

## **ENERGY EFFICIENCY REPORT**

**BASIX® Thermal Comfort Simulation Assessment** 

SITE ADDRESS

Lot 1501 (#16) Chapman Street WERRINGTON 2747

LOCAL GOVERNMENT AUTHORITY

Penrith City Council

CLIENT

Lendlease Communities

**COMMISSIONED BY** 

Creation Homes (NSW) Pty. Ltd.

**ASSESSMENT DATE** 

18/11/2021

**DEPOSITED PLAN** 

1226122

**DWELLING TYPE** 

**Double Storey** 

REFERENCE NUMBER

920037\_1501

Document Set ID: 9854629 Version: 1, Version Date: 15/12/2021

## Assessment Date: 18/11/2021 Reference Number: 920037\_1501

#### PROJECT CERTIFICATION SUMMARY



#### **DESIGN AND APPROVED SOFTWARE INFORMATION**

SIMULATION ENGINE Chenath Engine v3.21

EXPOSURE Suburban

ORIENTATION: 82

Nathers Climate Zone: 28 BCA (NCC) CLIMATE ZONE: 6

v3.21 Dwelling Areas (m²)

INTERNAL AREAS (m²)

OUTDOOR AREAS (m²) 15.95

TOTAL:

GARAGE/CARPORT (m²)

38.42 **254.15** 

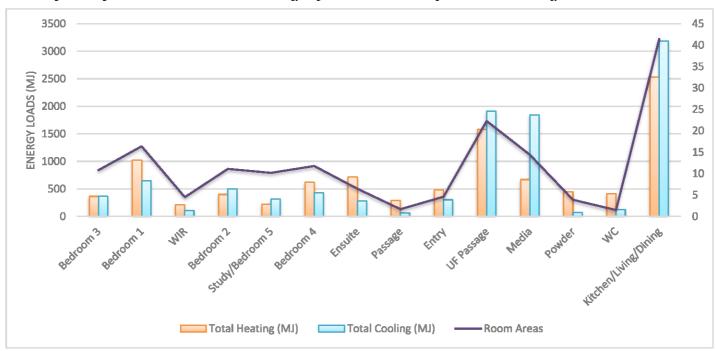
199.78

#### **ASSESSMENT CALCULATIONS & SOFTWARE RESULTS**

TARGET	(MJ/m².pa)	PROPOSED	(MJ/m².pa)	BUILD EFFICIENCY	BENCHMARK
Heating:	55.7	Heating:	55.2	PASS:	0.9%
Cooling:	56.2	Cooling:	55.6	PASS:	1.1%
Total:	111.9	Total:	110.8		

#### **DWELLING THERMAL PERFORMANCE PER ZONED AREAS**

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: SIGNATURE:



#### **RELEVANT QUALIFICATION STATEMENT**

Certificate 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



Assessment Date: 18/11/2021

Reference Number: 920037\_1501

#### Lot 1501 (#16) Chapman Street WERRINGTON 2747

## **BUILDING SPECIFICATION SUMMARY**

#### **EXTERNAL WALLS**



	CONSTRUCTION TYPE	INSULATION	NOTES
EXTERNAL WALLS	Brick Masonry	None	To the Front Elevation Garage wall (as per drawings)
	Brick Veneer	None	To the remainder of Garage external walls
	Framed	R2.0 Batts	Specified Upper Floor external walls (as per drawings)
	Brick Veneer	R2.0 Batts	Throughout remainder of the external walls (as per drawings)

ADDITIONAL NOTES

Location of Construction Materials as per drawings

#### **INTERNAL WALLS**

	CONSTRUCTION TYPE	INSULATION	NOTES
INTERNAL WALLS	Framed	None	Throughout the internal walls

ADDITIONAL NOTES None

#### **ROOF AND CEILING**

	CONSTRUCTION TYPE	INSULATION	NOTES
ROOF	Tiled (ventilated)	Sərking	Approx. 25"00' Roof Pitch
CEILING	Plasterboard Plasterboard	None R3.0 Insulation	Garage Ceiling Area Main House Area Only
ADDITIONAL NOTES	Location of ceiling insulation as po	er drawings   Roof has been mod	lelled as ventilated as per NatHERS Tech

#### FLOOR

	CONSTRUCTION TYPE	INSULATION	NOTES
FLOOR	300mm Waffle   85mm Slab	Integrated	Throughout the Ground Floor
	Timber Suspended	None	Throughout the Upper Floor
ADDITIONAL NOTES	Floor Coverings modelled as per Dra	wings and NatHERS Protocols	

GLASS TYPE	COLOUR	FRAME	U <sub>w</sub> VALUE	SHGC	NOTES
Standard	Clear	Aluminium	6.25	0.72	Sliding Doors
Standard	Clear	Aluminium	6.42	0.76	Sliding Windows
Standard	Clear	Aluminium	6.70	0.70	Fixed Windows
Standard	Clear	Aluminium	6.50	0.63	Awning Windows
Standard	Clear	Timber	5.40	0.63	Entry Sidelight

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.

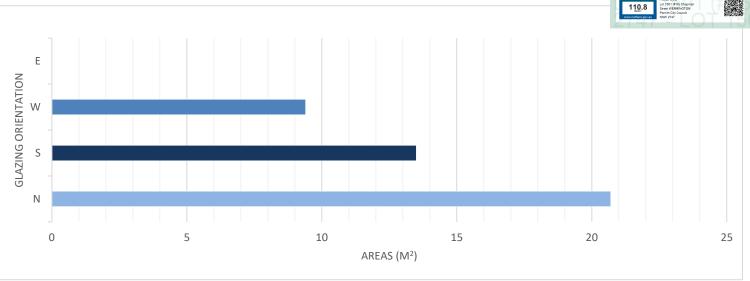


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Lot 1501 (#16) Chapman Street WERRINGTON 2747

#### **GLAZING AREA DIRECTIONS**





The chart above indicates the direction of all glazed doors and windows on the external envelope of the dwelling. To increase the thermal performance of the dwelling:

- 1. Maximise unsheltered northern-aspect glazing.
- 2. Keep west-facing glazing as small as possible: total window area should be less than 5% of the home's total floor area.
- Keep south-facing glazing reasonably small: total window area should be less than 5% of the home's total floor area. Maximise the openable area if possible.
- Keep east-facing glazing to a modest size: total window area should be less than 8% of the home's total floor area

