



Cadence & Co Pty Ltd Proposed Residential Development

To be built at 60 Castle Circuit, Seaforth

Issue	File Ref	Description	Author	Date
A	23-4179R	NatHERS Thermal Comfort and BASIX Assessment	DR	10/05/2023

This report has been prepared by Efficient Living Pty Ltd on behalf of our client Cadence and Co. 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.



10 May 2023

Cadence & Co Pty Ltd
60 Castle Circuit, Seaforth

Assessor: Daniela Russo
Email: daniela@efficientliving.com.au

License Holder: Stefanie Simpson
Accreditation Number: HERA10035

BASIX Details:

NatHERS Certificate Number: HR-9NV8EA-01

BASIX adjusted conditioned area: 275.3 m²

BASIX adjusted un-conditioned area: 16 m²

Area adjusted heating load: 39 MJ/ m²/pa

Area adjusted cooling load: 16 MJ/ m²/pa

Specification

Heating and cooling loads for the development have been determined using HERO 3.01 thermal comfort simulation software, and assessed under the thermal simulation method of the BASIX Protocol.

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

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

Floors

Concrete slab on ground with R2.5 insulation

Suspended concrete with R3.5 insulation (insulation only value) where open or enclosed subfloor below

Suspended concrete with R3.5 insulation (insulation only value) to garage floor where habitable rooms below

Suspended concrete with no insulation required to garage floor where open below

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

External walls

190mm filled concrete block with R2.0 insulation (insulation only value)

Note: no insulation required to external garage walls

External colour:

Light (SA < 0.475)

Walls within dwellings

Single skin masonry (rendered), no insulation required

190mm filled concrete block, with R2.0 insulation (insulation only value) between garage and habitable areas

Glazing doors/windows

Glazed windows and doors:

Group A – awning + bifold + casement windows + hinged glazed doors

U-value: 3.20 (equal to or lower than) SHGC: 0.46 (±10%)

Group B – sliding doors/windows + fixed glazing

U-value: 3.20 (equal to or lower than) SHGC: 0.49 (±10%)

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Louvred windows

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

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

Roof and ceilings

Concrete roof, with waterproof membrane and R1.79 insulation (insulation only value) on top of slab eg 50mm XPS

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

Timber lined ceiling to Level 2: Kitchen, Living, Dining, Hall, no insulation required

Note: no insulation required to garage where roof above

External colour

Light ($SA < 0.475$)

Ceiling penetrations

Sealed LED downlights, one every 2.5m² modelled as 150mm diameter. Once lighting plan has been developed NatHERS certificate can be updated to improve specification

Sealed externally ducted exhaust fans, modelled as 200mm diameter

Penetrations not to exceed NatHERS certificate

Floor coverings

Tiles to wet areas and Level 2 Kitchen/Dining/Living space, timber elsewhere

External shading

Operable shading screen to D2.01 and D2.02

Eaves and shading as per stamped drawing

Ventilation

All external doors have weather seals, all exhaust fans and chimneys have dampers, and down lights will be sealed

BASIX Water Commitments

Fixtures

Install showerheads minimum rating of 4 stars – High flow (>6 and ≤ 7.5 litres/min)

Install toilet flushing system with a minimum rating of 4 stars in each toilet

Install tap with a minimum rating of 6 stars in the kitchen

Install taps with a minimum rating of 6 stars in each bathroom

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Alternative water

Install rainwater tank, minimum 2,500L capacity collected from min. 200m² roof area. Tank connected to – at least one outdoor tap

BASIX Energy Commitments

Hot water system

Electric heat pump – air sourced

Cooling system

3-phase air-conditioning and ceiling fans to living areas and bedrooms: EER 3.0-3.5

Heating system

3-phase air-conditioning and ceiling fans to living areas and bedrooms: EER 3.0-3.5

Ventilation

Bathrooms – individual fan, externally ducted to roof or façade, manual on/off switch

Kitchen – individual fan, externally ducted to roof or façade, manual on/off switch

