



Allen De Carteret Architect Proposed Residential Development

To be built at 266 Whale Beach Road, Whale Beach, NSW 2107

Issue	File Ref	Description	Author	Date
A	20-0924	NatHERS Thermal Comfort and BASIX Assessment	JJ	14/01/2021
A	21-1545	NatHERS Thermal Comfort and BASIX Assessment	JJ	08/03/2021

This report has been prepared by Efficient Living Pty Ltd on behalf of our client Allen De Carteret Architect. Efficient Living prepares all reports in accordance with the BASIX Thermal Comfort Protocol and is backed by professional indemnity insurance. This report takes into account our Client's instructions and preferred building inclusions.

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



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License Holder: Tracey Cools
Accreditation Number: HERA10033

BASIX Details:

NatHERS Certificate Number: 0005587639-04

BASIX adjusted conditioned area: 258 m²

BASIX adjusted un-conditioned area: 118 m²

Area adjusted heating load: 41.6 MJ/ m²/pa

Area adjusted cooling load: 18.0 MJ/ m²/pa

Specification

Heating and cooling loads for the development have been determined using BERS Pro Plus 4.4 thermal comfort simulation software, and assessed under the thermal simulation method of the BASIX Protocol.

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

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

Floors

Concrete slab on ground, no insulation required

Concrete slab on ground with R1.50 insulation (insulation only value) to ground floor entry area

Suspended concrete with R1.50 insulation (insulation only value) to open suspended areas

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

External Walls

Lightweight cladding on framed walls with R2.50 insulation (insulation only value)

Cavity wall (90mm external/50mm air gap/190mm core-filled) with Kingspan K8 Cavity Board to all other walls or total wall system to achieve a minimum R value of Rt2.10.

Note: No insulation is required to external Garage walls

External Colour:

Light (SA < 0.75)

Walls within dwellings

Single skin brick with R2.0 insulation only required to walls between garage and habitable areas

Concrete block wall (90mm external concrete block/50mm air gap/190mm core-filled) with Kingspan K8 Cavity Board insulation to walls between garage and basement lift, or the minimum Total system R value of Rt2.10.

Glazing Doors/Windows:

Louvered windows or louvered windows combined with fixed glazing and sliding windows:

U-value: 4.80 (equal to or lower than) SHGC: 0.59 (±10%)

All other windows/glazed doors:

U-value: 3.40 (equal to or lower than) SHGC: 0.53 ($\pm 10\%$)

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

Skylights

Double glazed clear

Roof and Ceilings

Plywood roofing with membrane, no insulation required

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

Plasterboard ceiling with R2.5 insulation to garage ceiling where habitable rooms above.

External Colour

Dark ($SA > 0.7$)

Ceiling Penetrations

Sealed LED downlights not to exceed NatHERS certificate

Floor coverings

Tiles to entry, hall and wet areas, timber to gallery/loft and polished concrete elsewhere

External Shading

Shading as per stamped drawings

Ventilation

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

Nationwide House Energy Rating Scheme

NatHERS Certificate No. 0005587639-04

Generated on 08 Mar 2021 using BERS Pro v4.4.0.2 (3.21)

Property

Address Whale Beach Road , Whale Beach , NSW
2107
Lot/DP 221/15376
NCC Class* 1A
Type New Dwelling