Refer to the floor and elevation plans for shading location

AREA WITHIN THE CLASS 1 BUILDING

#### LIGHTING/PENETRATION CALCULATIONS

#### ARTIFICIAL LIGHTING CALCULATION ALLOWANCES

199.78 m<sup>2</sup>

Development Total	998.9 Watts	Area Wattage Allowance 5.0 W/m²
AREA WITHIN THE CLASS 10 BUILDING	38.42 m²	
Development Total	115.3 Watts	Area Wattage Allowance 3.0 W/m <sup>2</sup>
AREA WITHIN THE OUTDOOR AREAS	15.95 m²	
Development Total	63.8 Watts	Area Wattage Allowance 4.0 W/m <sup>2</sup>

#### **CEILING INSULATION PENETRATION ALLOWANCE**

CLASS 1 MAXIMUM PENETRATION ALLOWANCE

CLASS 1 MAXIMUM PENETRATION AREA (m2)

0.5% TOTAL INSULATED CEILING AREA

1.00

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



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#### Reference Number: 920037\_1501

Assessment Date: 18/11/2021

F90Q4DROTD 22 Nov 2021

#### 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 5 HOUSE Assessor Accreditation No. Address. 4 Assessor Address. 4 Assessor Address. 4 Assessor Assessor Address. 4 As

#### 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. F90Q4DROTD

Generated on 22 Nov 2021 using FirstRate5: 5.3.1a (3.21)

**Property** 

Lot 1501 (#16) Chapman Street WERRINGTON, Penrith City

Address

Council, NSW, 2747

Lot/DP

1501|1226122

NCC Class\*

Class 1a

Type

**New Home** 

**Plans** 

Main plan

920037 1501 | 22/11/2021

Prepared by

Creation Homes



#### Construction and environment

Assessed floor area (m2)\*

Conditioned\* 153.6

Unconditioned\* 48.8

Total 202.4

Garage 35 **Exposure type** 

suburban

NatHERS climate zone

28 Richmond



Claude-Francois Sookloll

**Business name Energy Advance** 

**Email** energy@energyadvance.com.au

**Phone** 1300 850 228 Accreditation No. DMN/14/1662

**Assessor Accrediting Organisation** 

**Design Matters National** 

**Declaration of interest** Declaration completed: no conflicts

### Thermal performance

Heating Cooling

55.2

55.6

MJ/m<sup>2</sup>

MJ/m<sup>2</sup>

#### 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

#### Verification

To verify this certificate, scan the QR code or visit https://www.fr5.com.au /QRCodeLanding?PublicId= F90Q4DROTD 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.



#### 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

Perimeter Insulation has not been included in the modelling of this dwelling

Please note, restricted window openings (%) have been modelled as per NCC 2019 requirements

Eaves indicated by the `Horizontal shading feature\* maximum projection (mm)' may not be directly opposing the respective wall (i.e. some eaves may be horizontally offset)

Where applicable, an additional 150mm has been added to the projection of all `Horizontal shading features & eaves' to account for the Gutter & Fascia Board

## Window and glazed door type and performance

#### Default\* windows

				Substitution to	nerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
TIM-002-01 W	Timber B SG Clear	5.4	0.63	0.6	0.66
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74

#### Custom\* windows

				Substitution tolerance ranges		
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit	
WID-001-01 A	Al Residential Awning Window SG 3mm Clear	6.5	0.63	0.6	0.66	

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F90Q4DROTD N	latHERS Certificate 5 St	5 Star Rating as of 22 Nov 2021				
WID-006-01 A	Al Residential Sliding Window SG 3mi Clear	m 6.42	0.76	0.72	0.8	
WID-005-01 A	Al Residential Internal Sliding Door SC 4mm Clear	6.25	0.72	0.68	0.76	

## Window and glazed door Schedule

			U a i a b t	Width				Window shading
Location	Window ID	Window no.	Height (mm)	(mm)	Window type	Opening %	Orientation	device*
Study/Bedroom 5	WID-001-01 A	W3	1800	850	awning	30.0	N	No
Study/Bedroom 5	WID-001-01 A	W4	1800	850	awning	30.0	N	No
Media	WID-001-01 A	W1	1800	610	awning	30.0	N	No
Media	WID-001-01 A	W2	1800	1810	awning	30.0	N	No
Entry	TIM-002-01 W	Sidelight A	2040	325	fixed	0.0	N	No
Entry	TIM-002-01 W	Sidelight B	2040	325	fixed	0.0	N	No
Kitchen/Living/- Dining	WID-006-01 A	W6	1800	2170	sliding	30.0	S	No
Kitchen/Living/- Dining	WID-001-01 A	W5	1800	850	awning	30.0	S	No
Kitchen/Living/- Dining	WID-005-01 A	WD3	2110	2676	other	60.0	W	No
Kitchen/Living/- Dining	WID-001-01 A	W7	1800	850	awning	30.0	W	No
Laundry	WID-005-01 A	WD2	2100	1450	sliding	45.0	S	No
Bedroom 4	WID-006-01 A	W15	1030	2410	sliding	30.0	S	No
Bedroom 3	WID-001-01 A	W8	1200	1810	awning	30.0	N	No
Bedroom 2	WID-001-01 A	W10	1800	850	awning	30.0	N	No
Bedroom 2	WID-001-01 A	W11	1800	850	awning	30.0	N	No
Bedroom 1	WID-005-01 A	WD4	2110	2316	other	60.0	N	No
UF Passage	ALM-002-01 A	W9	1200	1570	fixed	0.0	N	No
UF Passage	WID-006-01 A	W16	1030	2170	sliding	30.0	W	No
Bathroom	WID-001-01 A	W14	1200	1570	awning	30.0	S	No
Ensuite	WID-001-01 A	W13	1030	610	awning	30.0	S	No

## Roof window type and performance value

Default\* roof windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					
Custom* roof windows	;				
				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					

#### 5 Star Rating as of 22 Nov 2021



#### Roof window schedule

				Area		Outdoor	Indoor	
Location	Window ID	Window no.	Opening %	(m²)	Orientation	shade	shade	
·								Ξ

No Data Available

## Skylight type and performance

Skylight ID Skylight description

No Data Available

## Skylight schedule

Na Data Assallabla							
Location	Skylight ID	No.	length (mm)	(m²) atio	n shade	Diffuser	reflectance
		Skylight	Skylight shaft	Area Orie	ent- Outdoor		Skylight shaft

