

NatHERS Thermal Comfort and BASIX Assessment

Proposed Dwelling: Lot 2 at 90 Brighton Street, Freshwater NSW 2096

Project Client: V. Glavan

Project Architect: Watershed Architects

Project No.: 24002

Revision	Notes	Date
A	Thermal Comfort & BASIX Assessment – NCC 2022 (NatHERS 7 Stars)	29/10/2024

Star Rating	Climate Zone	Floor Area (m ²)		Loads (area adjusted MJ/m ² /annum)		
		Conditioned	Unconditioned	Heating	Cooling	Total
7.0	56	269	33	21.9	8.1	30.0

Thermal Comfort Specifications	
Glazing: Doors/windows	High performance double glazing throughout: Glazing may be substituted with any other product/manufacturer, however you must meet the maximum U-values (be equal to or lower than) and there is a flexibility of +/-5% with the SHGC value. Aluminium framed double and triple glazing: Louvre windows: BRZ-011-003 U-Value: 2.4 (equal to or lower than) SHGC: 0.10 (±5%) Sliding doors (Living and Bedroom): REY-027-006 U-Value: 1.8 (equal to or lower than) SHGC: 0.47 (±5%) Sliding door (Rumpus South): SCH-055-007 U-Value: 1.2 (equal to or lower than) SHGC: 0.21 (±5%) Sliding door (Rumpus East): SCH-055-004 U-Value: 1.2 (equal to or lower than) SHGC: 0.44 (±5%) Sliding windows: DOW-022-007 U-Value: 2.0 (equal to or lower than) SHGC: 0.51 (±5%) Hinged Entry Door: CPT-016-005 U-Value: 1.9 (equal to or lower than) SHGC: 0.40 (±5%) Fixed windows: A&L-026-302: U-Value: 1.8 (equal to or lower than) SHGC: 0.48 (±5%) Sashless double hung windows: ANE-015-321: (bedrooms and Study modelled as 30% open) U-Value: 1.9 (equal to or lower than) SHGC: 0.38 (±5%) Note: Given values are AFRC, total window system values (glass and frame)
Skylights	Double glazed by Velux: Maximum U-Value 2.7, and SHGC: 0.24 (±5%)
Roof	Metal roof with R1.3 anticon/builders blanket External Colour: Medium (0.475<SA<0.7)
Ceiling	Lower Ground Floor: R2.0 insulation (insulation only value) to internal ceiling of Garage and RWT Room where habitable areas above (between levels) Ground Floor: R2.0 insulation (insulation only value) to internal plasterboard ceiling (between levels) where rooms above First Floor where metal roof above: Plasterboard ceiling with R3.5 insulation (insulation only value)
Ceiling penetrations	Sealed LED downlights (ie. IC rated): modelled at one light per 2.5m² of floor space Exhaust fans to Kitchen, Baths/Ensuites and Laundry Chimney Flue Note: All downlights are to be IC rated and sealed, all exhaust fans and chimney to have dampers
Ceiling fans	Seven ceiling fans required: One to Study Lounge, one to Bedroom 01, one to Bedroom 02, one to Bedroom 03, one to Bedroom 04, one to Rumpus, and one to Living or Dining
External Walls	Lightweight cladding on timber framing with R2.7 insulation (insulation only value) Cavity brick with R2.13 insulation (or one skin of AFS wall and one skin of brick with cavity between) or Total Wall System Value R_t2.5 (insulation modelled as R1.5 bulk reflective both sides to total insulation product value of R2.13; this would be indicative of a product like Polastic 20mm reflective cavity insulation) Concrete (Dincel/AFS; minimum 150mm) to Garage and RWT Room (no insulation required to these two unconditioned zone walls) External colour: Light (0.475>SA) and default Medium (0.475<SA>0.7)

Internal walls	Lift: Cavity brick (or may be substituted with one skin of AFS wall and one skin of brick with cavity between) Lower Ground Floor: Concrete walls with R2.0 insulation required between the Garage and Entry, and between Garage and Lift. No insulation required between Garage and RWT Room. Ground Floor and First Floor: Plasterboard on lightweight framing with R2.0 insulation to Ground Floor Laundry and First Floor Bath
Floors	Lower Ground Floor: Concrete slab on Ground with R2.0 underslab insulation to Entry floor only. No insulation required to Garage and RWT Room floors. Concrete between Lower Ground Floor and Ground Floor Ground Floor: Concrete slab on Ground with R1.5 underslab insulation to Rumpus Suspended timber floor to First Floor with R2.0 insulation where open to air below Floor coverings: Carpet to bedrooms, tiles to wet areas, timber elsewhere. Garage and RWT room floors are bare concrete
External Shading	Vertical louvre screens, eaves and covered balconies as per drawings

BASIX Water Inclusions

Fixtures	Install showerheads minimum rating of 4 stars (>6.0 and <= 7.5 Litres/min) Install toilet flushing system with a minimum rating of 4 stars in each toilet Install tap with minimum rating of 4 stars in the kitchen Install taps with minimum rating of 4 stars in each bathroom
Alternative Water	Install rainwater tank with minimum 3,000L capacity, connected to – At least one outdoor (garden) tap and all toilets Rainwater harvest collected from a min. 150m ² roof area
Pool	Volume no greater than 25kL Must have a pool cover

