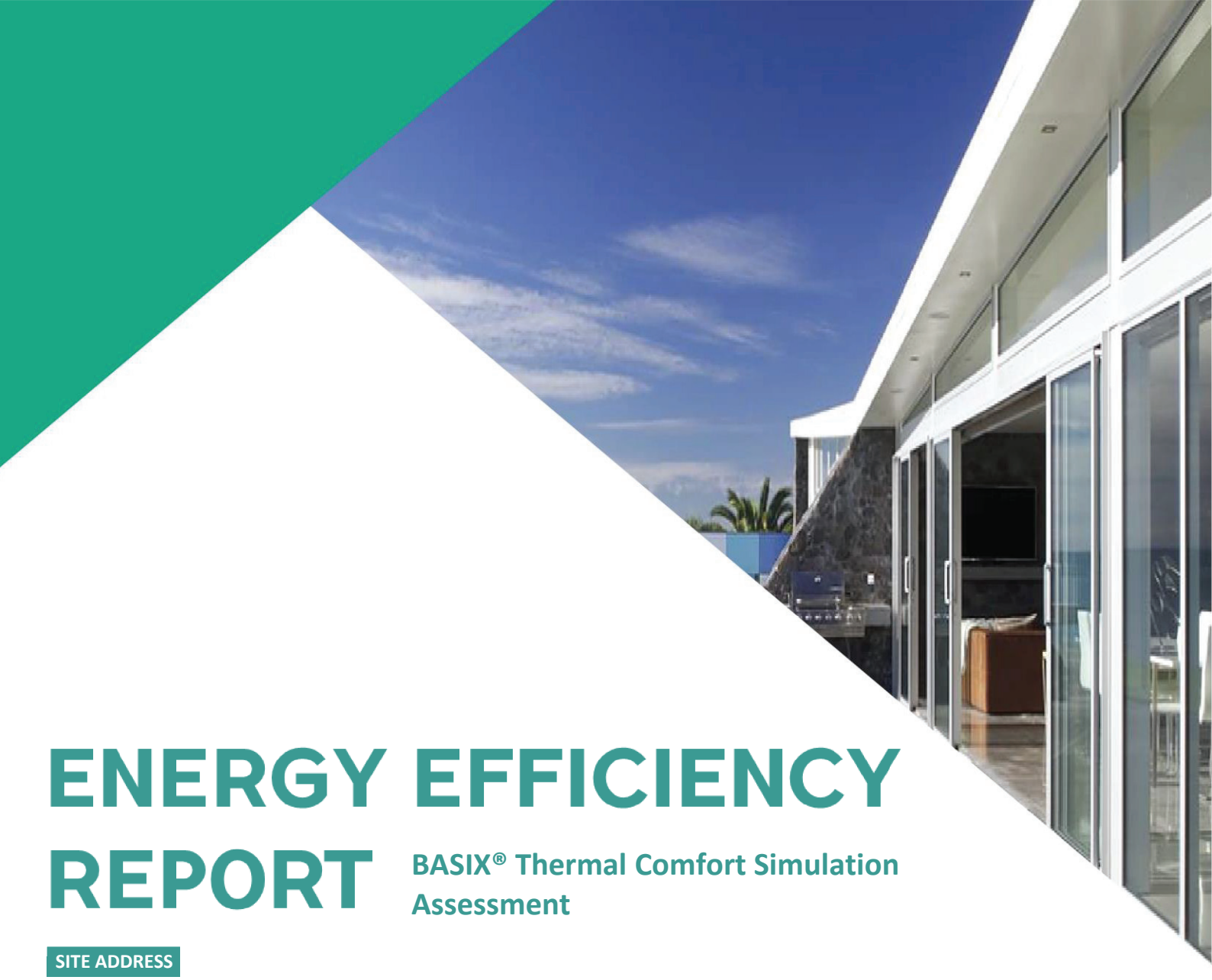


ENERGY EFFICIENCY REPORT

BASIX® Thermal Comfort Simulation Assessment

SITE ADDRESS

Lot 1007 Chapman Street WERRINGTON 2747

LOCAL GOVERNMENT AUTHORITY

Penrith City Council

REFERENCE NUMBER

1007Werrington v3.0

COMMISSIONED BY

Creation Homes (NSW) Pty. Ltd.