No Data Available

#### External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation	
Garage	2100	4810	100.0	N	
Entry	2040	920	100.0	N	

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade	Bulk insulation (R-value)	Reflective wall wrap*
1	STANDARD - Brick Veneer	0.5	Medium	Zam modiation (it value)	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

	Wall	Height	Width		Horizontal shading feature* maximum	Vertical shading feature
Location	ID	(mm)		Orientation	projection (mm)	(yes/no)
Garage	1	2676	4538	S	0	Yes
Garage	1	2676	6409	E	0	No
Garage	2	2676	5498	N	1230	Yes
Study/Bedroom 5	3	2590	1071	E	3690	Yes
Study/Bedroom 5	3	2590	2644	N	0	Yes
Study/Bedroom 5	3	2590	347	N	0	No
Study/Bedroom 5	3	2590	1080	W	1570	Yes
Media	3	2590	3709	W	0	No
Media	3	2590	960	S	0	Yes
Media	3	2590	1080	E	1570	Yes
Media	3	2590	3879	N	0	No
Entry	3	2590	1869	N	1080	Yes

F90Q4DROTD NatHERS Certificate	5 Star R	<b>Rating</b> as	of 22 N	ov 2021		NATIONWIDE HOUSE
Kitchen/Living/Dining	3	2590	4438	S	0	No
Kitchen/Living/Dining	3	2590	950	Е	0	Yes
Kitchen/Living/Dining	3	2590	2439	S	0	Yes
Kitchen/Living/Dining	3	2590	6738	W	2650	Yes
Laundry	3	2590	1949	S	0	Yes
Laundry	3	2590	2100	E	0	Yes
Bedroom 4	3	2440	3000	W	600	No
Bedroom 4	4	2440	3950	S	730	No
Bedroom 3	3	2440	1080	E	1680	Yes
Bedroom 3	3	2440	2920	N	600	No
Bedroom 3	3	2440	3710	W	600	No
Bedroom 2	3	2440	2665	N	600	Yes
Bedroom 2	3	2440	325	N	600	No
Bedroom 2	3	2440	1080	W	1680	Yes
Bedroom 2	3	2440	1080	E	600	Yes
Bedroom 1	4	2440	3749	N	730	Yes
Bedroom 1	4	2440	4000	E	730	No
WIR	4	2440	1950	S	730	Yes
UF Passage	3	2440	1870	N	1680	Yes
UF Passage	3	2440	2700	W	600	No
Bathroom	4	2440	2840	S	730	No
Bathroom	4	2440	2100	Е	730	Yes
Ensuite	4	2440	2320	E	730	No
Ensuite	4	2440	2790	S	730	Yes

## Internal wall type

Wall ID	Wall type	Area (m²) Bulk insulation
1	STANDARD - Internal Stud Walls	170.1

Floor type

		Area	Sub-floor	Added insulation	
Location	Construction	(m²)	ventilation	(R-value)	Covering
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.7	Enclosed	R0.0	none
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	24.3	Enclosed	R0.0	none
Study/Bedroom 5	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.2	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	11.4	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3	Enclosed	R0.0	Carpet
Entry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.6	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	37.7	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.7	Enclosed	R0.0	Timber
Passage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.7	Enclosed	R0.0	Timber

#### F90Q4DROTD NatHERS Certificate

#### 5 Star Rating as of 22 Nov 2021



Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.8	Enclosed	R0.0	Tiles
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.8	Enclosed	R0.0	Tiles
Powder	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.9	Enclosed	R0.0	Tiles
Bedroom 4	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.8	Enclosed	R0.0	Timber
Bedroom 3	FLOOR - Framed Internal Suspended Floor (uninsulated)	10.8	Enclosed	R0.0	Timber
Bedroom 2	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.1	Enclosed	R0.0	Timber
Bedroom 1	FLOOR - Framed Internal Suspended Floor (uninsulated)	16.4	Enclosed	R0.0	Timber
WIR	FLOOR - Framed Internal Suspended Floor (uninsulated)	4.5	Enclosed	R0.0	Timber
UF Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	22.3	Enclosed	R0.0	Timber
WC	FLOOR - Framed Internal Suspended Floor (uninsulated)	1.5	Enclosed	R0.0	Tiles
Bathroom	FLOOR - Framed Internal Suspended Floor (uninsulated)	8.1	Enclosed	R0.0	Tiles
Ensuite	FLOOR - Framed Internal Suspended Floor (uninsulated)	6.5	Enclosed	R0.0	Tiles

## Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	R0.0	Yes
Garage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Study/Bedroom 5	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	Plasterboard	R3.0	Yes
Entry	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	R3.0	Yes
Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Laundry	Plasterboard	R3.0	Yes
Laundry	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Powder	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Bedroom 4	Plasterboard	R3.0	Yes

#### **F90Q4DROTD NatHERS Certificate**

#### 5 Star Rating as of 22 Nov 2021



Bedroom 3	Plasterboard	R3.0	Yes
Bedroom 2	Plasterboard	R3.0	Yes
Bedroom 1	Plasterboard	R3.0	Yes
WIR	Plasterboard	R3.0	Yes
UF Passage	Plasterboard	R3.0	Yes
WC	Plasterboard	R3.0	Yes
Bathroom	Plasterboard	R3.0	Yes
Ensuite	Plasterboard	R3.0	Yes

## Ceiling penetrations\*

Location	Quantity	Туре	Diameter (mm)	Sealed/unsealed
Kitchen/Living/Dining	1	Exhaust Fans	185	Sealed
Powder	1	Exhaust Fans	250	Sealed
WC	1	Exhaust Fans	250	Sealed
Bathroom	1	Exhaust Fans	250	Sealed
Ensuite	1	Exhaust Fans	250	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	0.8	Dark



#### **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.

#### F90Q4DROTD NatHERS Certificate

#### 5 Star Rating as of 22 Nov 2021



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
<b>Reflective wrap</b> (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
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).



## ENERGY EFFICIENCY REPORT

**BASIX® Thermal Comfort Simulation Assessment** 

SITE ADDRESS

Lot 1502 (#16) Chapman Street WERRINGTON 2747

LOCAL GOVERNMENT AUTHORITY

Penrith City Council

CLIENT

Lendlease Communities

**COMMISSIONED BY** 

Creation Homes (NSW) Pty. Ltd.