Laundry – individual fan, externally ducted to roof or façade, manual on/off switch

Other

Induction cooktop & electric oven

Outdoor clothes drying line

Alternative energy

12.0kW solar Photovoltaic system

Nationwide House Energy Rating Scheme

NatHERS Certificate No. #HR-9NV8EA-01

Generated on 10 May 2023 using Hero 3.0.1

Property

Address 60 Castle Circuit, Seaforth, NSW, 2092
Lot/DP 16/DP200638
NCC Class* 1a
Type New

Plans

Main Plan 23-4179R
Prepared by Cadence & Co Pty Ltd

Construction and environment

Assessed floor area (m²)*		Exposure Type
Conditioned*	284.0	Exposed
Unconditioned*	16.0	NatHERS climate zone
Total	376.8	56 - Mascot AMO
Garage	76.8	



Accredited assessor

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Accreditation No. 10035
Assessor Accrediting Organisation HERA
Declaration of interest No Conflict of Interest

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.

5.7
The more stars
the more energy efficient

**NATIONWIDE
HOUSE**
ENERGY RATING SCHEME[®]

55.7 MJ/m²
Predicted annual energy load for
heating and cooling based on standard
occupancy assumptions.

For more information on
your dwelling's rating see:
www.nathers.gov.au

Thermal Performance

Heating	Cooling
39.3	16.4
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 <http://www.hero-software.com.au/pdf/HR-9NV8EA-01>. When using either link, ensure you are visiting <http://www.hero-software.com.au>



Certificate Check

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

Genuine certificate

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

Ceiling penetrations*

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

Windows

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

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

Additional Notes

Provisional inclusions*

Concrete slab on ground with R1.3 insulation on top and R0.25 slab edge insulation
Concrete between levels, with R2.5 insulation to garage floor where habitable rooms are below
Floor coverings: as per plans
External wall colour: Light
190mm filled concrete block with R2.0 insulation
Roof colour: Light
Concrete roof with R0.89 insulation
Ceiling insulation R4.0
Sealed downlights: 1 per 2.5m², ceiling penetration 100mm diameter with 50mm clearance
Sealed exhaust fans:: to kitchen and wet areas, ceiling penetration 200mm diameter with 50mm clearance
*Provisional values represent average practice or worst-case scenario, and the rating may be adversely affected.

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
ALM-004-01 A	Aluminium B DG Air Fill Clear-Clear	4.80	0.59	0.56	0.62
CMP-005-03 I	Composite A DG Argon Fill High Solar Gain low-E -Clear	3.20	0.46	0.44	0.48
CMP-006-03 I	Composite B DG Argon Fill High Solar Gain low-E -Clear	3.20	0.49	0.47	0.51

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Window and glazed door schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Bed 1	ALM-004-01 A	W3.04	2800	1500	Louvre	90	W	None
Bed 1	CMP-006-03 I	D3.02	2800	6053	Sliding	60	W	None
Bed 1	CMP-006-03 I	D3.03	2800	2849	Sliding	45	N	None
Bed 1 Ens 1	CMP-006-03 I	D3.01	2800	3858	Sliding	45	W	None
Bed 1 Ens 1	CMP-006-03 I	W3.03	600	3260	Fixed	0	S	None
Bed 1 Ens 2	CMP-005-03 I	W3.01	600	1626	Casement	45	S	None
Bed 1 WIR	CMP-005-03 I	W3.02	600	1990	Casement	45	S	None
Bed 2	CMP-006-03 I	D1.01	2400	2100	Sliding	45	W	None
Bed 3	CMP-006-03 I	D1.03	2400	2100	Sliding	45	W	None
Bed 4	CMP-006-03 I	D1.04	2400	1800	Sliding	45	W	None
Garage Ldry	CMP-006-03 I	W4.05	2000	3000	Fixed	0	WSW	None
Garage Ldry	CMP-006-03 I	W4.06	2000	3000	Fixed	0	NNW	None
Lounge Dining Kitchen	CMP-005-03 I	D2.02	3550	2000	Casement	90	N	OP-80%
Lounge Dining Kitchen	CMP-006-03 I	D2.01	3550	12480	Sliding	70	W	OP-80%
Lounge Dining Kitchen	CMP-006-03 I	W2.01	1150	5818	Fixed	0	S	None
Lvl 4 Stairs	ALM-004-01 A	W4.02	2600	900	Louvre	90	W	None
Lvl 4 Stairs	ALM-004-01 A	W4.01	2600	900	Louvre	90	E	None
Lvl 4 Stairs	CMP-006-03 I	D4.02A	2800	700	Fixed	0	N	None
Lvl 4 Stairs	CMP-006-03 I	D4.02B	2800	700	Fixed	0	N	None
Pwdr 1	ALM-004-01 A	W4.03	2300	750	Louvre	90	S	None
Shw Rm	CMP-006-03 I	D1.02	2400	1800	Sliding	45	W	None
Study	CMP-006-03 I	W4.04	2800	1800	Fixed	0	S	None
Study	CMP-006-03 I	D4.03	2800	2917	Fixed	0	W	None