DEPOSITED PLAN NUMBER

1226122

CLIENT

Lendlease Corporation

CERTIFICATION DATE

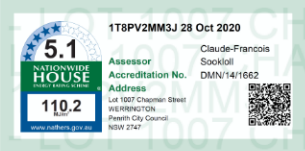
28/10/2020

DWELLING TYPE

Double Storey

Disclaimer and Condition of Use

PROJECT CERTIFICATION SUMMARY



DESIGN AND APPROVED SOFTWARE INFORMATION

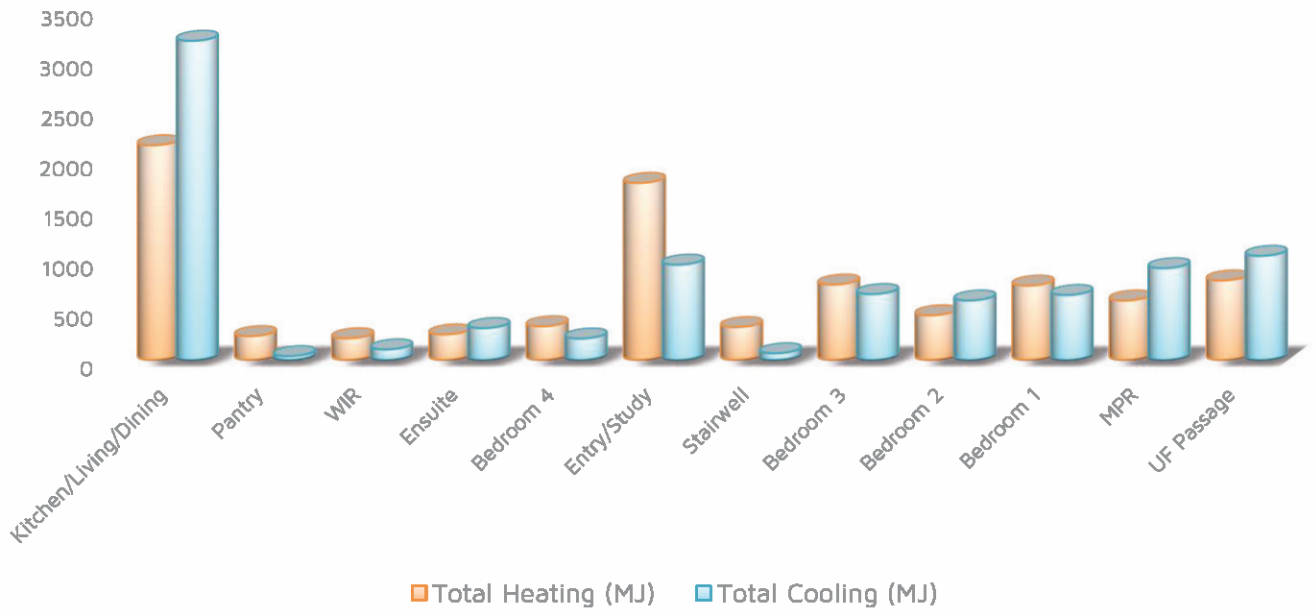
SIMULATION ENGINE	Chenath Engine 3.13 (FirstRate5)	INTERNAL AREAS (m^2)	189.94
EXPOSURE	Suburban	OUTDOOR AREAS (m^2)	16.29
ORIENTATION:	348	GARAGE/CARPORT (m^2)	34.33
NatHERS CLIMATE ZONE:	28		
BCA (NCC) CLIMATE ZONE:	6		