Plans

Main Plan 20-0924
Prepared by Allen De Carteret Architect

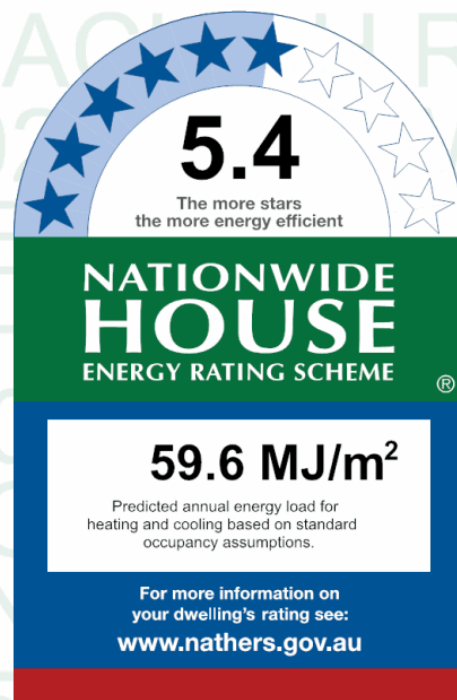
Construction and environment

Assessed floor area (m²)*	Exposure Type
Conditioned* 258.0	Exposed
Unconditioned* 162.0	NatHERS climate zone
Total 420.0	56
Garage 44.0	



Accredited assessor

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Accreditation No. HERA10033
Assessor Accrediting Organisation
HERA
Declaration of interest Declaration completed: no conflicts



Thermal performance

Heating	Cooling
41.6	18.0
MJ/m²	MJ/m²

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=LzilgiskB. When using either link, ensure you are visiting hstar.com.au



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.

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

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-004-01 A	ALM-004-01 A Aluminium B DG Air Fill Clear-Clear	4.8	0.59	0.59	0.59
CMP-004-03 I	CMP-004-03 I Composite B DG Air Fill High Solar Gain low-E -Clear	3.4	0.53	0.53	0.53

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*
Entry	ALM-004-01 A	n/a	2850	590	n/a	90	S	No

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
BEDROOM 3	CMP-004-03 I	n/a	3000	1994	n/a	45	S	No
BEDROOM 3	ALM-004-01 A	n/a	2550	400	n/a	90	S	No
BEDROOM 3	CMP-004-03 I	n/a	2584	687	n/a	22	W	No
WC/SHWR	ALM-004-01 A	n/a	2950	600	n/a	20	N	No
BEDROOM 2	CMP-004-03 I	n/a	3000	3380	n/a	45	S	No
Corridor	CMP-004-03 I	n/a	1150	600	n/a	90	N	No
Corridor	CMP-004-03 I	n/a	1088	1226	n/a	90	N	No
Corridor	CMP-004-03 I	n/a	700	400	n/a	90	N	No
Corridor	CMP-004-03 I	n/a	2950	400	n/a	45	W	No
Corridor	CMP-004-03 I	n/a	507	1660	n/a	90	W	No
Corridor	CMP-004-03 I	n/a	507	505	n/a	90	W	No
Laundry	CMP-004-03 I	n/a	3000	1100	n/a	90	N	No
BEDROOM 1	ALM-004-01 A	n/a	2480	900	n/a	25	NE	No
BEDROOM 1	CMP-004-03 I	n/a	2439	687	n/a	22	E	No
BEDROOM 1	CMP-004-03 I	n/a	2584	687	n/a	22	E	No
BEDROOM 1	CMP-004-03 I	n/a	3000	2843	n/a	45	S	No
BEDROOM 1	ALM-004-01 A	n/a	2550	400	n/a	90	S	No
Ensuit	CMP-004-03 I	n/a	583	1643	n/a	35	E	No
Ensuit	CMP-004-03 I	n/a	582	687	n/a	90	E	No
Kitchen/Living	CMP-004-03 I	n/a	600	390	n/a	00	W	No
Kitchen/Living	CMP-004-03 I	n/a	600	1100	n/a	00	W	No
Kitchen/Living	CMP-004-03 I	n/a	600	649	n/a	00	N	No
Kitchen/Living	CMP-004-03 I	n/a	1480	400	n/a	00	N	No
Kitchen/Living	CMP-004-03 I	n/a	2750	4974	n/a	60	N	No
Kitchen/Living	ALM-004-01 A	n/a	1508	939	n/a	90	N	No
Kitchen/Living	CMP-004-03 I	n/a	560	768	n/a	00	E	No
Kitchen/Living	CMP-004-03 I	n/a	560	1703	n/a	45	E	No
Kitchen/Living	CMP-004-03 I	n/a	560	2386	n/a	45	E	No
Kitchen/Living	ALM-004-01 A	n/a	560	630	n/a	90	E	No
Kitchen/Living	ALM-004-01 A	n/a	560	630	n/a	90	E	No
Kitchen/Living	ALM-004-01 A	n/a	560	1453	n/a	45	E	No
Kitchen/Living	CMP-004-03 I	n/a	2700	8726	n/a	75	S	No
Kitchen/Living	CMP-004-03 I	n/a	560	1033	n/a	00	S	No
Kitchen/Living	ALM-004-01 A	n/a	1650	400	n/a	90	S	No
wc/shwr	ALM-004-01 A	n/a	2400	600	n/a	30	N	No
Clearstory	CMP-004-03 I	n/a	500	2500	n/a	00	W	No
Clearstory	CMP-004-03 I	n/a	600	832	n/a	00	W	No
Clearstory	CMP-004-03 I	n/a	600	832	n/a	00	N	No
Clearstory	CMP-004-03 I	n/a	613	610	n/a	90	N	No

