile
lobby/bath 4/stair void/lower entry	as_FLOR-B006 #2024 © 200mm Concrete Floor slab with parquet timber floor (R2.5 insul underl)	12.10		R2.5	
rumpus/Ground	as_FLOR-B002 #2021 © 150mm Concrete Floor slab with parquet timber floor (R1.0 insul underl)	22.00		R1.0	
rumpus/lower entry	as_FLOR-B006 #2024 © 200mm Concrete Floor slab with parquet timber floor (R2.5 insul underl)	0.30		R2.5	
pantry/Ground	as_FLOR-B002 #2051 © 150mm Concrete Floor slab with Ceramic tile floor (R1.0 insul underl)	3.40		R1.0	Ceramic tile
kitchen/breakfast/Ground	as_FLOR-B002 #2051 © 150mm Concrete Floor slab with Ceramic tile floor (R1.0 insul underl)	31.10		R1.0	Ceramic tile

Location	Construction	Area (m <sup>2</sup> )	Sub-floor ventilation	Added insulation (R-value)	Covering
kitchen/breakfast/garage/cellar/services	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	16.50		R2.5	Ceramic tile
dining/lobby/upper void/lobby/bath 4/stair void	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	4.40		R2.5	Ceramic tile
dining/lobby/upper void/Ground	as_FLOR-B002 #2051 © 150mm Concrete Floor slab with Ceramic tile floor (R1.0 insul underl)	36.60		R1.0	Ceramic tile
dining/lobby/upper void/lobby/bath 4/stair void	as_FLOR-B006 #2024 © 200mm Concrete Floor slab with parquet timber floor (R2.5 insul underl)	10.30		R2.5	
dining/lobby/upper void/subfloor	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	1.70		R2.5	Ceramic tile
dining/lobby/upper void/subfloor	as_FLOR-B006 #2024 © 200mm Concrete Floor slab with parquet timber floor (R2.5 insul underl)	2.30		R2.5	
family/Ground	as_FLOR-B002 #2021 © 150mm Concrete Floor slab with parquet timber floor (R1.0 insul underl)	19.10		R1.0	
family/subfloor	as_FLOR-B006 #2024 © 200mm Concrete Floor slab with parquet timber floor (R2.5 insul underl)	4.10		R2.5	
guest WC/Ground	as_FLOR-B002 #2051 © 150mm Concrete Floor slab with Ceramic tile floor (R1.0 insul underl)	2.00		R1.0	Ceramic tile
guest WC/subfloor	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	0.90		R2.5	Ceramic tile
living/Ground	as_FLOR-B002 #2051 © 150mm Concrete Floor slab with Ceramic tile floor (R1.0 insul underl)	29.50		R1.0	Ceramic tile
bath 1/pantry	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	3.40		R2.5	Ceramic tile
bath 1/kitchen/breakfast	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	8.00		R2.5	Ceramic tile
bed 1/kitchen/breakfast	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	32.10		R2.5	Carpet 10 + rubber underlay 8
bath 2/kitchen/breakfast	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	0.30		R2.5	Ceramic tile
bath 2/dining/lobby/upper void	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	4.30		R2.5	Ceramic tile
bed 2/dining/lobby/upper void	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	3.00		R2.5	Carpet 10 + rubber underlay 8
bed 2/lobby/bath 4/stair void	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	9.00		R2.5	Carpet 10 + rubber underlay 8
bed 2/rumpus	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	3.00		R2.5	Carpet 10 + rubber underlay 8
bed 3/rumpus	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	18.30		R2.5	Carpet 10 + rubber underlay 8
bed 3/guest WC	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	2.40		R2.5	Carpet 10 + rubber underlay 8
bed 3/dining/lobby/upper void	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	1.10		R2.5	Carpet 10 + rubber underlay 8
bath 3/dining/lobby/upper void	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	3.40		R2.5	Ceramic tile
bath 3/guest WC	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	0.30		R2.5	Ceramic tile



Location	Construction	Area (m <sup>2</sup> )	Sub-floor ventilation	Added insulation Covering (R-value)
laundry/dining/lobby/upper void	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	8.50		R2.5 Ceramic tile
upper lobby/dining/lobby/upper void	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	22.10		R2.5 Carpet 10 + rubber underlay 8
upper lobby/kitchen/breakfast	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	4.50		R2.5 Carpet 10 + rubber underlay 8
subfloor/Ground	Bare ground	11.90	Enclosed	

## Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
bed 4/garage/cellar/services	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	R2.5	No
study/garage/cellar/services	as_FLOR-B006 #2024 © 200mm Concrete Floor slab with parquet timber floor (R2.5 insul underl)	R2.5	No
lobby/bath 4/stair void/garage/cellar/services	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	R2.5	No
kitchen/breakfast/garage/cellar/services	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	R2.5	No
lobby/bath 4/stair void/lower entry	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	R2.5	No
rumpus/lower entry	as_FLOR-B006 #2024 © 200mm Concrete Floor slab with parquet timber floor (R2.5 insul underl)	R2.5	No
lobby/bath 4/stair void/lower entry	as_FLOR-B006 #2024 © 200mm Concrete Floor slab with parquet timber floor (R2.5 insul underl)	R2.5	No
dining/lobby/upper void/lobby/bath 4/stair void	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	R2.5	No
bed 2/lobby/bath 4/stair void	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	R2.5	No
dining/lobby/upper void/lobby/bath 4/stair void	as_FLOR-B006 #2024 © 200mm Concrete Floor slab with parquet timber floor (R2.5 insul underl)	R2.5	No
bed 2/rumpus	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	R2.5	No
bed 3/rumpus	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	R2.5	No
bath 1/pantry	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	R2.5	No
bath 1/kitchen/breakfast	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	R2.5	No
bed 1/kitchen/breakfast	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	R2.5	No
bath 2/kitchen/breakfast	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	R2.5	No
upper lobby/kitchen/breakfast	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	R2.5	No
bath 2/dining/lobby/upper void	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	R2.5	No
bed 2/dining/lobby/upper void	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	R2.5	No
bed 3/dining/lobby/upper void	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	R2.5	No
bath 3/dining/lobby/upper void	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	R2.5	No