ASSESSMENT CALCULATIONS & SOFTWARE RESULTS

TARGET	($MJ/m^2.pa$)	PROPOSED	($MJ/m^2.pa$)	BUILD EFFICIENCY BENCHMARK	
Heating:	55.7	Heating:	54.7	PASS:	1.8%
Cooling:	56.2	Cooling:	55.5	PASS:	1.3%
Total:	**111.9**	**Total:**	**110.2**		

ZONED ENERGY LOAD DISTRIBUTION TOTALS (MJ)

The heating and cooling loads indicated are the simulated annual energy usages (MJ) for this home. The higher the load, the more energy needed to achieve thermal comfort.



STATEMENT OF COMPLIANCE

I / We certify that we are specialists in the relevant discipline and the following design documents comply with the relevant requirements of the National Construction Code (NCC Volume One/Two as applicable) in relation to thermal performance and the relevant Australian Standards specified in this report.

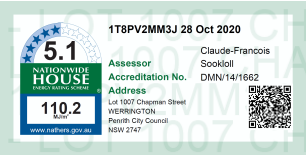
ASSESSOR NAME: C. Sookloll
SIGNATURE:

RELEVANT QUALIFICATION STATEMENT

Certifiicate IV in NatHERS Assessment (Credential Number: TRF0002560)
Residential Building Thermal Performance Assessment (91318NSW) Course
Assessor Accrediting Organisation (AAO) Accreditation Number: **VIC/BDAV/14/1662 | ABSA/61846**

energy advance

BUILDING SPECIFICATION SUMMARY



EXTERNAL WALLS

	CONSTRUCTION TYPE	INSULATION	NOTES
EXTERNAL WALLS	Brick Masonry	None	Double Brick to Front Elevation of Garage
	Brick Veneer	None	External Garage walls
	Framed	R2.0 Batts	Specified walls of Upper Floor
	Brick Veneer	R2.0 Batts	Remainder of the external walls

ADDITIONAL NOTES Location of Construction Material as per Drawings | No insulation to external Garage walls

INTERNAL WALLS

	CONSTRUCTION TYPE	INSULATION	NOTES
INTERNAL WALLS	Framed	R2.0 Batts	Insulation to the Garage internal walls only
	Framed	None	No insulation to the remainder of the internal walls

ADDITIONAL NOTES None

ROOF AND CEILING

	CONSTRUCTION TYPE	INSULATION	NOTES
ROOF	Colorbond (un-ventilated)	Sarking	Approx. 5"0' & 8"0' Roof Pitch
CEILING	Plasterboard	R3.5 Batts	To House Area
	Plasterboard	None	To Garage Area

ADDITIONAL NOTES No insulation to the Garage ceiling | Location of Roof Pitch/Type as per elevations

FLOOR

	CONSTRUCTION TYPE	INSULATION	NOTES
FLOOR	300mm Waffle	85mm Slab	None	To Ground Floor
	Timber Suspended	None	GF Ceiling/UF Floor

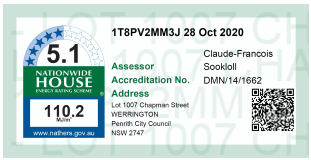
ADDITIONAL NOTES Floor Coverings modelled as per Drawings & NatHERS Protocols