BASIX Energy Commitments

Hot water System	Electric heat pump: minimum performance of 31-35 STCs
Cooling system	3 phase air conditioning to living areas and bedrooms: EER 3.0-3.5
Heating system	3 phase air conditioning to living areas and bedrooms: EER 3.0-3.5
Ventilation	Kitchen - Individual fan, externally ducted to roof or façade, manual on/off switch Bathrooms - Individual fan, externally ducted to roof or façade, interlocked to light with timer off (<i>note that the BASIX Certificate says 'Operation control: please select' and this is a mistake (known issue unresolved with BASIX)</i>) Laundry - Individual fan, externally ducted to roof or façade, manual on/off switch
Pool	Heating system: electric heat pump Must install a timer for the swimming pool pump with a minimum 5 Star efficiency
Other	Induction cooktop & electric oven Outdoor clothes drying line Alternative Energy: Minimum 2.0kW of photovoltaics (solar); South nominated for the panel orientation to allow for worst case scenario

Nationwide House Energy Rating Scheme®

NatHERS® Certificate No. 0009822743-01

Generated on 29 Oct 2024 using BERS Pro v5.2.2 (3.23)

Property

Address Unit Lot 2, 90 90 Brighton Street,
Freshwater, NSW, 2096

Lot/DP Lot DP 14450

NCC class* 1a

Floor/all Floors G of 3 floors

Type New Home

Plans

Main plan 24002

Prepared by Watershed Architects

Construction and environment

Assessed floor area [m2]*	Exposure type
Conditioned* 268.8	Suburban
Unconditioned* 32.6	NatHERS climate zone
Total 378.5	56 Mascot (Sydney Airport)
Garage 77.1	



Accredited assessor

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Assessor Accrediting Organisation

HERA

Declaration of interest Declaration completed: no conflicts

NCC Requirements

NCC provisions Volume Two

State/Territory variation Yes

National Construction Code (NCC) requirements

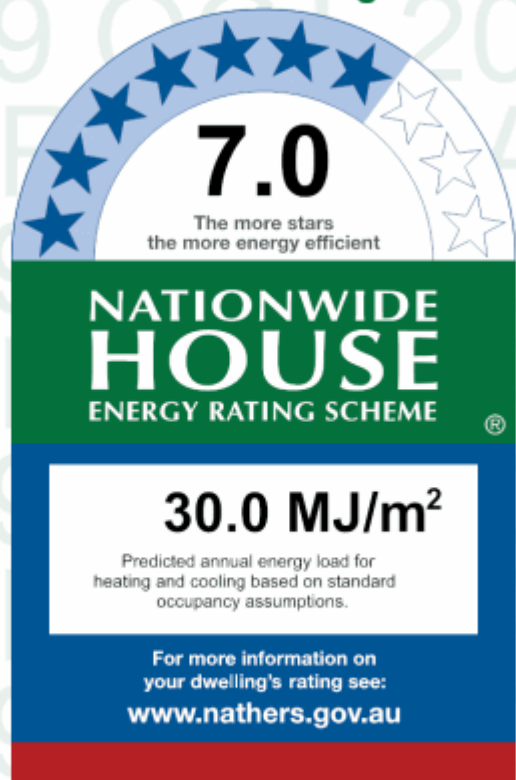
The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J3D3 and J3D15 of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

Thermal performance Star rating



Thermal performance [MJ/m²]

Limits taken from ABCB Standard 2022

	Heating	Cooling
Modelled	21.9	8.1
Load limits	N/A	N/A

Features determining load limits

Floor Type (lowest conditioned area)	SF
NCC climate zone 1 or 2	No
Outdoor living area	No
Outdoor living area ceiling fan	No

Whole of Home performance rating

No Whole of Home
performance rating
generated for this
certificate.

Verification

To verify this certificate,
scan the QR code or visit
[hstar.com.au/QR/Generate?](http://hstar.com.au/QR/Generate?p=GiRmVNHoB)
[p=GiRmVNHoB](http://hstar.com.au/QR/Generate?p=GiRmVNHoB).
When using either link,
ensure you are visiting
hstar.com.au



About the ratings

Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

Heating & Cooling Load Limits

Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the *ABCB Standard 2022: NatHERS heating and cooling load limits* for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

Setting Options:

Floor Type:

CSOG – Concrete Slab on Ground
SF – Suspended Floor (or a mixture of CSOG and SF)
NA – Not Applicable

NCC Climate Zone 1 or 2:

Yes
No
NA – Not Applicable

Outdoor Living Area:

Yes
No
NA – Not Applicable

Outdoor Living Area Ceiling Fan:

Yes
No
NA – Not Applicable



Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

Predicted Whole of Home annual impact by appliance

Energy use

No Whole of Home performance assessment conducted for this certificate

Greenhouse gas emissions

No Whole of Home performance assessment conducted for this certificate

Cost

No Whole of Home performance assessment conducted for this certificate



Certificate check

The checklist covers important items impacting the dwelling's ratings. It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and by whom each item should be checked. It is not mandatory to complete this checklist.