**ASSESSMENT DATE** 

22/11/2021

**DEPOSITED PLAN** 

1226122

**DWELLING TYPE** 

**Double Storey** 

REFERENCE NUMBER

920037\_1502

Document Set ID: 9854629 Version: 1, Version Date: 15/12/2021

## Assessment Date: 22/11/2021 Reference Number: 920037\_1502

#### PROJECT CERTIFICATION SUMMARY



#### **DESIGN AND APPROVED SOFTWARE INFORMATION**

SIMULATION ENGINE Chenath Engine v3.21

EXPOSURE Suburban

ORIENTATION: 82

Nathers Climate Zone: 28

BCA (NCC) CLIMATE ZONE: 6

Dwelling Areas (m²)

INTERNAL AREAS (m²) 199.66

OUTDOOR AREAS (m²) 15.51

TOTAL:

GARAGE/CARPORT (m²)

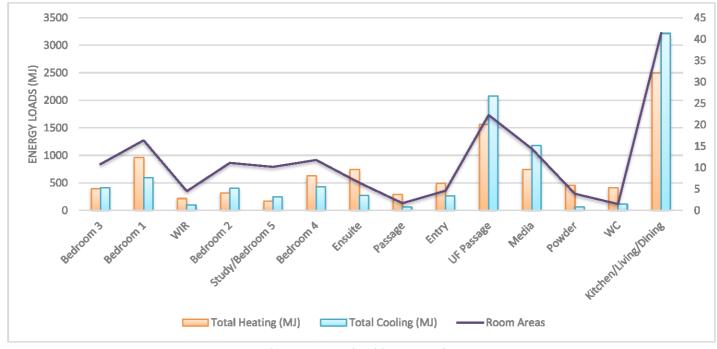
38.42 **253.59** 

#### **ASSESSMENT CALCULATIONS & SOFTWARE RESULTS**

TARGET	(MJ/m².pa)	PROPOSED	(MJ/m².pa)	BUILD EFFICIENC	Y BENCHMARK
Heating:	55.7	Heating:	54.0	PASS:	3.1%
Cooling:	56.2	Cooling:	56.1	PASS:	0.2%
Total:	111.9	Total:	110.1		

#### **DWELLING THERMAL PERFORMANCE PER ZONED AREAS**

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: SIGNATURE:



#### **RELEVANT QUALIFICATION STATEMENT**

Certificate 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



Lot 1502 (#16) Chapman Street WERRINGTON 2747

## **BUILDING SPECIFICATION SUMMARY**

#### **EXTERNAL WALLS**



Reference Number: 920037\_1502

Assessment Date: 22/11/2021

	CONSTRUCTION TYPE	INSULATION	NOTES
EXTERNAL WALLS	Brick Masonry	None	To the Front Elevation Garage wall (as per drawings)
	Brick Veneer	None	To the remainder of Garage external walls
	Framed	R2.0 Batts	Specified external walls (as per drawings)
	Brick Veneer	R2.0 Batts	Throughout remainder of the external walls (as per drawings)

ADDITIONAL NOTES

Location of Construction Materials as per drawings

#### **INTERNAL WALLS**

	CONSTRUCTION TYPE	INSULATION	NOTES
INTERNAL WALLS	Framed	R2.0 Batts	To the Garage internal walls
	Framed	None	Throughout the remaining internal walls

ADDITIONAL NOTES

None

#### **ROOF AND CEILING**

	CONSTRUCTION TYPE	INSULATION	NOTES
ROOF	Tiled (ventilated)	Sarking	Approx. 25"00' Roof Pitch
CEILING	Plasterboard Plasterboard	None R2.5 Insulation	Garage Ceiling Area Main House Area Only
ADDITIONAL NOTES	Location of ceiling insulation as po	er drawings   Roof has been mod	elled as ventilated as per NatHERS Tech

ADDITIONAL NOTES

Notes

### **FLOOR**

	CONSTRUCTION TYPE	INSULATION	NOTES
FLOOR	300mm Waffle   85mm Slab	Integrated	Throughout the Ground Floor
	Timber Suspended	None	Throughout the Upper Floor
ADDITIONAL NOTES	Floor Coverings modelled as per Dra	wings and NatHERS Protocols	

GLASS TYPE	COLOUR	FRAME	U <sub>w</sub> VALUE	SHGC	NOTES
Standard	Clear	Aluminium	6.25	0.72	Sliding Doors
Standard	Clear	Aluminium	6.42	0.76	Sliding Windows
Standard	Clear	Aluminium	6.70	0.70	Fixed Windows
Standard	Clear	Aluminium	6.50	0.63	Awning Windows
Standard	Clear	Timber	5.40	0.63	Entry Sidelight

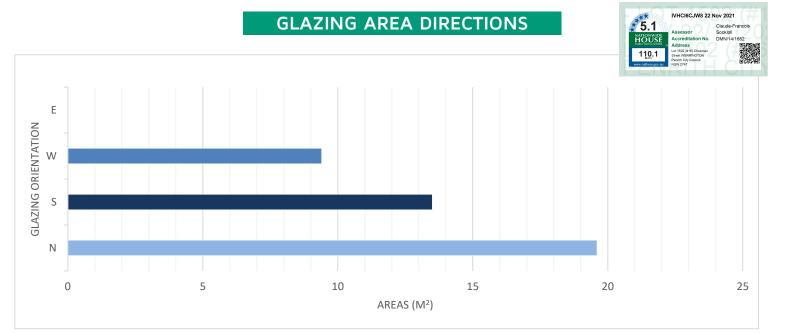
Note: Only a +/-5% SHGC tolerance is allowed with this rating. NB: This tolerance ONLY applies to SHGC, the U-value can always be lower but not higher than the values stated in the report. If any of the windows selected are outside the 5% tolerance then this certificate is no longer valid and the dwelling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



Document Set ID: 9854629

Assessment Date: 22/11/2021
Reference Number: 920037\_1502

#### Lot 1502 (#16) Chapman Street WERRINGTON 2747



The chart above indicates the direction of all glazed doors and windows on the external envelope of the dwelling. To increase the thermal performance of the dwelling:

- 1. Maximise unsheltered northern-aspect glazing.
- 2. Keep west-facing glazing as small as possible: total window area should be less than 5% of the home's total floor area.
- 3. Keep south-facing glazing reasonably small: total window area should be less than 5% of the home's total floor area. Maximise the openable area if possible.
- 4. Keep east-facing glazing to a modest size: total window area should be less than 8% of the home's total floor area

Refer to the floor and elevation plans for shading location

AREA WITHIN THE CLASS 1 BUILDING

#### LIGHTING/PENETRATION CALCULATIONS

#### ARTIFICIAL LIGHTING CALCULATION ALLOWANCES

199.66 m<sup>2</sup>

	Development Total	998.3 Watts	Area Wattage Allowance	5.0 W/m <sup>2</sup>
AREA WITHIN THE CLASS 10 BU	JILDING	38.42 m <sup>2</sup>		
	Development Total	115.3 Watts	Area Wattage Allowance	3.0 W/m <sup>2</sup>
				3.0 11/111
AREA WITHIN THE OUTDOOR A	AREAS	15.51 m²		
	Development Total	62.0 Watts	Area Wattage Allowance	$4 \cap W/m^2$
	Development roto.	02.0 Wotts	Aired Wollage Allowoniec	T.O VV/III

#### **CEILING INSULATION PENETRATION ALLOWANCE**

CLASS 1 MAXIMUM PENETRATION ALLOWANCE

CLASS 1 MAXIMUM PENETRATION AREA (m<sup>2</sup>)

0.5% TOTAL INSULATED CEILING AREA

1.00

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



Document Set ID: 9854629

#### Reference Number: 920037\_1502

Assessment Date: 22/11/2021

#### 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**

# NHCIGGJW8 22 Nov 2021 Language State Stat

#### 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. IVHCI6CJW8**

Generated on 22 Nov 2021 using FirstRate5: 5.3.1a (3.21)

**Property** 

Lot 1502 (#16) Chapman Street WERRINGTON, Penrith City

**Address** Council, NSW, 2747

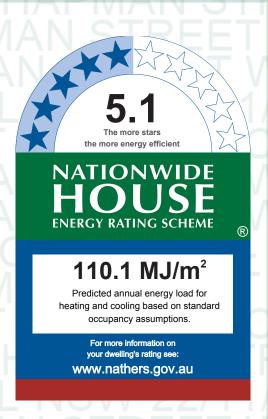
Lot/DP 1502|1226122

NCC Class' Class 1a **Type New Home** 

**Plans** 

Main plan 920037 1502 | 22/11/2021

Prepared by Creation Homes



#### Construction and environment

Assessed floor area (m2)\* **Exposure type** Conditioned\* suburban 153.6

Unconditioned\* NatHERS climate zone 48.8

28 Richmond Total 202.4

Garage 35



Claude-Francois Sookloll

**Business name Energy Advance** 

**Email** energy@energyadvance.com.au

**Phone** 1300 850 228 Accreditation No.

DMN/14/1662

**Assessor Accrediting Organisation** 

**Design Matters National** 

Declaration of interest Declaration completed: no conflicts

## Thermal performance

Heating Cooling

54 56.1

MJ/m<sup>2</sup> MJ/m<sup>2</sup>

#### 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

#### Verification

To verify this certificate, scan the QR code or visit https://www.fr5.com.au /QRCodeLanding?PublicId= **IVHCI6CJW8 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.



#### 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

Perimeter Insulation has not been included in the modelling of this dwelling

Please note, restricted window openings (%) have been modelled as per NCC 2019 requirements

Eaves indicated by the `Horizontal shading feature\* maximum projection (mm)' may not be directly opposing the respective wall (i.e. some eaves may be horizontally offset)

Where applicable, an additional 150mm has been added to the projection of all `Horizontal shading features & eaves' to account for the Gutter & Fascia Board

### 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	
TIM-002-01 W	Timber B SG Clear	5.4	0.63	0.6	0.66	
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74	

#### Custom\* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
WID-001-01 A	Al Residential Awning Window SG 3mm Clear	6.5	0.63	0.6	0.66

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IVHCI6CJW8 NatHERS Certificate		5.1 Star Rating as of 22 I	NATIONWEE HOUSE BOOK AND CONTR		
WID-006-01 A	Al Residential Sliding Window SG Clear	3mm 6.42	0.76	0.72	0.8
WID-005-01 A	Al Residential Internal Sliding Doo 4mm Clear	or SG 6.25	0.72	0.68	0.76

## Window and glazed door Schedule

								Window
Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	shading device*
Study/Bedroom 5	WID-001-01 A	W3	1460	850	awning	90.0	N	No
Study/Bedroom 5	WID-001-01 A	W4	1460	850	awning	90.0	N	No
Media	WID-001-01 A	W2	1800	1810	awning	30.0	N	No
Media	WID-001-01 A	W1	1800	610	awning	30.0	N	No
Entry	TIM-002-01 W	Sidelight A	2040	325	fixed	0.0	N	No
Entry	TIM-002-01 W	Sidelight B	2040	325	fixed	0.0	N	No
Kitchen/Living/- Dining	WID-006-01 A	W6	1800	2170	sliding	30.0	S	No
Kitchen/Living/- Dining	WID-001-01 A	W5	1800	850	awning	30.0	S	No
Kitchen/Living/- Dining	WID-005-01 A	WD3	2110	2676	other	60.0	W	No
Kitchen/Living/- Dining	WID-001-01 A	W7	1800	850	awning	30.0	W	No
Laundry	WID-005-01 A	WD2	2100	1450	sliding	45.0	S	No
Bedroom 4	WID-006-01 A	W15	1030	2410	sliding	10.0	S	No
Bedroom 3	WID-001-01 A	W8	1800	1810	awning	10.0	N	No
Bedroom 2	WID-001-01 A	W10	1460	850	awning	10.0	N	No
Bedroom 2	WID-001-01 A	W11	1460	850	awning	10.0	N	No
Bedroom 1	WID-001-01 A	W12	1200	2410	awning	10.0	N	No
UF Passage	ALM-002-01 A	W9	1800	1570	fixed	0.0	N	No
UF Passage	WID-006-01 A	W16	1030	2170	sliding	10.0	W	No
Bathroom	WID-001-01 A	W14	1200	1570	awning	10.0	S	No
Ensuite	WID-001-01 A	W13	1030	610	awning	10.0	S	No

## Roof window type and performance value

Default\* roof windows

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					
Custom* roof windows					
				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					