EXTERNAL GLAZING

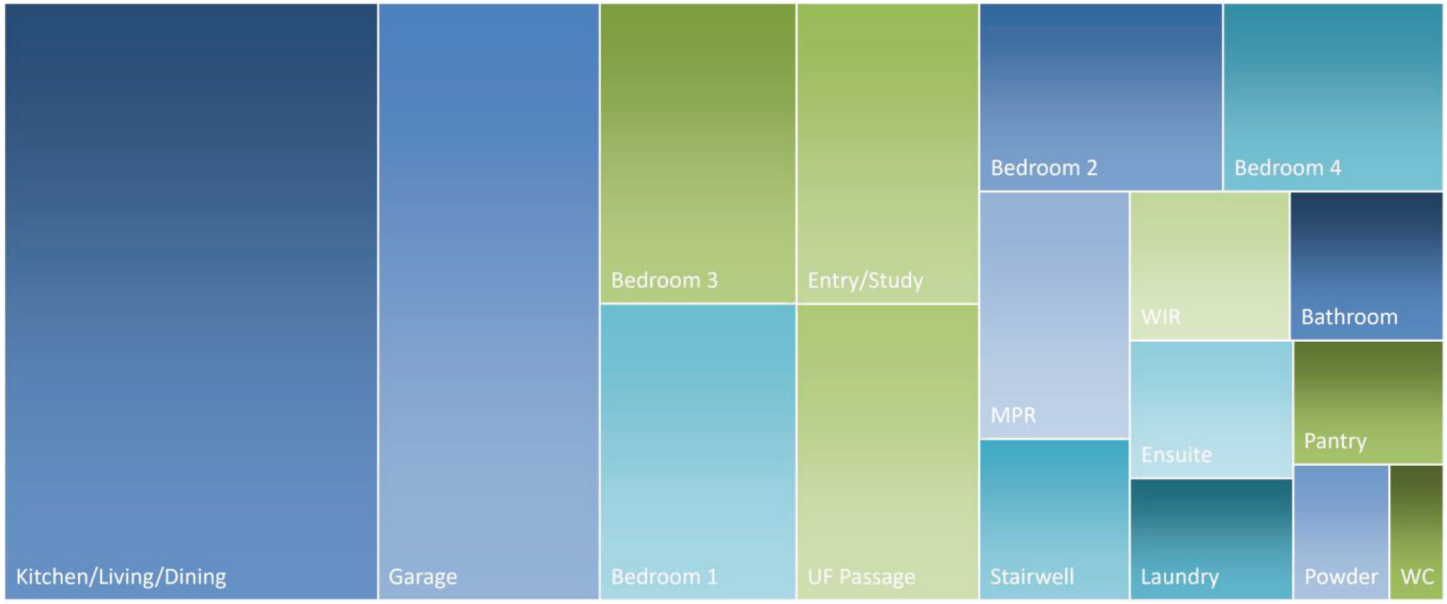
GLASS TYPE	COLOUR	FRAME	U_w VALUE	SHGC	NOTES
Standard	Clear	Aluminium	6.25	0.72	Stacker Doors
Standard	Clear	Aluminium	6.42	0.76	Sliding Windows
Standard	Clear	Aluminium	6.70	0.57	Casement Doors
Standard	Clear	Aluminium	6.50	0.63	Awning Windows

Note: Only a +/-5% SHGC tolerance is allowed with this rating. NB: This tolerance ONLY applies to SHGC, the U-value can always be lower but not higher than the values stated in the report. If any of the windows selected are outside the 5% tolerance then this certificate is no longer valid and the dwelling will need to be rerated to confirm compliance.

ROOM AREAS



THERMAL MODELLING SOFTWARE AREA CALCULATIONS



All areas are calculated by the modelling software and do not take into account internal wall area displacements. The areas above are a representation of room proportions only in relation to total areas

LIGHTING/PENETRATION CALCULATIONS

ARTIFICIAL LIGHTING CALCULATION ALLOWANCES

AREA WITHIN THE CLASS 1 BUILDING	**189.94 m²**		
Development Maximum	950 Watts	Area Wattage Allowance	5.0 W/m²
AREA WITHIN THE CLASS 10 BUILDING	**34.33 m²**		
Development Maximum	137 Watts	Area Wattage Allowance	4.0 W/m²
AREA WITHIN THE OUTDOOR AREAS	**16.29 m²**		
Development Maximum	49 Watts	Area Wattage Allowance	3.0 W/m²

CEILING INULATION PENETRATION ALLOWANCE

CLASS 1 MAXIMUM PENETRATION ALLOWANCE	CLASS 1 MAXIMUM PENETRATION AREA (m²)
0.5% TOTAL INSULATED CEILING AREA	**0.95**

The clearance required around downlights by "Australian Standard AS/NZS 3000 – 2007 Electrical Installations" (AS/NZS 3000), introduces a significant area of uninsulated ceiling and therefore increases heat loss and gain through the ceiling.