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
laundry/dining/lobby/upper void	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	R2.5	No
upper lobby/dining/lobby/upper void	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	R2.5	No
bed 3/guest WC	as_FLOR-B006 #2014 © 200mm Concrete Floor slab with carpet-underfelt(R2.5 insul under)	R2.5	No
bath 3/guest WC	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	R2.5	No
dining/lobby/upper void/subfloor	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	R2.5	No
dining/lobby/upper void/subfloor	as_FLOR-B006 #2024 © 200mm Concrete Floor slab with parquet timber floor (R2.5 insul underl)	R2.5	No
family/subfloor	as_FLOR-B006 #2024 © 200mm Concrete Floor slab with parquet timber floor (R2.5 insul underl)	R2.5	No
guest WC/subfloor	as_FLOR-B006 #2054 © 200mm Concrete Floor slab with Ceramic tile floor (R2.5 insul underl)	R2.5	No

## Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm <sup>2</sup> )	Sealed/unsealed
No Data Available				

## Ceiling fans

Location	Quantity	Diameter (mm)
No Data Available		

## Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
as_ROOF-B011.rof #1001 © Concrete slab 150mm - Drained Tile walking surface - no insulation - Susp. Ceiling under		50	Medium
as_ROOF-B021 #1103 © 300mm Soil over 200mm concrete slab roof + plasterb'd ceiling under		50	Medium
as_ROOF-B021 #1103 © 300mm Soil over 200mm concrete slab roof + R2.5 insulation under slab plasterb'd ceiling under	R2.5	50	Medium
as_ROOF-B011.rof #2037 © Concrete slab 150mm - Tile walking surface - R2.5 insulation under slab - Susp. Ceiling under	R2.5	50	Medium
as_ROOF-B011.rof #2047 © Concrete slab 150mm - WP Membrane surface - R2.5 insulation under slab - Susp. Ceiling under	R2.5	50	Medium

## Explanatory notes

### About this report

A NatHERS rating is a comprehensive, dynamic computer modelling evaluation of a home, using the floorplans, elevations and specifications to estimate an energy load. It addresses the building layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings), but does not cover the water or energy use of appliances or energy production of solar panels.

Ratings are based on a unique climate zone where the home is located and are generated using standard assumptions, including occupancy patterns and thermostat settings. The actual energy consumption of a home may vary significantly from the predicted energy load, as the assumptions used in the rating will not match actual usage patterns. For example, the number of occupants and personal heating or cooling preferences will vary.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparing different dwelling designs and to demonstrate that the design meets the energy efficiency requirements in the National Construction Code. Homes that are energy efficient use less energy, are warmer on cool days, cooler on hot days and cost less to run. The higher the star rating the more thermally efficient the dwelling is.

### Accredited assessors

To ensure the NatHERS Certificate is of a high quality, always use an accredited or licenced assessor. NatHERS accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO).

Australian Capital Territory (ACT) licensed assessors may only produce assessments for regulatory purposes using software for which they have a licence endorsement. Licence endorsements can be confirmed on the ACT licensing register

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 ongoing training requirements.

Any questions or concerns about this report should be directed to the assessor in the first instance. If the assessor is unable to address these questions or concerns, the AAO specified on the front of this certificate should be contacted.

### Disclaimer

The format of the NatHERS Certificate was developed by the NatHERS Administrator. However the content of each individual certificate is entered and created by the assessor to create a NatHERS Certificate. It is the responsibility of the assessor who prepared this certificate to use NatHERS accredited software correctly and follow the NatHERS Technical Notes to produce a NatHERS Certificate.

The predicted annual energy load in this NatHERS Certificate is an estimate based on an assessment of the building by the assessor. It is not a prediction of actual energy use, but may be used to compare how other buildings are likely to perform when used in a similar way.

Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, indoor air temperature and local climate.

Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

## Glossary

<b>Annual energy load</b>	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
<b>Assessed floor area</b>	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
<b>Ceiling penetrations</b>	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
<b>Conditioned</b>	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
<b>Custom windows</b>	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
<b>Default windows</b>	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
<b>Entrance door</b>	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
<b>Exposure category – exposed</b>	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
<b>Exposure category – open</b>	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m; farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
<b>Exposure category – suburban</b>	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
<b>Exposure category – protected</b>	terrain with numerous, closely spaced obstructions over 10m e.g. city and industrial areas.
<b>Horizontal shading feature</b>	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
<b>National Construction Code (NCC) Class</b>	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at <a href="http://www.abcb.gov.au">www.abcb.gov.au</a> .
<b>Opening percentage</b>	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
<b>Provisional value</b>	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at <a href="http://www.nathers.gov.au">www.nathers.gov.au</a>
<b>Reflective wrap</b> (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
<b>Roof window</b>	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
<b>Shading device</b>	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
<b>Shading features</b>	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
<b>Solar heat gain coefficient (SHGC)</b>	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
<b>Skylight</b> (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
<b>U-value</b>	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
<b>Unconditioned</b>	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
<b>Vertical shading features</b>	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).