#### 5.1 Star Rating as of 22 Nov 2021



#### Roof window schedule

			<u> </u>	_ , ,				
Location	Window ID	Window no.	Opening %	(m²)	Orientation	shade	shade	
				Area		Outdoor	Indoor	

No Data Available

## Skylight type and performance

Skylight ID Skylight description

No Data Available

## Skylight schedule

N. B. C. A. Plate							
Location	Skylight ID	No.	length (mm)	(m²) atior	n shade	Diffuser	reflectance
		Skylight	Skylight shaft	Area Orie	nt- Outdoor		Skylight shaft

No Data Available

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation	
Garage	2100	4810	100.0	N	
Entry	2040	920	100.0	N	

## 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 Thick (Generic) - R2.0 Batts	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No
5	STANDARD - Framed Slim (Generic) - R2.0 Batts	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No

#### External wall schedule

feature

#### **5.1 Star Rating** as of 22 Nov 2021



Media	3	2590	489	N	600	No	
Media	3	2590	683	N	600	Yes	
Entry	3	2590	1869	N	1680	Yes	
Kitchen/Living/Dining	3	2590	4438	S	0	No	
Kitchen/Living/Dining	3	2590	950	Ε	0	Yes	
Kitchen/Living/Dining	3	2590	2439	S	0	Yes	
Kitchen/Living/Dining	3	2590	6738	W	2650	Yes	
Laundry	3	2590	1949	S	0	Yes	
Laundry	3	2590	2100	Е	0	Yes	
Bedroom 4	3	2440	3000	W	600	No	
Bedroom 4	5	2440	3950	S	730	No	
Bedroom 3	3	2440	1080	Е	1680	Yes	
Bedroom 3	4	2440	2728	N	600	Yes	
Bedroom 3	4	2440	191	N	600	No	
Bedroom 3	3	2440	3710	W	600	No	
Bedroom 2	3	2440	2990	N	600	No	
Bedroom 2	3	2440	1080	W	1680	Yes	
Bedroom 2	3	2440	1080	Ε	600	Yes	
Bedroom 1	5	2440	3749	N	730	Yes	
Bedroom 1	5	2440	4000	Ε	730	No	
WIR	5	2440	1950	S	730	Yes	
UF Passage	4	2440	1870	N	1680	Yes	
UF Passage	3	2440	2700	W	600	No	
Bathroom	5	2440	2840	S	730	No	
Bathroom	5	2440	2100	Е	730	Yes	
Ensuite	5	2440	2320	E	730	No	
Ensuite	5	2440	2790	S	730	Yes	

## Internal wall type

Wall ID	Wall type	Area (m²) Bulk insulation			
1	STANDARD - Internal Stud Walls -R2.0 Batts	20.9	Glass fibre batt: R2.0 (R2.0)		
2	STANDARD - Internal Stud Walls	149.2			

## Floor type

		Area	Sub-floor	Added insulation	
Location	Construction	(m²)	ventilation	(R-value)	Covering
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.7	Enclosed	R0.0	none
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	24.3	Enclosed	R0.0	none
Study/Bedroom 5	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.2	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	11.4	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3	Enclosed	R0.0	Carpet
Entry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.6	Enclosed	R0.0	Timber

#### **5.1 Star Rating** as of 22 Nov 2021



Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	37.7	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.7	Enclosed	R0.0	Timber
Passage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.7	Enclosed	R0.0	Timber
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.8	Enclosed	R0.0	Tiles
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.8	Enclosed	R0.0	Tiles
Powder	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.9	Enclosed	R0.0	Tiles
Bedroom 4	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.8	Enclosed	R0.0	Timber
Bedroom 3	FLOOR - Framed Internal Suspended Floor (uninsulated)	10.8	Enclosed	R0.0	Timber
Bedroom 2	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.1	Enclosed	R0.0	Timber
Bedroom 1	FLOOR - Framed Internal Suspended Floor (uninsulated)	16.4	Enclosed	R0.0	Timber
WIR	FLOOR - Framed Internal Suspended Floor (uninsulated)	4.5	Enclosed	R0.0	Timber
UF Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	22.3	Enclosed	R0.0	Timber
WC	FLOOR - Framed Internal Suspended Floor (uninsulated)	1.5	Enclosed	R0.0	Tiles
Bathroom	FLOOR - Framed Internal Suspended Floor (uninsulated)	8.1	Enclosed	R0.0	Tiles
Ensuite	FLOOR - Framed Internal Suspended Floor (uninsulated)	6.5	Enclosed	R0.0	Tiles

## Ceiling type

		Bulk insulation R-value (may	Reflective
Location	Construction material/type	include edge batt values)	wrap*
Garage	Plasterboard	R0.0	Yes
Garage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Study/Bedroom 5	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	Plasterboard	R2.5	Yes
Entry	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	R2.5	Yes
Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Laundry	Plasterboard	R2.5	Yes

#### 5.1 Star Rating as of 22 Nov 2021



Laundry	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Powder	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Bedroom 4	Plasterboard	R2.5	Yes
Bedroom 3	Plasterboard	R2.5	Yes
Bedroom 2	Plasterboard	R2.5	Yes
Bedroom 1	Plasterboard	R2.5	Yes
WIR	Plasterboard	R2.5	Yes
UF Passage	Plasterboard	R2.5	Yes
WC	Plasterboard	R2.5	Yes
Bathroom	Plasterboard	R2.5	Yes
Ensuite	Plasterboard	R2.5	Yes

## Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Living/Dining	1	Exhaust Fans	185	Sealed
Powder	1	Exhaust Fans	250	Sealed
WC	1	Exhaust Fans	250	Sealed
Bathroom	1	Exhaust Fans	250	Sealed
Ensuite	1	Exhaust Fans	250	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	0.8	Dark



#### **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.		

#### **5.1 Star Rating** as of 22 Nov 2021



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).



## ENERGY EFFICIENCY REPORT

**BASIX® Thermal Comfort Simulation Assessment** 

SITE ADDRESS

Lot 1503 (#16) Chapman Street WERRINGTON 2747

LOCAL GOVERNMENT AUTHORITY

Penrith City Council

CLIENT

Lendlease Communities

**COMMISSIONED BY** 

Creation Homes (NSW) Pty. Ltd.