If approved fireproof downlight covers, which can be fully covered by insulation, are specified and noted on the electrical plan by the building designer or architect, then there is no need to allow for the ceiling penetration

energy advance

NSW ADDITIONS: BUILDING FABRIC THERMAL INSULATION

NSW 3.12.1 APPLICATION OF NSW PART 3.12.1

(a) Compliance with NSW 3.12.1.1 satisfies NSW P2.6.1(a) for thermal insulation and thermal breaks.

(b) NSW PART 3.12.1 only applies to thermal insulation in a Class 1 or 10 building where a development consent specifies that the insulation is to be provided as part of the development.

(c) In (b), the term development consent has the meaning given by the Environmental Planning and Assessment Act 1979.

(d) The Deemed-to-Satisfy Provisions of this Part for thermal breaks apply to all Class 1 buildings and Class 10a buildings with a conditioned space.

NSW 3.12.1.1 COMPLIANCE WITH BCA PROVISIONS

(a) Thermal insulation in a building must comply with the national BCA provisions of 3.12.1.1.

(b) A thermal break must be provided between the external cladding and framing in accordance with national BCA provisions of—

(i) 3.12.1.2(c) for a metal framed roof; and

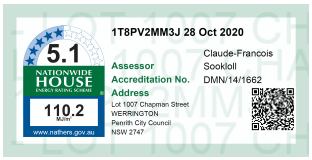
(ii) 3.12.1.4(b) for a metal framed wall.

(c) Compensation for reduction in ceiling insulation must comply with the national BCA provisions of 3.12.1.2(e).

(d) A floor with an in-slab or in-screed heating or cooling system must comply with the national BCA provisions of—

(i) 3.12.1.5(a)(ii), (iii) and (e) for a suspended floor; or

(ii) 3.12.1.5(c), (d) and (e) for a concrete slab-on-ground.



BUILDING SEALING & SERVICES

NSW 3.12.3 APPLICATION OF NSW PART 3.12.3

(a) Compliance with NSW 3.12.3.1 satisfies NSW P2.6.1(b) for building sealing.

(b) NSW Part 3.12.3 is not applicable to—

(i) existing buildings being relocated; or

(ii) Class 10a buildings—

(A) without a conditioned space; or

(B) for the accommodation of vehicles; or

(iii) parts of buildings that cannot be fully enclosed; or

(iv) a permanent building opening, in a space where a gas appliance is located, that is necessary for the safe operation of a gas appliance; or

(v) a building in climate zones 2 and 5 where the only means of air-conditioning is by using an evaporative cooler.

NSW 3.12.3.1 COMPLIANCE WITH BCA PROVISIONS

The sealing of a building must comply with the national BCA provisions 3.12.3.1 to 3.12.3.6.

NSW 3.12.5 SERVICES: APPLICATION OF NSW PART 3.12.5

(a) Compliance with NSW 3.12.5.1 satisfies NSW P2.6.2 for services.