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Clearstory	CMP-004-03 I	n/a	470	1922	n/a	00	E	No
Clearstory	CMP-004-03 I	n/a	547	2837	n/a	00	E	No
Clearstory	CMP-004-03 I	n/a	1048	2938	n/a	00	E	No
Clearstory	CMP-004-03 I	n/a	490	8656	n/a	00	S	No
Mezzanine	CMP-004-03 I	n/a	1700	750	n/a	00	W	No
Mezzanine	ALM-004-01 A	n/a	1700	750	n/a	90	N	No
Mezzanine	CMP-004-03 I	n/a	1670	2163	n/a	00	N	No
Mezzanine	CMP-004-03 I	n/a	2400	800	n/a	90	E	No
Mezzanine	CMP-004-03 I	n/a	2400	465	n/a	00	E	No
Mezzanine	CMP-004-03 I	n/a	2262	803	n/a	00	S	No

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
DG-Generic-02 A	Glass	4.2	0.72	0.72	0.72

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
Clearstory	DG-Generic-02 A	n/a	0	470	2900	W	No	No

Skylight type and performance

Skylight ID	Skylight description
GEN-04-008a	Double-glazed clear, Timber and Aluminium Frame

Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m ²)	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
Clearstory	GEN-04-008a	n/a	50	0.60	NW	None	No	0.50
Clearstory	GEN-04-008a	n/a	50	0.30	NW	None	No	0.50

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
Rainwater Tank	470	1712	90	W
Entry	2850	1442	90	S
Garage	2850	5170	90	S
Bin Storage	200	2565	90	E
Bin Storage	2750	1247	90	S
Aircon	880	1500	90	W

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-1	Cavity Brick	0.30	Light	No insulation	No
EW-2	Cavity Brick	0.30	Light	Foil Anti-glare one side and Reflective other of the Bulk Insulation R1.1	Yes
EW-3	Cavity Brick	0.30	Light	Foil Anti-glare one side and Reflective other of the Bulk Insulation R1.1	Yes
EW-4	Weatherboard Cavity Panel Direct Fix	0.30	Light	Bulk Insulation R2.5	No
EW-5	Weatherboard Cavity Panel Direct Fix	0.30	Light	No insulation	No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Rainwater Tank	EW-1	3300	7350	W	0	NO
Rainwater Tank	EW-1	3300	1395	N	0	YES
Rainwater Tank	EW-1	3300	2789	E	3124	YES
Rainwater Tank	EW-1	3300	618	W	0	NO
Entry	EW-2	3300	4552	W	0	YES
Entry	EW-2	3300	2850	N	0	NO
Entry	EW-2	3300	3050	E	5250	YES
Entry	EW-2	3300	2240	S	1950	YES
Garage	EW-1	3300	1950	W	3000	YES
Garage	EW-1	3300	3790	N	3050	YES
Garage	EW-1	3300	5795	S	0	NO
Bin Storage	EW-1	3300	145	N	2125	NO
Bin Storage	EW-1	3300	2057	NE	1890	NO
Bin Storage	EW-1	3300	4350	E	0	NO
Bin Storage	EW-1	3300	3250	E	0	NO
Bin Storage	EW-1	3300	1995	S	0	NO
BEDROOM 3	EW-3	3300	3345	S	1000	NO