* Refer to glossary.



Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
Study	CMP-005-03 I	D4.03 C	2800	800	Casement	90	W	None

Roof window *type and performance value*

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orient-ation	Outdoor shade	Indoor shade
None								

Skylight *type and performance*

Skylight ID	Skylight description
None	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m ²)	Orient-ation	Outdoor shade	Diffuser	Shaft Reflectance
None								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
Garage Ldry	2800	8400	90	ENE
Lvl 4 Stairs	2800	950	90	N

External wall *type*

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
CONCBLOCK-190-FCF-PB-A	Concrete Block 190mm Fully Core-Filled - Plasterboard Internally	0.30	Light	2.00	No

External wall type

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
CONCBLOCK-190-FCF-PB-B	Concrete Block 190mm Fully Core-Filled - Plasterboard Internally	0.30	Light	0.00	No

External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* projection (mm)	Vertical shading feature
Bed 1	CONCBLOCK-190-FCF-PB-A	2800	8472	W	799	Yes
Bed 1	CONCBLOCK-190-FCF-PB-A	2800	2849	N	3999	Yes
Bed 1	CONCBLOCK-190-FCF-PB-A	2800	6670	E		No
Bed 1	CONCBLOCK-190-FCF-PB-A	2800	1167	N		No
Bed 1 Ens 1	CONCBLOCK-190-FCF-PB-A	2800	3858	W		Yes
Bed 1 Ens 1	CONCBLOCK-190-FCF-PB-A	2800	3276	S		No
Bed 1 Ens 2	CONCBLOCK-190-FCF-PB-A	2800	1642	S		No
Bed 1 WIR	CONCBLOCK-190-FCF-PB-A	2800	4245	N		No
Bed 1 WIR	CONCBLOCK-190-FCF-PB-A	2800	3163	S		No
Bed 2	CONCBLOCK-190-FCF-PB-A	2800	3494	S		No
Bed 2	CONCBLOCK-190-FCF-PB-A	2800	2995	W	4604	Yes
Bed 3	CONCBLOCK-190-FCF-PB-A	2800	3015	W	4604	Yes
Bed 4	CONCBLOCK-190-FCF-PB-A	2800	3494	N	5196	Yes
Bed 4	CONCBLOCK-190-FCF-PB-A	2800	1891	E	1119	Yes
Bed 4	CONCBLOCK-190-FCF-PB-A	2800	3000	W	4906	Yes
Garage Ldry	CONCBLOCK-190-FCF-PB-B	3000	4630	WSW	256	Yes
Garage Ldry	CONCBLOCK-190-FCF-PB-B	3000	1059	WNW		Yes
Garage Ldry	CONCBLOCK-190-FCF-PB-B	3000	4601	NNW	282	No
Garage Ldry	CONCBLOCK-190-FCF-PB-B	3000	1046	NNE		Yes
Garage Ldry	CONCBLOCK-190-FCF-PB-B	3000	9704	ENE	985	Yes
Garage Ldry	CONCBLOCK-190-FCF-PB-B	3000	3761	E	2993	Yes
Garage Ldry	CONCBLOCK-190-FCF-PB-B	3000	3761	W	239	Yes
Garage Ldry	CONCBLOCK-190-FCF-PB-B	3000	2119	S	4673	Yes

* Refer to glossary.