	Approval Stage		Construction Stage		
	Assessor checked	Consent Authority/ Surveyor checked	Builder checked	Consent Authority Surveyor checked	Occupancy/Other
Genuine certificate check					
Does this Certificate match the one available at the web address or QR code verification link on the front page?		☐	☐	☐	☐
Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate?		☐	☐	☐	☐
Thermal performance check					
Windows and glazed doors					
Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in 'Window and glazed door schedule' and 'Roof window schedule' tables on this Certificate?	☐	☐	☐	☐	☐
Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the 'Window and glazed door type and performance' and 'Roof window type and performance' tables on this Certificate?			☐	☐	☐
External walls					
Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the External wall type table on this Certificate?	☐	☐	☐	☐	☐
Does the external wall shade (colour) match what is shown in the 'External wall type' table on this Certificate?	☐	☐	☐	☐	☐
Floor					
Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Floor type' table on this certificate?	☐	☐	☐	☐	☐
Ceiling penetrations*					
Does the 'quantity' and 'type' of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Ceiling penetrations' table on this Certificate?	☐	☐	☐	☐	☐
Ceiling					
Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the 'Ceiling type' table on this Certificate?	☐	☐	☐	☐	☐
Roof					
Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the 'Roof type' table on this Certificate?	☐	☐	☐	☐	☐
Apartment entrance doors (NCC Class 2 assessments only)					
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 type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".	☐	☐		☐	☐
Heating and cooling load limits*					
Do the load limits settings (shown on page 1) match what is shown	☐	☐	☐	☐	☐



Certificate check

Continued

	Approval Stage		Construction Stage		
	Assessor checked	Consent Authority/ Surveyor checked	Builder checked	Consent Authority Surveyor checked	Occupancy/Other

Additional NCC requirements for thermal performance (not included in the NatHERS assessment)

Thermal bridging

Does the dwelling meet the NCC requirement for thermal bridging?

☐ ☐ ☐ ☐

Insulation installation method

Has the insulation been installed according to the NCC requirements?

☐ ☐ ☐

Building sealing

Does the dwelling meet the NCC requirements for Building Sealing?

☐ ☐ ☐ ☐

Whole of Home performance check (not applicable if a Whole of Home performance assessment is not conducted)

Appliances

Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the Appliance schedule on this Certificate?

☐ ☐ ☐ ☐ ☐

Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?

☐ ☐ ☐ ☐ ☐

Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?

☐ ☐ ☐ ☐ ☐

Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the 'Appliance schedule' on this Certificate?

☐ ☐ ☐ ☐ ☐

Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the 'Onsite Renewable Energy schedule' on this Certificate?

☐ ☐ ☐ ☐ ☐

Additional NCC Requirements for Services (not included in the NatHERS assessment)

Does the lighting meet the artificial lighting requirements specified in the NCC?

☐ ☐ ☐ ☐

Does the hot water system meet the additional requirements specified in the NCC?

☐ ☐ ☐ ☐

Provisional values* check

Have provisional values* been used in the assessment and, if so, are they noted in 'Additional notes' table below?

☐ ☐ ☐ ☐

Other NCC requirements

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

Additional notes



Room schedule

Room	Zone Type	Area [m ²]
Garage	Garage	77.06
RWT Room	Unconditioned	9.37
Lift LGF	Daytime	2.26
Entry	Daytime	18.21
Lift GF	Daytime	2.36
Stair GF	Daytime	12.89
Kitch/Dine/Liv	Kitchen/Living	65.56
Lift FF	Daytime	2.31
Void GF	Unconditioned	5.63
Pantry	Daytime	5.75
Laundry	Unconditioned	6.85
Rumpus	Living	25.72
Powder GF	Daytime	3.84
Study Lounge	Living	21.02
Hall/Stair FF	Daytime	22.69
Bath FF	Unconditioned	10.71
Ens WIR Bed 1	Nighttime	7.6
WIR Bed 1	Nighttime	10.11
Bedroom 1	Bedroom	18.87
Bedroom 2	Bedroom	18.01
Bedroom 3	Bedroom	17.97
Bedroom 4	Bedroom	17.96
Void FF	Unconditioned	5.67
Hall GF	Daytime	4.72

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
No Data Available					



Custom windows*

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
CPT-016-005	Aluminium Hinged Door DG 6ET/12Ar/6ET	1.9	0.40	0.38	0.42
A&L-026-302	Aluminium Fixed Window DG 4PbAS2/12Ar/4PbG	1.8	0.48	0.45	0.50
BRZ-011-003	Aluminium Louvre Window DG 6CEG1224/101/6CEG1224	2.4	0.10	0.10	0.11
REY-027-006	Aluminium Sliding Door DG LB Clr 6/24/6	1.8	0.47	0.45	0.49
DOW-022-007	Thermally Broken Aluminium Sliding Window DG LB Clr 4/12/4	2.0	0.51	0.48	0.53
SCH-055-004	Thermally Broken Aluminium Fixed Window TG AGG PLUS(2) Clr 4/10/4/10/4	1.2	0.44	0.41	0.46
SCH-055-007	Thermally Broken Aluminium Fixed Window TG AGG MAX + PLUS Clr 6/10/4/8/4	1.2	0.21	0.20	0.22
ANE-015-321	Thermally Broken Aluminium Double Hung Window DG 4PtOne/12Ar/6Clr	1.9	0.38	0.36	0.40

Window and glazed door schedule

Location	Window ID	Window no.	Height [mm]	Width [mm]	Window type	Opening %	Orientation	Window shading device*
Entry	CPT-016-005-001	D1.01A	2700	1200	Casement	90	N	Yes
Entry	A&L-026-302-002	W1.01A	2700	910	Fixed	00	N	No
Stair GF	A&L-026-302-002	W2.01A	2000	1400	Fixed	00	N	No
Stair GF	BRZ-011-003-001	2.07A louvre nth	2000	700	Louvre	90	N	No
Stair GF	BRZ-011-003-001	W2.07A louvre east	2000	750	Louvre	90	E	No
Stair GF	BRZ-011-003-001	W2.01A	2060	790	Louvre	90	S	No
Kitch/Dine/Liv	REY-027-006-001	D2.02A	2800	5500	Sliding	75	N	Yes
Kitch/Dine/Liv	DOW-022-007-001	W2.03A	1835	4600	Sliding	60	W	Yes
Pantry	BRZ-011-003-001	W2.04A louvre	2000	1300	Louvre	90	W	No
Laundry	BRZ-011-003-001	W2.05A louvre	2000	1300	Louvre	90	W	No
Rumpus	SCH-055-004-001	D2.06A	2800	2700	Sliding	45	E	No
Rumpus	SCH-055-007-001	D2.05A	2800	5000	Sliding	60	S	No
Rumpus	BRZ-011-003-001	W2.06A	2000	750	Louvre	90	W	No
Study Lounge	BRZ-011-003-001	W3.14A	1700	750	Louvre	90	E	No
Study Lounge	ANE-015-321-003	W3.12A	2000	2300	Double Hung	45	S	Yes