**ASSESSMENT DATE** 

22/11/2021

**DEPOSITED PLAN** 

1226122

**DWELLING TYPE** 

**Double Storey** 

REFERENCE NUMBER

920037\_1503

Document Set ID: 9854629 Version: 1, Version Date: 15/12/2021

#### Assessment Date: 22/11/2021 Reference Number: 920037\_1503

#### PROJECT CERTIFICATION SUMMARY



#### **DESIGN AND APPROVED SOFTWARE INFORMATION**

SIMULATION ENGINE Chenath Engine v3.21

**EXPOSURE Suburban ORIENTATION: 100** 

Nathers Climate Zone: 28

BCA (NCC) CLIMATE ZONE: 6

Dwelling Areas (m²)

199.78 INTERNAL AREAS (m2)

OUTDOOR AREAS (m2) 12.53

GARAGE/CARPORT (m<sup>2</sup>) 38.42

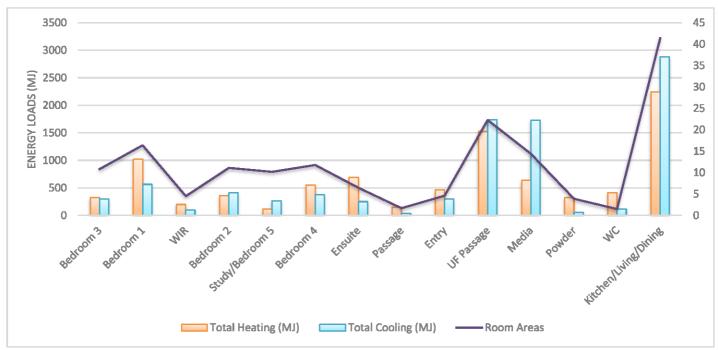
> 250.73 TOTAL:

#### **ASSESSMENT CALCULATIONS & SOFTWARE RESULTS**

TARGET	(MJ/m².pa)	PROPOSED	(MJ/m².pa)	BUILD EFFICIENC	Y BENCHMARK
Heating:	55.7	Heating:	55.0	PASS:	1.3%
Cooling:	56.2	Cooling:	55.7	PASS:	0.9%
Total:	111.9	Total:	110.7		

#### **DWELLING THERMAL PERFORMANCE PER ZONED AREAS**

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: 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



Lot 1503 (#16) Chapman Street WERRINGTON 2747

## **BUILDING SPECIFICATION SUMMARY**

#### **EXTERNAL WALLS**



Reference Number: 920037\_1503

Assessment Date: 22/11/2021

	CONSTRUCTION TYPE	INSULATION	NOTES
	Brick Məsonry	None	To the Front Elevation Garage wall (as per drawings)
EXTERNAL WALLS	Brick Veneer	None	To the remainder of Garage external walls
	Framed	R2.0 Batts	Specified Upper Floor external walls (as per drawings)
	Brick Veneer	R2.0 Batts	Throughout remainder of the external walls (as per drawings)

ADDITIONAL NOTES

Location of Construction Materials as per drawings

#### **INTERNAL WALLS**

	CONSTRUCTION TYPE	INSULATION	NOTES
INTERNAL WALLS	Framed	R2.0 Batts	To the Garage and Laundry internal walls
	Framed	None	Throughout the remaining internal walls

ADDITIONAL NOTES

None

#### **ROOF AND CEILING**

	CONSTRUCTION TYPE	INSULATION	NOTES
ROOF	Tiled (ventilated)	Sarking	Approx. 25"00' Roof Pitch
CEILING	Plasterboard Plasterboard	None R2.5 Insulation	Garage Ceiling Area Main House Area Only
ADDITIONAL MOTES	Location of ceiling insulation as p	er drawings   Roof has been mode	elled as ventilated as per NatHERS Tech

ADDITIONAL NOTES

Location of ceiling insulation as per drawings | Roof has been modelled as ventilated as per NatHERS Tech Notes

#### **FLOOR**

	CONSTRUCTION TYPE	INSULATION	NOTES
FLOOR	300mm Waffle   85mm Slab	Integrated	Throughout the Ground Floor
	Timber Suspended	None	Throughout the Upper Floor
ADDITIONAL MOTEC			

ADDITIONAL NOTES

Floor Coverings modelled as per Drawings and NatHERS Protocols

GLASS TYPE	COLOUR	FRAME	$U_w$ $VALUE$	SHGC	NOTES
Standard	Clear	Aluminium	6.25	0.72	Sliding Doors
Standard	Clear	Aluminium	6.42	0.76	Sliding Windows
Standard	Clear	Aluminium	6.70	0.70	Fixed Windows
Standard	Clear	Aluminium	6.50	0.63	Awning Windows
Standard	Clear	Timber	5.40	0.63	Entry Sidelight

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.

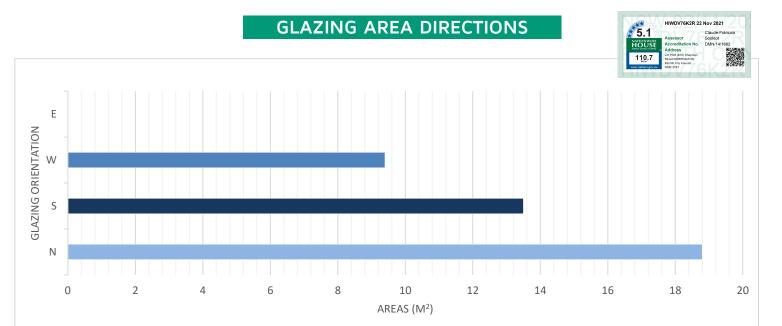


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Reference Number: 920037\_1503

Assessment Date: 22/11/2021



The chart above indicates the direction of all glazed doors and windows on the external envelope of the dwelling. To increase the thermal performance of the dwelling:

- 1. Maximise unsheltered northern-aspect glazing.
- 2. Keep west-facing glazing as small as possible: total window area should be less than 5% of the home's total floor area.
- 3. Keep south-facing glazing reasonably small: total window area should be less than 5% of the home's total floor area. Maximise the openable area if possible.
- 4. Keep east-facing glazing to a modest size: total window area should be less than 8% of the home's total floor area