Lounge Dining Kitchen	CONCBLOCK-190-FCF-PB-A	3550	2850	N	5056	Yes
Lounge Dining Kitchen	CONCBLOCK-190-FCF-PB-A	3550	3409	E		No
Lounge Dining Kitchen	CONCBLOCK-190-FCF-PB-A	3550	12480	W	3210	Yes
Lounge Dining Kitchen	CONCBLOCK-190-FCF-PB-A	3550	6044	S		No
Lounge Dining Kitchen	CONCBLOCK-190-FCF-PB-A	3550	3194	N		No
Lvl 1 Lift	CONCBLOCK-190-FCF-PB-A	2800	1816	N		No
Lvl 1 Lift	CONCBLOCK-190-FCF-PB-A	2800	1668	E		No
Lvl 1 Lift	CONCBLOCK-190-FCF-PB-A	2800	1816	S		No
Lvl 1 Stair	CONCBLOCK-190-FCF-PB-A	2800	2842	N		No
Lvl 1 Stair	CONCBLOCK-190-FCF-PB-A	2800	2379	S		No
Lvl 1 Stair	CONCBLOCK-190-FCF-PB-A	2800	4142	E		No
Lvl 2 Hall Stair	CONCBLOCK-190-FCF-PB-A	3550	2379	S		No
Lvl 2 Hall Stair	CONCBLOCK-190-FCF-PB-A	3550	4142	E		No
Lvl 2 Lift	CONCBLOCK-190-FCF-PB-A	3550	1060	N		No
Lvl 2 Lift	CONCBLOCK-190-FCF-PB-A	3550	1668	E		No
Lvl 2 Lift	CONCBLOCK-190-FCF-PB-A	3550	1238	S		No
Lvl 2 Lift	CONCBLOCK-190-FCF-PB-A	3550	756	N		No
Lvl 2 Lift	CONCBLOCK-190-FCF-PB-A	3550	578	S		No
Lvl 3 Lift	CONCBLOCK-190-FCF-PB-A	2800	1331	N		No
Lvl 3 Lift	CONCBLOCK-190-FCF-PB-A	2800	1668	E		No
Lvl 3 Lift	CONCBLOCK-190-FCF-PB-A	2800	1816	S		No
Lvl 3 Lift	CONCBLOCK-190-FCF-PB-A	2800	485	N		No
Lvl 3 Stair	CONCBLOCK-190-FCF-PB-A	2800	2379	N		No
Lvl 3 Stair	CONCBLOCK-190-FCF-PB-A	2800	2379	S		No
Lvl 3 Stair	CONCBLOCK-190-FCF-PB-A	2800	4142	E		No
Lvl 4 Lift	CONCBLOCK-190-FCF-PB-A	2800	1816	N	9505	Yes
Lvl 4 Lift	CONCBLOCK-190-FCF-PB-A	2800	1668	E		No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orient-ation	Horizontal shading feature* projection (mm)	Vertical shading feature
Lvl 4 Lift	CONCBLOCK-190-FCF-PB-A	2800	1816	S		Yes
Lvl 4 Stairs	CONCBLOCK-190-FCF-PB-A	2800	3007	W		Yes
Lvl 4 Stairs	CONCBLOCK-190-FCF-PB-A	2800	924	E	255	Yes
Lvl 4 Stairs	CONCBLOCK-190-FCF-PB-A	2800	2379	S		No
Lvl 4 Stairs	CONCBLOCK-190-FCF-PB-A	2800	4142	E		Yes
Lvl 4 Stairs	CONCBLOCK-190-FCF-PB-A	2800	2650	N	1876	Yes
Media	CONCBLOCK-190-FCF-PB-A	2800	1020	N		Yes
Media	CONCBLOCK-190-FCF-PB-A	2800	3053	E		No
Media	CONCBLOCK-190-FCF-PB-A	2800	3373	S		No
Pnty	CONCBLOCK-190-FCF-PB-A	3550	1138	S		No
Pnty	CONCBLOCK-190-FCF-PB-A	3550	1091	S		No
Pwd 3	CONCBLOCK-190-FCF-PB-A	2800	1907	N		No
Pwd 3	CONCBLOCK-190-FCF-PB-A	2800	724	E		No
Pwdr 1	CONCBLOCK-190-FCF-PB-A	2800	1642	S	595	Yes
Pwdr 2	CONCBLOCK-190-FCF-PB-A	3550	2379	N		No
Pwdr 2	CONCBLOCK-190-FCF-PB-A	3550	1520	E		No
Service Rm	CONCBLOCK-190-FCF-PB-A	3550	2229	N		No
Service Rm	CONCBLOCK-190-FCF-PB-A	3550	1614	E		No
Shw Rm	CONCBLOCK-190-FCF-PB-A	2800	2050	W	4604	Yes
Study	CONCBLOCK-190-FCF-PB-A	2800	3802	S	595	Yes
Study	CONCBLOCK-190-FCF-PB-A	2800	3727	W	2270	Yes