* Refer to glossary.



Location	Window ID	Window no.	Height [mm]	Width [mm]	Window type	Opening %	Orientation	Window shading device*
Hall/Stair FF	BRZ-011-003-001	W3.01A	2500	1824	Louvre	90	E	No
Hall/Stair FF	A&L-026-302-002	W 3.12A Stair	2100	1000	Fixed	00	N	No
Hall/Stair FF	BRZ-011-003-001	W2.07A First Floor	1678	790	Louvre	90	S	No
Bath FF	BRZ-011-003-001	W3.07A louvre	1500	750	Louvre	90	W	No
Bath FF	A&L-026-302-002	W19	1500	1500	Fixed	00	W	No
Ens WIR Bed 1	BRZ-011-003-001	W3.02A Ensuite	2400	900	Louvre	90	N	Yes
Ens WIR Bed 1	BRZ-011-003-001	W3.03A	1678	485	Louvre	90	W	No
WIR Bed 1	BRZ-011-003-001	W3.04A louvre	1678	750	Louvre	45	W	No
WIR Bed 1	A&L-026-302-002	W18	1678	750	Fixed	00	W	No
Bedroom 1	REY-027-006-001	W3.06A	2500	4000	Sliding	60	N	Yes
Bedroom 1	BRZ-011-003-001	W3.02A Bed 1	2500	900	Louvre	90	E	Yes
Bedroom 2	ANE-015-321-003	W3.06A	1500	1800	Double Hung	45	W	No
Bedroom 3	ANE-015-321-003	W3.09A	1500	1800	Double Hung	45	W	No
Bedroom 4	ANE-015-321-003	W3.10A	1500	1800	Double Hung	45	W	No
Void FF	A&L-026-302-002	W3.12A Void	2100	1000	Fixed	00	N	No

Roof window* type and performance value

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
VEL-011-02 W	VELUX FS - Fixed Skylight DG 3mm LoE 366 / 10.5mm Argon Gap / 3mm Clear	2.7	0.24	0.23	0.25

Roof window* schedule

Location	Window ID	Window no.	Opening %	Height [mm]	Width [mm]	Orientation	Outdoor shade	Indoor shade
Bath FF	VEL-011-02 W	SK Bath	0	1100	550	W	Yes	Yes



Location	Window ID	Window no.	Opening %	Height [mm]	Width [mm]	Orientation	Outdoor shade	Indoor shade
WIR Bed 1	VEL-011-02 W	SK WIR	0	1100	550	W	Yes	Yes

Skylight* type and performance

Skylight ID	Skylight description	Skylight shaft reflectance
No Data Available		

Skylight* schedule

Location	Skylight ID	Skylight No.	Skylight shaft length [mm]	Area [m ²]	Orientation	Outdoor shade	Diffuser
No Data Available							

External door schedule

Location	Height [mm]	Width [mm]	Opening %	Orientation
Garage	2400	6000	90	N

External wall type

Wall ID	Wall type	Solar absorptance	Wall shade [colour]	Bulk insulation [R-value]	Reflective wall wrap*
EW-1	Tilt up Concrete	0.30		No insulation	No
EW-2	Cavity Brick	0.30		Foil reflective both sides of the Bulk Insulation R1.5	Yes
EW-3	Tilt up Concrete	0.85		Bulk Insulation R2.7	No
EW-4	Fibro Timber Stud Frame Panel Direct Fix	0.85		Bulk Insulation R2.7	No

External wall schedule

Location	Wall ID	Height [mm]	Width [mm]	Orientation	Horizontal shading feature* maximum projection [mm]	Vertical shading feature [yes/no]
Garage	EW-1	2700	6050	N	3300	No
Garage	EW-1	2700	2850	E	50	No
Garage	EW-1	2700	12975	W	50	No
RWT Room	EW-1	2700	1350	E	100	No
RWT Room	EW-1	2700	6050	S	100	No