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
BEDROOM 3	EW-3	3300	3895	W	0	NO
WC/SHWR	EW-3	3300	3095	W	0	NO
WC/SHWR	EW-3	3300	1395	N	0	YES
BEDROOM 2	EW-3	3300	3440	S	1225	NO
Corridor	EW-3	3300	2795	N	0	NO
Corridor	EW-3	3300	4442	W	0	YES
Laundry	EW-3	3300	1890	N	0	NO
BEDROOM 1	EW-3	3300	4307	NE	5189	NO
BEDROOM 1	EW-3	3300	1845	E	0	NO
BEDROOM 1	EW-3	3300	3745	E	0	NO
BEDROOM 1	EW-3	3300	3895	S	1475	NO
Ensuit	EW-3	3300	3890	E	0	NO
Kitchen/Living	EW-3	2800	5295	W	0	NO
Kitchen/Living	EW-3	2800	4442	W	0	YES
Kitchen/Living	EW-3	2800	2950	N	0	NO
Kitchen/Living	EW-3	2801	5850	N	5725	NO
Kitchen/Living	EW-3	2800	11550	E	0	NO
Kitchen/Living	EW-3	2800	10900	S	2825	NO
wc/shwr	EW-3	2800	1695	W	0	NO
wc/shwr	EW-3	2800	1450	N	0	YES
Clearstory	EW-4	700	5255	W	450	NO
Clearstory	EW-4	2200	4402	W	432	YES
Clearstory	EW-4	2700	2995	N	350	YES
Clearstory	EW-4	1800	6445	E	300	YES
Clearstory	EW-4	1100	4200	E	300	NO
Clearstory	EW-4	500	8800	S	2650	NO
Aircon	EW-5	1460	1586	W	456	YES
Mezzanine	EW-4	3400	6062	W	304	YES
Mezzanine	EW-4	3200	3840	N	354	NO
Mezzanine	EW-4	3000	6248	E	255	NO
Mezzanine	EW-4	2600	966	S	358	YES

Internal wall type

Wall ID	Wall type	Area (m ²)	Bulk insulation
IW-1 - Single Skin Brick		47.00	Bulk Insulation, No Air Gap R2
IW-2 - Tilt Concrete		64.00	No insulation
IW-3 - Cavity Brick		11.00	Foil reflective both sides of the Bulk Insulation R1.1
IW-4 - Single Skin Brick		182.00	No insulation