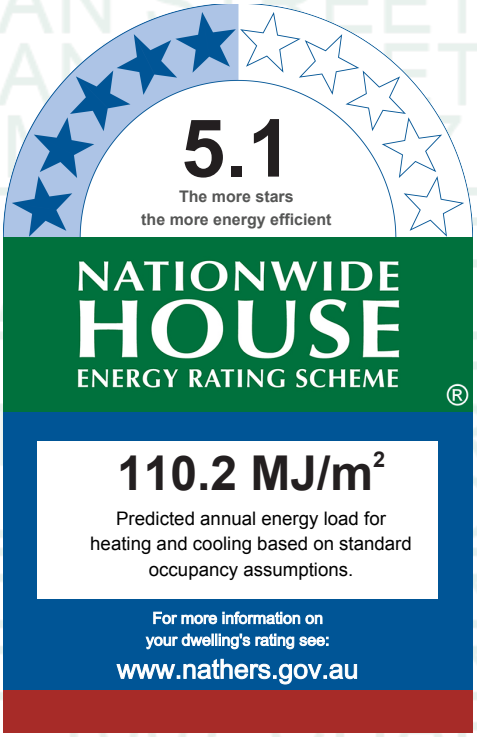
(b) NSW Part 3.12.5 is not applicable to existing services associated with existing buildings being relocated.

NSW 3.12.5.1 COMPLIANCE WITH BCA PROVISIONS

Services must comply with the national BCA provisions 3.12.5.0 to 3.12.5.3.

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 1T8PV2MM3J

Generated on 28 Oct 2020 using FirstRate5: 5.3.0a (3.21)



Property

Address	Lot 1007 Chapman Street WERRINGTON, Penrith City Council, NSW, 2747
Lot/DP	1007|1226122
NCC Class*	Class 1a
Type	New Home

Plans

Main plan	1007Werrington v3.0 28/10/2020
Prepared by	Creation Homes Pty Ltd

Construction and environment

Assessed floor area (m²)*		**Exposure type**
Conditioned*	144.9	suburban
Unconditioned*	14.6	**NatHERS climate zone**
Total	190.1	28, Penrith City Council
Garage	30.6	

Thermal performance

Heating	Cooling
54.7	**55.5**
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.

Accredited assessor

Name	Claude-Francois Sookloll
Business name	Energy Advance
Email	energy@energyadvance.com.au
Phone	1300 850 228
Accreditation No.	DMN/14/1662
Assessor Accrediting Organisation	DMN
Declaration of interest	Declaration completed: no conflicts

Verification

To verify this certificate, scan the QR code or visit https://www.fr5.com.au/QRCodeLanding?PublicId=1T8PV2MM3J When using either link, ensure you are visiting www.FR5.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.

* Refer to glossary.

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

BCA Climate Zone: 6

Window and glazed door *type and performance*

Default* windows

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
ALM-001-01 A	Aluminium A SG Clear	6.7	0.57	0.54	0.6
ALM-001-02 A	Aluminium A SG Tint	6.6	0.41	0.39	0.43

Custom* windows

				Substitution tolerance ranges	
Window ID	**Window description**	**Maximum U-value***	**SHGC***	SHGC lower limit	SHGC upper limit
WID-006-01 A	Al Residential Sliding Window SG 3mm Clear	6.42	0.76	0.72	0.8
WID-005-01 A	Al Residential Internal Sliding Door SG 4mm Clear	6.25	0.72	0.68	0.76
WID-001-01 A	Al Residential Awning Window SG 3mm Clear	6.5	0.63	0.6	0.66

Window and glazed door *Schedule*

* Refer to glossary.