Location	Wall ID	Height [mm]	Width [mm]	Orientation	Horizontal shading feature* maximum projection [mm]	Vertical shading feature [yes/no]
RWT Room	EW-1	2700	1575	W	50	No
Lift LGF	EW-2	2700	2095	E	50	No
Lift LGF	EW-2	2700	1245	S	50	No
Entry	EW-2	2700	2275	N	1150	No
Entry	EW-2	2700	6150	E	50	No
Entry	EW-2	2700	1950	E	50	No
Entry	EW-2	2700	1050	S	50	No
Entry	EW-2	2700	195	E	50	No
Lift GF	EW-2	2800	2095	E	150	No
Lift GF	EW-2	2800	1245	S	6650	No
Stair GF	EW-3	800	2345	N	0	No
Stair GF	EW-4	2000	2345	N	150	No
Stair GF	EW-2	700	8100	E	0	No
Stair GF	EW-4	2100	8100	E	50	No
Stair GF	EW-2	2800	1050	S	100	No
Stair GF	EW-2	700	195	E	0	No
Stair GF	EW-4	2100	195	E	150	No
Stair GF	EW-4	2200	1295	S	8800	No
Kitch/Dine/Liv	EW-4	2800	6050	N	3650	No
Kitch/Dine/Liv	EW-3	1600	2850	E	0	No
Kitch/Dine/Liv	EW-4	1200	2850	E	100	No
Kitch/Dine/Liv	EW-2	1000	10445	W	0	No
Kitch/Dine/Liv	EW-4	1800	10445	W	50	No
Lift FF	EW-2	2550	2040	E	150	No
Pantry	EW-2	1000	2590	W	0	No
Pantry	EW-4	1800	2590	W	50	No
Laundry	EW-2	1000	1640	W	0	No
Laundry	EW-4	1900	1640	W	50	No
Rumpus	EW-4	2900	4295	E	1450	No
Rumpus	EW-4	2900	6050	S	1000	No
Rumpus	EW-2	1000	4295	W	0	No



Location	Wall ID	Height [mm]	Width [mm]	Orientation	Horizontal shading feature* maximum projection [mm]	Vertical shading feature [yes/no]
Rumpus	EW-4	1900	4295	W	50	No
Study Lounge	EW-4	2550	6595	E	150	No
Study Lounge	EW-4	2550	2995	S	100	No
Hall/Stair FF	EW-4	2550	2245	E	150	No
Hall/Stair FF	EW-4	2550	1045	N	150	No
Hall/Stair FF	EW-4	2550	6100	E	200	No
Hall/Stair FF	EW-4	2550	1050	S	150	No
Hall/Stair FF	EW-4	2550	195	E	1250	No
Bath FF	EW-4	2550	2590	W	150	No
Ens WIR Bed 1	EW-4	2550	1745	N	1950	Yes
Ens WIR Bed 1	EW-4	2550	4445	W	150	No
WIR Bed 1	EW-4	2550	2390	W	150	No
Bedroom 1	EW-4	2550	4295	N	1950	Yes
Bedroom 1	EW-4	2550	4445	E	150	No
Bedroom 2	EW-4	2550	4140	W	150	No
Bedroom 3	EW-4	2550	4140	W	150	No
Bedroom 4	EW-4	2550	4345	S	100	No
Bedroom 4	EW-4	2550	4095	W	150	No
Void FF	EW-4	2550	1290	N	150	No
Hall GF	EW-4	2900	1345	E	1450	No

Internal wall type

Wall ID	Wall type	Area [m ²]	Bulk insulation
IW-001	Tilt Concrete	0.00	Bulk Insulation, No Air Gap R2
IW-002	Cavity Brick	0.81	Foil Anti-glare one side and Reflective other of the Bulk Insulation R1.5
IW-003	Tilt Concrete	0.00	No insulation
IW-004	Cavity Brick	22.03	No insulation
IW-005	Timber Stud Frame, Direct Fix Plasterboard	204.57	No insulation
IW-006	Timber Stud Frame, Direct Fix Plasterboard	53.47	Bulk Insulation, No Air Gap R2



Floor type

Location	Construction	Area [m ²]	Sub-floor ventilation	Added insulation [R-value]	Covering
Garage	Concrete Slab on Ground 250mm	76.90	None	No Insulation	Bare
RWT Room	Concrete Slab on Ground 250mm	9.37	None	No Insulation	Bare
Lift LGF	Concrete Slab on Ground 250mm	2.26	None	Bulk Insulation in Contact with Floor R2	Bare
Entry	Concrete Slab on Ground 250mm	18.21	None	Bulk Insulation in Contact with Floor R2	Ceramic Tiles 8mm
Lift GF / Lift LGF	Concrete Timber Framed Above Plasterboard 250mm	0.56		No Insulation	Bare
Stair GF / Entry	Concrete Timber Framed Above Plasterboard 250mm	10.18		No Insulation	Cork Tiles or Parquetry 8mm
Kitch/Dine/Liv / Garage	Concrete Timber Framed Above Plasterboard 250mm	65.52		Bulk Insulation R2	Cork Tiles or Parquetry 8mm
Lift FF / Lift GF	Timber Framed Timber Above Plasterboard 19mm	0.40		Bulk Insulation R2	Bare
Void GF / Entry	Concrete Timber Framed Above Plasterboard 250mm	2.75		No Insulation	Cork Tiles or Parquetry 8mm
Pantry / Garage	Concrete Timber Framed Above Plasterboard 250mm	5.76		Bulk Insulation R2	Ceramic Tiles 8mm
Laundry / RWT Room	Concrete Timber Framed Above Plasterboard 250mm	6.85		Bulk Insulation R2	Ceramic Tiles 8mm
Rumpus	Concrete Slab on Ground 250mm	25.72	None	Bulk Insulation in Contact with Floor R1.5	Cork Tiles or Parquetry 8mm
Powder GF / Garage	Concrete Timber Framed Above Plasterboard 250mm	3.44		Bulk Insulation R2	Ceramic Tiles 8mm
Study Lounge / Rumpus	Timber Framed Timber Above Plasterboard 19mm	6.23		Bulk Insulation R2	Cork Tiles or Parquetry 8mm