Wall ID Wall type Area (m) Bulk insulation

W-5 - Cavity wall, direct fix plasterboard, single gap 14.00 No insulation

Floor type

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Rainwater Tank	Concrete Slab on Ground 100mm	6.20	None	Bulk Insulation in Contact with Floor R1.5	Bare
Entry	Concrete Slab on Ground 100mm	23.30	None	Bulk Insulation in Contact with Floor R1.5	Ceramic Tiles 8mm
Lift	Concrete Slab on Ground 100mm	2.10	None	Bulk Insulation in Contact with Floor R1.5	Bare
Garage	Concrete Slab on Ground 100mm	43.50	None	Bulk Insulation in Contact with Floor R1.5	Bare
Bin Storage	Concrete Slab on Ground 100mm	16.10	None	Bulk Insulation in Contact with Floor R1.5	Bare
Lift/Lift	Concrete Above Plasterboard 100mm	2.00		No Insulation	Bare
BEDROOM 3/Rainwater Tank	Concrete Above Plasterboard 150mm	2.50		No Insulation	Carpet 10mm
BEDROOM 3/Entry	Concrete Above Plasterboard 150mm	8.80		No Insulation	Carpet 10mm
BEDROOM 3/Garage	Concrete Above Plasterboard 150mm	2.00		Bulk Insulation R2.5	Carpet 10mm
BEDROOM 3	Suspended Concrete Slab 150mm	4.70	Totally Open	Bulk Insulation in Contact with Floor R1.5	Cork Tiles or Parquetry 8mm
WC/SHWR/Rainwater Tank	Concrete Above Plasterboard 100mm	3.70		No Insulation	Ceramic Tiles 8mm
WC/SHWR/Entry	Concrete Above Plasterboard 100mm	0.70		No Insulation	Ceramic Tiles 8mm
BEDROOM 2/Garage	Concrete Above Plasterboard 100mm	17.20		Bulk Insulation R2.5	Cork Tiles or Parquetry 8mm
wc/shwr/Garage	Concrete Above Plasterboard 100mm	3.10		Bulk Insulation R2.5	Ceramic Tiles 8mm
Corridor/Entry	Concrete Above Plasterboard 100mm	13.30		No Insulation	Ceramic Tiles 8mm
Corridor/Garage	Concrete Above Plasterboard 100mm	4.20		Bulk Insulation R2.5	Ceramic Tiles 8mm
Laundry	Concrete Slab on Ground 100mm	5.70	None	No Insulation	Ceramic Tiles 8mm
BEDROOM 1/Garage	Concrete Above Plasterboard 100mm	12.40		Bulk Insulation R2.5	Carpet 10mm
BEDROOM 1/Bin Storage	Concrete Above Plasterboard 100mm	8.20		No Insulation	Carpet 10mm
BEDROOM 1	Concrete Slab on Ground 100mm	8.80	None	No Insulation	Cork Tiles or Parquetry 8mm
Ensuit/Garage	Concrete Above Plasterboard 100mm	3.10		Bulk Insulation R2.5	Ceramic Tiles 8mm
Ensuit/Bin Storage	Concrete Above Plasterboard 100mm	7.80		No Insulation	Ceramic Tiles 8mm
Kitchen/Living/BEDROOM 3	Concrete Above Plasterboard 150mm	16.10		No Insulation	Carpet 10mm
Kitchen/Living/WC/SHWR	Concrete Above Plasterboard 150mm	2.00		No Insulation	Carpet 10mm
Kitchen/Living/BEDROOM 2	Concrete Above Plasterboard 150mm	18.10		No Insulation	Carpet 10mm
Kitchen/Living/wc/shwr	Concrete Above Plasterboard 150mm	3.50		No Insulation	Carpet 10mm

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living/Corridor	Concrete Above Plasterboard 150mm	18.30		No Insulation	Carpet 10mm
Kitchen/Living/Laundry	Concrete Above Plasterboard 150mm	6.10		No Insulation	Carpet 10mm
Kitchen/Living/BEDROOM 1	Concrete Above Plasterboard 150mm	30.50		No Insulation	Carpet 10mm
Kitchen/Living/Ensuit	Concrete Above Plasterboard 150mm	11.30		No Insulation	Carpet 10mm
Kitchen/Living	Suspended Concrete Slab 150mm	3.60	Totally Open	Bulk Insulation in Contact with Floor R1.5	Bare
Lift/Lift	Concrete Above Plasterboard 100mm	2.00		No Insulation	Bare
wc/shwr/BEDROOM 3	Concrete Above Plasterboard 100mm	2.50		No Insulation	Ceramic Tiles 8mm
wc/shwr/WC/SHWR	Concrete Above Plasterboard 100mm	2.30		No Insulation	Ceramic Tiles 8mm
Clearstory/Kitchen/Living	Concrete Above Plasterboard 150mm	87.60		No Insulation	Bare
Aircon/wc/shwr	Concrete Above Plasterboard 100mm	2.50		No Insulation	Bare
Mezzanine/Kitchen/Living	Concrete Above Plasterboard 150mm	5.00		No Insulation	Cork Tiles or Parquetry 8mm
Mezzanine	Suspended Concrete Slab 150mm	26.90	Totally Open	Bulk Insulation in Contact with Floor R1.5	Cork Tiles or Parquetry 8mm
Lift Overrun/Lift	Concrete Above Plasterboard 100mm	2.00		No Insulation	Bare

Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Rainwater Tank	Concrete Above Plasterboard	No Insulation	No
Entry	Concrete Above Plasterboard	No Insulation	No
Lift	Concrete Above Plasterboard	No Insulation	No
Garage	Concrete Above Plasterboard	Bulk Insulation R2.5	No
Bin Storage	Concrete Above Plasterboard	No Insulation	No
Lift	Concrete Above Plasterboard	No Insulation	No
BEDROOM 3	Concrete Above Plasterboard	No Insulation	No
WC/SHWR	Concrete Above Plasterboard	No Insulation	No
BEDROOM 2	Concrete Above Plasterboard	No Insulation	No
wc/shwr	Concrete Above Plasterboard	No Insulation	No
Corridor	Concrete Above Plasterboard	No Insulation	No
Laundry	Concrete Above Plasterboard	No Insulation	No
BEDROOM 1	Concrete Above Plasterboard	No Insulation	No
Ensuit	Concrete Above Plasterboard	No Insulation	No
Kitchen/Living	Timber	Bulk Insulation R4	No
Kitchen/Living	Concrete Above Plasterboard	No Insulation	No
Lift	Concrete Above Plasterboard	No Insulation	No
wc/shwr	Timber	Bulk Insulation R4	No

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
wc/shwr	Concrete Above Plasterboard	No Insulation	No
Clearstory	Timber	Bulk Insulation R4	No
Aircon	Timber	No insulation	No
Mezzanine	Timber	Bulk Insulation R4	No
Lift Overrun	Plasterboard	No insulation	No

Ceiling penetrations*

Location	Quantity	Type	Diameter (mm ²)	Sealed/unsealed
Entry	9	Downlights - LED	150	Sealed
BEDROOM 3	4	Downlights - LED	150	Sealed
WC/SHWR	2	Downlights - LED	150	Sealed
WC/SHWR	1	Exhaust Fans	300	Sealed
BEDROOM 2	4	Downlights - LED	150	Sealed
wc/shwr	2	Downlights - LED	150	Sealed
wc/shwr	1	Exhaust Fans	300	Sealed
Corridor	7	Downlights - LED	150	Sealed
Laundry	2	Downlights - LED	150	Sealed
Laundry	1	Exhaust Fans	300	Sealed
BEDROOM 1	8	Downlights - LED	150	Sealed
Ensuit	4	Downlights - LED	150	Sealed
Ensuit	1	Exhaust Fans	300	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
wc/shwr	2	Downlights - LED	150	Sealed
wc/shwr	1	Exhaust Fans	300	Sealed
Clearstory	35	Downlights - LED	150	Sealed
Mezzanine	10	Downlights - LED	150	Sealed

Ceiling fans

Location	Quantity	Diameter (mm)
No Data Available		

Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Waterproofing Membrane	No Added Insulation, No air Gap	0.85	Dark
Corrugated Iron	No Insulation, Only an Air Gap	0.50	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

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, 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.
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.
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 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 – suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category – protected	terrain with numerous, closely spaced obstructions over 10m 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 .
Opening percentage	the openability 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
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 device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
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.
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.
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).

BASIX[®]Certificate

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

Single Dwelling

Certificate number: 1168288S_04

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: Monday, 08 March 2021

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



Planning,
Industry &
Environment

Project summary

Project name	266 Whale Beach Road_04
Street address	266 Whale Beach Road Whale Beach 2107
Local Government Area	Northern Beaches Council
Plan type and plan number	deposited 15376
Lot no.	221
Section no.	-
Project type	separate dwelling house
No. of bedrooms	3

Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 51	Target 50

Certificate Prepared by

Name / Company Name: Efficient Living Pty Ltd

ABN (if applicable): 82116346082

Description of project

Project address

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Site details

Site area (m ²)	824
Roof area (m ²)	196
Conditioned floor area (m2)	258.0
Unconditioned floor area (m2)	118.0
Total area of garden and lawn (m2)	496

Assessor details and thermal loads

Assessor number	HERA10033
Certificate number	0005587639-04
Climate zone	56
Area adjusted cooling load (MJ/m ² .year)	18
Area adjusted heating load (MJ/m ² .year)	42
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	 51	Target 50

Schedule of BASIX commitments

The commitments set out below regulate how the proposed development is to be carried out. It is a condition of any development consent granted, or complying development certificate issued, for the proposed development, that BASIX commitments be complied with.