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Entry/Study	WID-006-01 A	W1	1800	1810	sliding	30.0	SSW	No
Entry/Study	ALM-001-01 A	WD1	2340	920	casement	90.0	ESE	No
Entry/Study	ALM-001-02 A	Sidelight	2340	820	fixed	0.0	ESE	No
Kitchen/Living/-Dining	WID-006-01 A	W6	1800	1210	sliding	30.0	WNW	No
Kitchen/Living/-Dining	WID-005-01 A	WD2	2370	2676	other	60.0	WNW	No
Kitchen/Living/-Dining	WID-001-01 A	W3	600	1810	awning	60.0	SSW	No
Kitchen/Living/-Dining	WID-001-01 A	W4	1800	610	awning	60.0	SSW	No
Kitchen/Living/-Dining	WID-001-01 A	W5	1800	610	awning	60.0	SSW	No
Kitchen/Living/-Dining	WID-001-01 A	W7	600	1570	awning	60.0	NNE	No
Laundry	ALM-001-01 A	WD3	2340	880	casement	90.0	NNE	No
Powder	WID-001-01 A	W2	1030	610	awning	60.0	SSW	No
UF Passage	WID-001-01 A	W18	1030	1570	awning	60.0	NNE	No
Bedroom 1	WID-001-01 A	W8	860	2391	awning	60.0	ESE	No
Bedroom 1	WID-001-01 A	W20	860	1570	awning	60.0	NNE	No
Bedroom 2	WID-006-01 A	W16	1200	1810	sliding	30.0	WNW	No
Bedroom 2	WID-001-01 A	W17	600	1570	awning	60.0	NNE	No
Bedroom 3	WID-006-01 A	W15	1200	1810	sliding	30.0	WNW	No
Bedroom 3	WID-001-01 A	W14	600	1810	awning	60.0	SSW	No
Bedroom 4	WID-001-01 A	W11	600	1810	awning	60.0	SSW	No
MPR	WID-001-01 A	W19	860	1570	awning	60.0	NNE	No
Ensuite	WID-001-01 A	W10	1200	610	awning	60.0	ESE	No
Ensuite	WID-001-01 A	W9	1200	610	awning	60.0	ESE	No
Bathroom	WID-001-01 A	W13	600	1210	awning	60.0	SSW	No
WC	WID-001-01 A	W12	600	610	awning	60.0	SSW	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
No Data Available					

* Refer to glossary.

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Area (m²)	Orientation	Outdoor shade	Indoor shade
No Data Available							

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m²)	Orient-ation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
Garage	2400	1515	100.0	ESE

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	STANDARD - Brick Veneer	0.5	Medium		No
2	STANDARD - Double Brick	0.5	Medium		No
3	STANDARD - Brick Veneer - R2.0 Batts	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No
4	STANDARD - Framed Slim (Generic) - R2.0 Batts	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	1	2740	1320	WNW	0	Yes
Garage	2	2740	3793	ESE	439	Yes
Garage	2	2740	1757	ESE	0	Yes
Garage	1	2740	5510	NNE	0	No
Entry/Study	3	2740	1070	NNE	0	Yes
Entry/Study	3	2740	2430	SSW	1124	Yes
Entry/Study	3	2740	1190	WNW	0	Yes
Entry/Study	3	2740	2150	SSW	0	No
Entry/Study	3	2740	2870	ESE	1534	No
Stairwell	3	2740	2120	NNE	0	Yes
Kitchen/Living/Dining	3	2740	2772	WNW	0	No
Kitchen/Living/Dining	3	2740	4373	WNW	2559	No
Kitchen/Living/Dining	3	2740	9386	SSW	0	No

* Refer to glossary.

Kitchen/Living/Dining	3	2740	3650	NNE	0	Yes
Pantry	3	2740	1600	NNE	0	Yes
Laundry	3	2740	1726	NNE	0	Yes
Powder	3	2740	1910	SSW	0	No
Powder	3	2740	1190	ESE	0	Yes
UF Passage	4	2440	500	ESE	0	Yes
UF Passage	4	2440	2120	NNE	0	No
Bedroom 1	4	2440	3730	ESE	0	Yes
Bedroom 1	4	2440	3610	NNE	0	No
Bedroom 2	4	2440	3064	WNW	579	Yes
Bedroom 2	4	2440	3450	NNE	0	No
Bedroom 3	4	2440	4030	WNW	543	No
Bedroom 3	4	2440	3410	SSW	678	No
Bedroom 3	4	2440	1650	NNE	543	Yes
Bedroom 4	4	2440	3600	SSW	678	No
MPR	4	2440	2303	NNE	0	No
WIR	4	2440	1322	SSW	678	No
WIR	3	2440	588	SSW	548	No
Ensuite	3	2440	1800	SSW	548	No
Ensuite	3	2440	2870	ESE	548	No
Ensuite	3	2440	600	NNE	548	Yes
Bathroom	4	2440	1800	SSW	678	No
WC	4	2440	1000	SSW	678	No