Location	Construction	Area [m ²]	Sub-floor ventilation	Added insulation [R-value]	Covering
Study Lounge / Hall GF	Timber Framed Timber Above Plasterboard 19mm	2.96		Bulk Insulation R2	Cork Tiles or Parquetry 8mm
Study Lounge	Suspended Floor Timber Frame 19mm	9.55	Totally Open	Bulk Insulation in Contact with Floor R2	Cork Tiles or Parquetry 8mm
Hall/Stair FF / Stair GF	Timber Framed Timber Above Plasterboard 19mm	4.94		Bulk Insulation R2	Cork Tiles or Parquetry 8mm
Hall/Stair FF / Kitch/Dine/Liv	Timber Framed Timber Above Plasterboard 19mm	9.69		Bulk Insulation R2	Cork Tiles or Parquetry 8mm
Hall/Stair FF / Hall GF	Timber Framed Timber Above Plasterboard 19mm	0.00		Bulk Insulation R2	Cork Tiles or Parquetry 8mm
Bath FF / Kitch/Dine/Liv	Timber Framed Timber Above Plasterboard 19mm	7.24		Bulk Insulation R2	Ceramic Tiles 8mm
Bath FF / Pantry	Timber Framed Timber Above Plasterboard 19mm	2.01		Bulk Insulation R2	Ceramic Tiles 8mm
Bath FF / Powder GF	Timber Framed Timber Above Plasterboard 19mm	0.25		Bulk Insulation R2	Ceramic Tiles 8mm
Ens WIR Bed 1 / Kitch/Dine/Liv	Timber Framed Timber Above Plasterboard 19mm	4.36		Bulk Insulation R2	Ceramic Tiles 8mm
Ens WIR Bed 1	Suspended Floor Timber Frame 19mm	3.05	Totally Open	Bulk Insulation in Contact with Floor R2	Ceramic Tiles 8mm
WIR Bed 1 / Kitch/Dine/Liv	Timber Framed Timber Above Plasterboard 19mm	10.11		Bulk Insulation R2	Carpet+Rubber Underlay 18mm
Bedroom 1 / Kitch/Dine/Liv	Timber Framed Timber Above Plasterboard 19mm	10.91		Bulk Insulation R2	Carpet+Rubber Underlay 18mm
Bedroom 1	Suspended Floor Timber Frame 19mm	7.70	Totally Open	Bulk Insulation in Contact with Floor R2	Carpet+Rubber Underlay 18mm
Bedroom 2 / Kitch/Dine/Liv	Timber Framed Timber Above Plasterboard 19mm	18.02		Bulk Insulation R2	Carpet+Rubber Underlay 18mm



Location	Construction	Area [m ²]	Sub-floor ventilation	Added insulation [R-value]	Covering
Bedroom 3 / Pantry	Timber Framed Timber Above Plasterboard 19mm	2.93		Bulk Insulation R2	Carpet+Rubber Underlay 18mm
Bedroom 3 / Laundry	Timber Framed Timber Above Plasterboard 19mm	6.54		Bulk Insulation R2	Carpet+Rubber Underlay 18mm
Bedroom 3 / Rumpus	Timber Framed Timber Above Plasterboard 19mm	4.70		Bulk Insulation R2	Carpet+Rubber Underlay 18mm
Bedroom 3 / Powder GF	Timber Framed Timber Above Plasterboard 19mm	2.20		Bulk Insulation R2	Carpet+Rubber Underlay 18mm
Bedroom 4 / Rumpus	Timber Framed Timber Above Plasterboard 19mm	13.55		Bulk Insulation R2	Carpet+Rubber Underlay 18mm
Bedroom 4	Suspended Floor Timber Frame 19mm	4.13	Totally Open	Bulk Insulation in Contact with Floor R2	Carpet+Rubber Underlay 18mm
Void FF / Void GF	Timber Framed Timber Above Plasterboard 19mm	5.67		Bulk Insulation R2	Cork Tiles or Parquetry 8mm
Hall GF / Garage	Concrete Timber Framed Above Plasterboard 250mm	2.61		Bulk Insulation R2	Cork Tiles or Parquetry 8mm
Hall GF / RWT Room	Concrete Timber Framed Above Plasterboard 250mm	1.63		Bulk Insulation R2	Cork Tiles or Parquetry 8mm

Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap* [yes/no]
Garage	Concrete, Plasterboard with Timber Frame	Bulk Insulation R2.5	
Garage	Concrete Timber Framed Above Plasterboard	Bulk Insulation R2	
RWT Room	Concrete, Plasterboard with Timber Frame	Bulk Insulation R2.5	
RWT Room	Concrete Timber Framed Above Plasterboard	Bulk Insulation R2	
Lift LGF	Concrete, Plasterboard with Timber Frame	Bulk Insulation R2.5	
Lift LGF	Concrete Timber Framed Above Plasterboard	No Insulation	
Entry	Concrete, Plasterboard with Timber Frame	Bulk Insulation R2.5	
Entry	Concrete Timber Framed Above Plasterboard	No Insulation	
Lift GF	Plasterboard on Timber	Bulk Insulation R3.5	



Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap* [yes/no]
Lift GF	Timber Framed Timber Above Plasterboard	Bulk Insulation R2	
Stair GF	Plasterboard on Timber	Bulk Insulation R3.5	
Stair GF	Timber Framed Timber Above Plasterboard	Bulk Insulation R2	
Kitch/Dine/Liv	Plasterboard on Timber	Bulk Insulation R3.5	
Kitch/Dine/Liv	Timber Framed Timber Above Plasterboard	Bulk Insulation R2	
Lift FF	Plasterboard on Timber	Bulk Insulation R3.5	
Void GF	Plasterboard on Timber	Bulk Insulation R3.5	
Void GF	Timber Framed Timber Above Plasterboard	Bulk Insulation R2	
Pantry	Plasterboard on Timber	Bulk Insulation R3.5	
Pantry	Timber Framed Timber Above Plasterboard	Bulk Insulation R2	
Laundry	Plasterboard on Timber	Bulk Insulation R3.5	
Laundry	Timber Framed Timber Above Plasterboard	Bulk Insulation R2	
Rumpus	Plasterboard on Timber	Bulk Insulation R3.5	
Rumpus	Timber Framed Timber Above Plasterboard	Bulk Insulation R2	
Powder GF	Plasterboard on Timber	Bulk Insulation R3.5	
Powder GF	Timber Framed Timber Above Plasterboard	Bulk Insulation R2	
Study Lounge	Plasterboard on Timber	Bulk Insulation R3.5	
Hall/Stair FF	Plasterboard on Timber	Bulk Insulation R3.5	
Bath FF	Plasterboard on Timber	Bulk Insulation R3.5	
Ens WIR Bed 1	Plasterboard on Timber	Bulk Insulation R3.5	
WIR Bed 1	Plasterboard on Timber	Bulk Insulation R3.5	
Bedroom 1	Plasterboard on Timber	Bulk Insulation R3.5	
Bedroom 2	Plasterboard on Timber	Bulk Insulation R3.5	
Bedroom 3	Plasterboard on Timber	Bulk Insulation R3.5	
Bedroom 4	Plasterboard on Timber	Bulk Insulation R3.5	
Void FF	Plasterboard on Timber	Bulk Insulation R3.5	
Hall GF	Plasterboard on Timber	Bulk Insulation R3.5	
Hall GF	Timber Framed Timber Above Plasterboard	Bulk Insulation R2	

Ceiling penetrations*

Location	Quantity	Type	Diameter [mm]	Sealed/unsealed
Entry	4	Downlights - LED	150	Sealed



Location	Quantity	Type	Diameter [mm]	Sealed/unsealed
Stair GF	3	Downlights - LED	150	Sealed
Kitch/Dine/Liv	13	Downlights - LED	150	Sealed
Kitch/Dine/Liv	1	Exhaust Fans	300	Sealed
Pantry	2	Downlights - LED	150	Sealed
Laundry	2	Downlights - LED	150	Sealed
Laundry	1	Exhaust Fans	300	Sealed
Rumpus	6	Downlights - LED	150	Sealed
Powder GF	1	Downlights - Halogen	450	Sealed
Powder GF	1	Exhaust Fans	300	Sealed
Study Lounge	5	Downlights - LED	150	Sealed
Hall/Stair FF	5	Downlights - LED	150	Sealed
Hall/Stair FF	1	Chimneys	0	Sealed
Bath FF	2	Downlights - LED	150	Sealed
Bath FF	1	Exhaust Fans	300	Sealed
Ens WIR Bed 1	2	Downlights - LED	150	Sealed
Ens WIR Bed 1	1	Exhaust Fans	300	Sealed
WIR Bed 1	2	Downlights - LED	150	Sealed
Bedroom 1	4	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
Hall GF	1	Downlights - LED	150	Sealed

Ceiling fans

Location	Quantity	Diameter [mm]
Kitch/Dine/Liv	1	1400
Rumpus	1	1400
Study Lounge	1	1200
Bedroom 1	1	1200
Bedroom 2	1	1200
Bedroom 3	1	1200
Bedroom 4	1	1200



Roof type

Construction	Added insulation [R-value]	Solar absorptance	Roof shade [colour]
Waterproofing Membrane	No Added Insulation, No air Gap	0.50	Medium
Corrugated Iron Timber Frame	Bulk, Reflective Side Down, Air Gap Above R1.3	0.50	Medium

Thermal bridging schedule for steel frame elements

Building element	Steel section dimensions [height x width, mm]	Frame spacing [mm]	Steel thickness [BMT,mm]	Thermal break [R-value]
No Data Available				

Appliance schedule

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

Note: A flat assumption of 5W/m² is used for lighting, therefore lighting is not included in the appliance schedule.

Cooling system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Data Available				

Heating system

Appliance/ system type	Location	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Data Available				

Hot water system

Appliance/ system type	Fuel type	Hot Water CER Zone	Minimum efficiency /STC	Zone 3 STC	Zone 3 Substitution tolerance ranges		Assessed daily load [litres]
					lower limit	upper limit	
No Data Available							

Pool/spa equipment

Appliance/ system type	Fuel type	Minimum efficiency/ performance	Recommended capacity
No Data Available			



Onsite Renewable Energy Schedule

System Type	Orientation	System Size Or Generation Capacity
No Data Available		

Battery Schedule

System Type	Size [Battery Storage Capacity]
No Data Available	



Explanatory notes

About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the home's energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary.

Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and

are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings 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, behaviour, appliance performance, indoor air temperature and local climate.

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

Glossary

AFRC	Australian Fenestration Rating Council
Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
Assessed floor area	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.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, 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.
COP	Coefficient of performance
Conditioned	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.
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
EER	Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input
Energy use	This is your home's rating without solar or batteries.
Energy value	The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard).
Entrance door	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.
Exposure	see exposure categories below.
Exposure category – exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category – open	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).
Exposure category – protected	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category – suburban	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	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 www.abcb.gov.au .
Net zero home	a home that achieves a net zero energy value*.
Opening percentage	the operability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	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 www.nathers.gov.au
Recommended capacity	this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person.
Reflective wrap (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.
Roof window	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.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Skylight (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.
Solar heat gain coefficient (SHGC)	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.
STCs	Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulator (CER)
Thermal breaks	are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick or continuous thermal breaks such as polystyrene insulation sheathing or plastic strips
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
Vertical shading features	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).
Window shading device	device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies)

* Refer to glossary.