Internal wall *type*

Wall ID	Wall Type	Area (m ²)	Bulk insulation
CONCBLOCK-190-FCF-PB	Concrete Block 190mm Fully Core-Filled - Plasterboard Internally	13.1	2.00
SGL-BRICK-REND	Single 90mm Brick Wall - Rendered Both Sides	211.1	0.00

Floor type

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bed 1	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	33.6	N/A	0.00	Timber
Bed 1 Ens 1	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	13.1	N/A	0.00	Tile
Bed 1 Ens 2	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	7.3	N/A	0.00	Tile
Bed 1 WIR	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	14.5	N/A	3.50	Timber
Bed 1 WIR	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	4.6	N/A	0.00	Timber
Bed 2	CSOG-100: Concrete Slab on Ground (100mm)	11.4	N/A	2.50	Timber
Bed 3	CSOG-100: Concrete Slab on Ground (100mm)	10.5	N/A	2.50	Timber
Bed 4	CSOG-100: Concrete Slab on Ground (100mm)	10.5	N/A	2.50	Timber
Garage Ldry	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	19.8	N/A	3.50	Exposed
Garage Ldry	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	57.0	N/A	0.00	Exposed
Lounge Dining Kitchen	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	49.9	N/A	0.00	Tile
Lounge Dining Kitchen	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	27.1	N/A	3.50	Tile
Lvl 1 Lift	CSOG-100: Concrete Slab on Ground (100mm)	3.0	N/A	2.50	Exposed
Lvl 1 Stair	CSOG-100: Concrete Slab on Ground (100mm)	14.0	N/A	2.50	Timber
Lvl 2 Hall Stair	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	17.7	N/A	0.00	Timber
Lvl 2 Lift	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	3.0	N/A	0.00	Exposed
Lvl 3 Lift	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	3.0	N/A	0.00	Exposed
Lvl 3 Stair	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	13.8	N/A	0.00	Timber
Lvl 4 Lift	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	3.0	N/A	0.00	Exposed
Lvl 4 Stairs	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	14.4	N/A	0.00	Timber
Lvl 4 Stairs	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	4.0	N/A	3.50	Timber
Media	CSOG-100: Concrete Slab on Ground (100mm)	23.0	N/A	2.50	Timber
Pnty	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	7.3	N/A	0.00	Tile
Pwd 3	CSOG-100: Concrete Slab on Ground (100mm)	2.3	N/A	2.50	Tile
Pwdr 1	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	4.0	N/A	0.00	Tile