Internal wall *type*

Wall ID	Wall type	Area (m²)	Bulk insulation
1	STANDARD - Internal Stud Walls -R2.0 Batts	26.5	Glass fibre batt: R2.0 (R2.0)
2	STANDARD - Internal Stud Walls	145.3	

Floor *type*

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	21	Enclosed	R0.0	none
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	9.6	Enclosed	R0.0	none
Entry/Study	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	12.7	Enclosed	R0.0	Timber
Stairwell	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	5.6	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	32.3	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	19.3	Enclosed	R0.0	Timber
Pantry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.3	Enclosed	R0.0	Timber
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.6	Enclosed	R0.0	Tiles
Powder	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3	Enclosed	R0.0	Tiles

* Refer to glossary.

UF Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	12.5	Enclosed	R0.0	Carpet
Bedroom 1	FLOOR - Framed External Suspended Floor (uninsulated)	0.9	Elevated	R0.0	Carpet
Bedroom 1	FLOOR - Framed Internal Suspended Floor (uninsulated)	12.6	Enclosed	R0.0	Carpet
Bedroom 2	FLOOR - Framed Internal Suspended Floor (uninsulated)	10.6	Enclosed	R0.0	Carpet
Bedroom 3	FLOOR - Framed Internal Suspended Floor (uninsulated)	13.7	Enclosed	R0.0	Carpet
Bedroom 4	FLOOR - Framed External Suspended Floor (uninsulated)	0.6	Elevated	R0.0	Carpet
Bedroom 4	FLOOR - Framed Internal Suspended Floor (uninsulated)	9	Enclosed	R0.0	Carpet
MPR	FLOOR - Framed Internal Suspended Floor (uninsulated)	8.6	Enclosed	R0.0	Carpet
WIR	FLOOR - Framed External Suspended Floor (uninsulated)	1.5	Elevated	R0.0	Carpet
WIR	FLOOR - Framed Internal Suspended Floor (uninsulated)	4	Enclosed	R0.0	Carpet
Ensuite	FLOOR - Framed Internal Suspended Floor (uninsulated)	5.2	Enclosed	R0.0	Tiles
Bathroom	FLOOR - Framed Internal Suspended Floor (uninsulated)	5.3	Enclosed	R0.0	Tiles
WC	FLOOR - Framed Internal Suspended Floor (uninsulated)	1.7	Enclosed	R0.0	Tiles

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Garage	Plasterboard	R0.0	Yes
Entry/Study	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Stairwell	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Kitchen/Living/D-ining	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Kitchen/Living/D-ining	Plasterboard	R3.5	Yes
Pantry	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Laundry	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Powder	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
UF Passage	Plasterboard	R3.5	Yes

* Refer to glossary.

Bedroom 1	Plasterboard	R3.5	Yes
Bedroom 1	Plasterboard	R3.5	Yes
Bedroom 2	Plasterboard	R3.5	Yes
Bedroom 3	Plasterboard	R3.5	Yes
Bedroom 4	Plasterboard	R3.5	Yes
Bedroom 4	Plasterboard	R3.5	Yes
MPR	Plasterboard	R3.5	Yes
WIR	Plasterboard	R3.5	Yes
WIR	Plasterboard	R3.5	Yes
Ensuite	Plasterboard	R3.5	Yes
Bathroom	Plasterboard	R3.5	Yes
WC	Plasterboard	R3.5	Yes

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Living/Dining	1	Exhaust Fans	185	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Cont:Attic-Continuous	0.0	0.73	Dark

* Refer to glossary.

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 NatHERSAdministrator. 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.

* Refer to glossary.

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).

* Refer to glossary.