Water Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Fixtures			
The applicant must install showerheads with a minimum rating of 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 3200 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 185.88 square metres of the roof area of the development (excluding the area of the roof which drains to any stormwater tank or private dam).		✓	✓
The applicant must connect the rainwater tank to: <ul style="list-style-type: none"> all toilets in the development the cold water tap that supplies each clothes washer in the development at least one outdoor tap in the development (Note: NSW Health does not recommend that rainwater be used for human consumption in areas with potable water supply.) 		✓ ✓ ✓	✓ ✓ ✓

Thermal Comfort Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Simulation Method			
The applicant must attach the certificate referred to under "Assessor Details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for an occupation certificate for the proposed development.			
The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX certificate, including the Cooling and Heating loads shown on the front page of this certificate.			
The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Assessor Certificate requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor to certify that this is the case. The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.	✓	✓	✓
The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✓	✓
The applicant must construct the floors and walls of the dwelling in accordance with the specifications listed in the table below.	✓	✓	✓

Floor and wall construction	Area
floor - concrete slab on ground	110.0 square metres
floor - suspended floor/open subfloor	36.0 square metres
floor - suspended floor above garage	All or part of floor area

Energy Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Hot water			
The applicant must install the following hot water system in the development, or a system with a higher energy rating: gas storage.	✓	✓	✓
Cooling system			
The applicant must install the following cooling system, or a system with a higher energy rating, in at least 1 living area: ceiling fans + 3-phase airconditioning; Energy rating: EER 3.0 - 3.5		✓	✓
The applicant must install the following cooling system, or a system with a higher energy rating, in at least 1 bedroom: ceiling fans + 3-phase airconditioning; Energy rating: EER 3.0 - 3.5		✓	✓
The cooling system must provide for day/night zoning between living areas and bedrooms.		✓	✓
Heating system			
The applicant must install the following heating system, or a system with a higher energy rating, in at least 1 living area: gas fixed flued heater; Energy rating: not rated		✓	✓
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		✓	✓
Ventilation			
The applicant must install the following exhaust systems in the development:			
At least 1 Bathroom: individual fan, ducted to façade or roof; Operation control: manual switch on/off		✓	✓
Kitchen: individual fan, ducted to façade or roof; Operation control: manual switch on/off		✓	✓
Laundry: individual fan, ducted to façade or roof; Operation control: manual switch on/off		✓	✓
Artificial lighting			
The applicant must ensure that the "primary type of artificial lighting" is fluorescent or light emitting diode (LED) lighting in each of the following rooms, and where the word "dedicated" appears, the fittings for those lights must only be capable of accepting fluorescent or light emitting diode (LED) lamps:			
• at least 4 of the bedrooms / study; dedicated		✓	✓
• at least 2 of the living / dining rooms; dedicated		✓	✓

Energy Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
<ul style="list-style-type: none"> the kitchen; dedicated 		✓	✓
<ul style="list-style-type: none"> all bathrooms/toilets; dedicated 		✓	✓
<ul style="list-style-type: none"> the laundry; dedicated 		✓	✓
<ul style="list-style-type: none"> all hallways; dedicated 		✓	✓
Natural lighting			
The applicant must install a window and/or skylight in the kitchen of the dwelling for natural lighting.	✓	✓	✓
The applicant must install a window and/or skylight in 3 bathroom(s)/toilet(s) in the development for natural lighting.	✓	✓	✓
Alternative energy			
The applicant must install a photovoltaic system with the capacity to generate at least 1 peak kilowatts of electricity as part of the development. The applicant must connect this system to the development's electrical system.	✓	✓	✓
Other			
The applicant must install an induction cooktop & electric oven in the kitchen of the dwelling.		✓	
The applicant must construct each refrigerator space in the development so that it is "well ventilated", as defined in the BASIX definitions.		✓	
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.