BASIX[®]Certificate

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

Single Dwelling

Certificate number: 1769258S_03

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

Secretary

Date of issue: Tuesday, 29 October 2024

To be valid, this certificate must be submitted with a development application or lodged with a complying development certificate application within 3 months of the date of issue.



Project summary

Project name	Lot 2, 90 Brighton Street, Freshwater_03
Street address	90 BRIGHTON Street FRESHWATER 2096
Local Government Area	Northern Beaches Council
Plan type and plan number	Deposited Plan DP14450
Lot no.	11
Section no.	-
Project type	dwelling house (detached)
No. of bedrooms	4

Project score

Water	✓ 40	Target 40
Thermal Performance	✓ Pass	Target Pass
Energy	✓ 77	Target 72
Materials	✓ -58	Target n/a

Certificate Prepared by

Name / Company Name: Green Future Group Pty Ltd

ABN (if applicable): 55656040078

Description of project

Project address	
Project name	Lot 2, 90 Brighton Street, Freshwater_03
Street address	90 BRIGHTON Street FRESHWATER 2096
Local Government Area	Northern Beaches Council
Plan type and plan number	Deposited Plan DP14450
Lot no.	11
Section no.	-
Project type	
Project type	dwelling house (detached)
No. of bedrooms	4
Site details	
Site area (m²)	436
Roof area (m²)	195
Conditioned floor area (m²)	269.0
Unconditioned floor area (m²)	33.0
Total area of garden and lawn (m²)	171
Roof area of the existing dwelling (m²)	0

Assessor details and thermal loads		
Assessor number	HERA10134	
Certificate number	0009822743-01	
Climate zone	56	
Area adjusted cooling load (MJ/ m².year)	8	
Area adjusted heating load (MJ/ m².year)	22	
Project score		
Water	40	Target 40
Thermal Performance	Pass	Target Pass
Energy	77	Target 72
Materials	-58	Target n/a

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 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 3000 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 150 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.)		✓ ✓	✓ ✓
Swimming Pool			
The swimming pool must not have a volume greater than 25 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 Performance and Materials commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Simulation Method			
Assessor details and thermal loads			
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 and the "Construction" and "Glazing" tables below.			
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 show on the plans accompanying the development application for the proposed development, the locations of ceiling fans set out in the Assessor Certificate. The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), the locations of ceiling fans set out in the Assessor Certificate.	✓	✓	✓

Thermal Performance and Materials commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Construction			
The applicant must construct the floors, walls, roofs, ceilings and glazing of the dwelling in accordance with the specifications listed in the tables below.	✓	✓	✓
The applicant must show through receipts that the materials purchased for construction are consistent with the specifications listed in the tables below.			✓

Construction	Area - m ²	Insulation
floor - concrete slab on ground, conventional slab.	58	polystyrene
floor - suspended floor above open subfloor, plywood; frame: timber - H2 treated softwood.	14	rockwool batts, roll or pump-in
floor - above habitable rooms or mezzanine, concrete - suspended; frame: no frame..	153	rockwool batts, roll or pump-in
floor - suspended floor above garage, concrete - suspended; frame: no frame.	77	rockwool batts, roll or pump-in
garage floor - concrete slab on ground.	77	none
external wall: cavity brick; frame: no frame.	75	polystyrene+ foil/sarking
external wall: framed (fibre cement sheet or boards); frame: timber - H2 treated softwood.	148	rockwool batts, roll or pump-in
internal wall: plasterboard; frame: timber - H2 treated softwood.	199	rockwool batts, roll or pump-in
ceiling and roof - flat ceiling / flat roof, framed - metal roof, timber - H2 treated softwood.	195	ceiling: rockwool batts, roll or pump-in; roof: foil backed blanket.

Thermal Performance and Materials commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Glazing			
The applicant must install windows, glazed doors and skylights as described in the table below, in accordance with the specifications listed in the table.	✓	✓	✓

Frames	Maximum area - m2
aluminium	110
timber	0
uPVC	0
steel	0
composite	0

Glazing	Maximum area - m2
single	0
double	110
triple	0

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 31 to 35 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: 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		✓	✓
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: please select		✓	✓
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 a minimum of 80% of light fixtures are fitted with fluorescent, compact fluorescent, or light-emitting-diode (LED) lamps.		✓	✓
Natural lighting			
The applicant must install a window and/or skylight in 3 bathroom(s)/toilet(s) in the development for natural lighting.	✓	✓	✓

Energy Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
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): electric heat pump		✓	
The applicant must install the following pump for the swimming pool in the development, or a pump with a higher energy rating: multi-speed with a performance of 5 stars.		✓	
The applicant must install a timer for the swimming pool pump in the development.		✓	
Alternative energy			
The applicant must install a photovoltaic system as part of the development. The applicant must connect this system to the development's electrical system.	✓	✓	✓
The photovoltaic system must consist of: • photovoltaic collectors with the capacity to generate at least 2 peak kilowatts of electricity, installed at an angle between 0 degrees and 10 degrees to the horizontal facing south	✓	✓	✓
Other			
The applicant must install an induction 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.