Floor type

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Pwdr 2	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	3.6	N/A	3.50	Tile
Service Rm	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	1.1	N/A	0.00	Tile
Service Rm	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	5.8	N/A	3.50	Tile
Shw Rm	CSOG-100: Concrete Slab on Ground (100mm)	5.1	N/A	2.50	Tile
Study	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	11.9	N/A	0.00	Timber
Study	SUSP-CONC-300: Suspended Concrete Slab Floor (300mm)	2.3	N/A	3.50	Timber

Ceiling type

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
Bed 1	SLAB-300-CEIL-01: Concrete Slab (300mm) with Suspended PB Ceiling	4.00	No
Bed 1 Ens 1	SLAB-300-CEIL-01: Concrete Slab (300mm) with Suspended PB Ceiling	4.00	No
Bed 1 Ens 2	SLAB-300-CEIL-01: Concrete Slab (300mm) with Suspended PB Ceiling	4.00	No
Bed 1 WIR	SLAB-300-CEIL-01: Concrete Slab (300mm) with Suspended PB Ceiling	4.00	No
Garage Ldry	SLAB-300-CEIL-01: Concrete Slab (300mm) with Suspended PB Ceiling	0.00	No
Lvl 4 Lift	SLAB-300-CEIL-01: Concrete Slab (300mm) with Suspended PB Ceiling	4.00	No
Lvl 4 Stairs	SLAB-300-CEIL-01: Concrete Slab (300mm) with Suspended PB Ceiling	4.00	No
Pwdr 1	SLAB-300-CEIL-01: Concrete Slab (300mm) with Suspended PB Ceiling	4.00	No
Pwdr 2	SLAB-300-CEIL-01: Concrete Slab (300mm) with Suspended PB Ceiling	4.00	No
Service Rm	SLAB-300-CEIL-01: Concrete Slab (300mm) with Suspended PB Ceiling	4.00	No
Study	SLAB-300-CEIL-01: Concrete Slab (300mm) with Suspended PB Ceiling	4.00	No

Ceiling penetrations*

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bed 1	13	Downlight	200	Sealed
Bed 1 Ens 1	5	Downlight	200	Sealed
Bed 1 Ens 1	1	Exhaust Fan	350	Sealed

* Refer to glossary.

Ceiling penetrations*

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
Bed 1 Ens 2	2	Downlight	200	Sealed
Bed 1 Ens 2	1	Exhaust Fan	350	Sealed
Bed 1 WIR	8	Downlight	200	Sealed
Bed 2	4	Downlight	200	Sealed
Bed 3	4	Downlight	200	Sealed
Bed 4	4	Downlight	200	Sealed
Lounge Dining Kitchen	1	Exhaust Fan	350	Sealed
Lounge Dining Kitchen	30	Downlight	200	Sealed
Lvl 1 Stair	6	Downlight	200	Sealed
Lvl 2 Hall Stair	7	Downlight	200	Sealed
Lvl 3 Stair	5	Downlight	200	Sealed
Lvl 4 Stairs	7	Downlight	200	Sealed
Media	10	Downlight	200	Sealed
Pnty	3	Downlight	200	Sealed
Pwd 3	1	Exhaust Fan	350	Sealed
Pwd 3	1	Downlight	200	Sealed
Pwdr 1	2	Downlight	200	Sealed
Pwdr 1	1	Exhaust Fan	350	Sealed
Pwdr 2	1	Downlight	200	Sealed
Pwdr 2	1	Exhaust Fan	350	Sealed
Service Rm	4	Downlight	200	Sealed
Shw Rm	2	Downlight	200	Sealed
Shw Rm	1	Exhaust Fan	350	Sealed
Study	6	Downlight	200	Sealed

Ceiling fans

Location	Quantity	Diameter (mm)
None		

* Refer to glossary.



Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof Colour
SLAB-300-CEIL-01: Concrete Slab (300mm) with Suspended PB Ceiling	1.79	0.30	Light
SLAB-300-CEIL-01: Concrete Slab (300mm) with Suspended PB Ceiling	0.00	0.30	Light

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 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 .
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: 1369756S

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: Wednesday, 10 May 2023

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



Planning,
Industry &
Environment

Project summary

Project name	60 Castle Circuit, Seaforth
Street address	60 Castle Circuit Seaforth 2092
Local Government Area	Northern Beaches Council
Plan type and plan number	deposited 200368
Lot no.	16
Section no.	-
Project type	separate dwelling house
No. of bedrooms	4

Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 100	Target 50

Certificate Prepared by

Name / Company Name: Efficient Living Pty Ltd

ABN (if applicable): 82116346082

Description of project

Project address

Project name	60 Castle Circuit, Seaforth
Street address	60 Castle Circuit Seaforth 2092
Local Government Area	Northern Beaches Council
Plan type and plan number	Deposited Plan 200368
Lot no.	16
Section no.	-

Project type

Project type	separate dwelling house
No. of bedrooms	4

Site details

Site area (m ²)	627
Roof area (m ²)	200
Conditioned floor area (m2)	275.3
Unconditioned floor area (m2)	16.0
Total area of garden and lawn (m2)	300

Assessor details and thermal loads

Assessor number	HERA10035
Certificate number	HR-9NV8EA-01
Climate zone	56
Area adjusted cooling load (MJ/m ² .year)	16
Area adjusted heating load (MJ/m ² .year)	39
Ceiling fan in at least one bedroom	Yes
Ceiling fan in at least one living room or other conditioned area	Yes

Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 100	Target 50

Schedule of BASIX commitments

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





















Water Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Landscape			
The applicant must plant indigenous or low water use species of vegetation throughout 300 square metres of the site.	✓	✓	
Fixtures			
The applicant must install showerheads with a minimum rating of 4 star (> 4.5 but ≤ 6 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 6 star in the kitchen in the development.		✓	
The applicant must install basin taps with a minimum rating of 6 star in each bathroom in the development.		✓	
Alternative water			
Rainwater tank			
The applicant must install a rainwater tank of at least 2500 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 200 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"> 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 26 kilolitres.	✓	✓	
The swimming pool must have a pool cover.		✓	

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

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 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.	✓	✓	✓
The applicant must construct the floors and walls of the dwelling in accordance with the specifications listed in the table below.	✓	✓	✓

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

Energy Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Hot water			
The applicant must install the following hot water system in the development, or a system with a higher energy rating: electric heat pump.	✓	✓	✓
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 2.5 - 3.0		✓	✓
The applicant must install the following cooling system, or a system with a higher energy rating, in at least 1 bedroom: 3-phase airconditioning; Energy rating: EER 2.5 - 3.0		✓	✓
The cooling system must provide for day/night zoning between living areas and bedrooms.		✓	✓
Heating system			
The applicant must install the following heating system, or a system with a higher energy rating, in at least 1 living area: 3-phase airconditioning; Energy rating: EER 3.0 - 3.5		✓	✓
The applicant must install the following heating system, or a system with a higher energy rating, in at least 1 bedroom: 3-phase airconditioning; Energy rating: EER 3.0 - 3.5		✓	✓
The heating system must provide for day/night zoning between living areas and bedrooms.		✓	✓
Ventilation			
The applicant must install the following exhaust systems in the development:			
At least 1 Bathroom: individual fan, ducted to façade or roof; Operation control: 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:			
<ul style="list-style-type: none"> at least 5 of the bedrooms / study; dedicated 		✓	✓

Energy Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
<ul style="list-style-type: none"> at least 2 of the living / dining rooms; dedicated the kitchen; dedicated all bathrooms/toilets; dedicated the laundry; dedicated all hallways; dedicated 		    	    
Natural lighting			
The applicant must install a window and/or skylight in 4 bathroom(s)/toilet(s) in the development for natural lighting.			
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 a timer for the swimming pool pump in the development.			
Alternative energy			
The applicant must install a photovoltaic system with the capacity to generate at least 12 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 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.