Refer to the floor and elevation plans for shading location

AREA WITHIN THE CLASS 1 BUILDING

#### LIGHTING/PENETRATION CALCULATIONS

#### ARTIFICIAL LIGHTING CALCULATION ALLOWANCES

199.78 m<sup>2</sup>

Development	Total 998.9 Watt	s Area Wattage Allowance	5.0 W/m <sup>2</sup>
AREA WITHIN THE CLASS 10 BUILDING	38.42 m²		
Development	Total 115.3 Watt	s Area Wattage Allowance	3.0 W/m <sup>2</sup>
AREA WITHIN THE OUTDOOR AREAS	12.53 m²		
Development	Total 50.1 Watt	s Area Wattage Allowance	4.0 W/m <sup>2</sup>

#### **CEILING INSULATION PENETRATION ALLOWANCE**

CLASS 1 MAXIMUM PENETRATION ALLOWANCE

CLASS 1 MAXIMUM PENETRATION AREA (m<sup>2</sup>)

0.5% TOTAL INSULATED CEILING AREA

1.00

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



Document Set ID: 9854629

Lot 1503 (#16) Chapman Street WERRINGTON 2747

## 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**

# 5.1 Assessor Acorditation No. Algorithmic Market Company (No. 1974) Assessor Acorditation No. Algorithmic Market Company (No. 1974) Acorditation No. Acorditati

Assessment Date: 22/11/2021

Reference Number: 920037\_1503

#### 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. HIWDV76K2R

Generated on 22 Nov 2021 using FirstRate5: 5.3.1a (3.21)

**Property** 

Lot 1503 (#16) Chapman Street WERRINGTON, Penrith City

Address Council, NSW, 2747

**Lot/DP** 1503|1226122

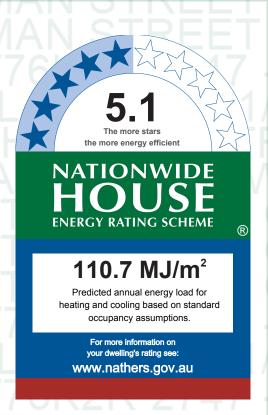
NCC Class\* Class 1a

Type New Home

**Plans** 

Main plan 920037 1503 | 22/11/2021

Prepared by Creation Homes



#### Construction and environment

Assessed floor area (m²)\* Exposure type

Conditioned\* 153.6 suburban

Conditioned\* 153.6 suburbar

Unconditioned\* 48.8 NatHERS climate zone

Total 202.4 28 Richmond

Garage 35

## 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** 

Design Matters National

Declaration of interest Declaration completed: no conflicts

#### Thermal performance

**Heating Cooling** 

55

55.7

MJ/m<sup>2</sup>

MJ/m<sup>2</sup>

#### 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 https://www.fr5.com.au /QRCodeLanding?PublicId= HIWDV76K2R 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.



#### 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

Perimeter Insulation has not been included in the modelling of this dwelling

Please note, restricted window openings (%) have been modelled as per NCC 2019 requirements

Eaves indicated by the `Horizontal shading feature\* maximum projection (mm)' may not be directly opposing the respective wall (i.e. some eaves may be horizontally offset)

Where applicable, an additional 150mm has been added to the projection of all `Horizontal shading features & eaves' to account for the Gutter & Fascia Board

## 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	
TIM-002-01 W	Timber B SG Clear	5.4	0.63	0.6	0.66	
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74	

#### Custom\* windows

				Substitution tolerance ranges		
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit	
WID-001-01 A	Al Residential Awning Window SG 3mm Clear	6.5	0.63	0.6	0.66	

HIWDV76K2R N	atHERS Certificate 5.1 S	<b>5.1 Star Rating</b> as of 22 Nov 2021			
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

## Window and glazed door Schedule

			Uaimbt	\A/: d4b				Window
Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	shading device*
Study/Bedroom 5	WID-001-01 A	W3	1800	850	awning	30.0	N	No
Study/Bedroom 5	WID-001-01 A	W4	1800	850	awning	30.0	N	No
Media	WID-001-01 A	W1	1800	610	awning	30.0	N	No
Media	WID-001-01 A	W2	1800	1810	awning	30.0	N	No
Entry	TIM-002-01 W	Sidelight A	2040	325	fixed	0.0	N	No
Entry	TIM-002-01 W	Sidelight B	2040	325	fixed	0.0	N	No
Kitchen/Living/- Dining	WID-006-01 A	W6	1800	2170	sliding	30.0	S	No
Kitchen/Living/- Dining	WID-001-01 A	W5	1800	850	awning	30.0	S	No
Kitchen/Living/- Dining	WID-005-01 A	WD3	2110	2676	other	60.0	W	No
Kitchen/Living/- Dining	WID-001-01 A	W7	1800	850	awning	30.0	W	No
Laundry	WID-005-01 A	WD2	2100	1450	sliding	45.0	S	No
Bedroom 4	WID-006-01 A	W15	1030	2410	sliding	35.0	S	No
Bedroom 3	WID-001-01 A	W8	1200	1810	awning	35.0	N	No
Bedroom 2	WID-001-01 A	W10	1800	850	awning	35.0	N	No
Bedroom 2	WID-001-01 A	W11	1800	850	awning	35.0	N	No
Bedroom 1	WID-001-01 A	W12	1200	2410	awning	35.0	N	No
UF Passage	ALM-002-01 A	W9	1200	1570	fixed	0.0	N	No
UF Passage	WID-006-01 A	W16	1030	2170	sliding	35.0	W	No
Bathroom	WID-001-01 A	W14	1200	1570	awning	35.0	S	No
Ensuite	WID-001-01 A	W13	1030	610	awning	35.0	S	No

## Roof window type and performance value

Default\* roof windows

				Substitution tolerance ranges		
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit	
No Data Available						
Custom* roof windows						
				Substitution to	lerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit	
No Data Available						

# **5.1 Star Rating** as of 22 Nov 2021



# Roof window schedule

				Area		Outdoor	inaoor
Location	Window ID	Window no.	Opening %	(m²)	Orientation	shade	shade

No Data Available

# Skylight type and performance

Skylight ID Skylight description

No Data Available

# Skylight schedule

Na Data Assallabla							
Location	Skylight ID	No.	length (mm)	(m²) atio	n shade	Diffuser	reflectance
		Skylight	Skylight shaft	Area Orie	ent- Outdoor		Skylight shaft

No Data Available

# External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation	
Garage	2100	4810	100.0	N	
Entry	2040	920	100.0	N	

# 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 Thick (Generic) - R2.0 Batts	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No
5	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)		Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	1	2676	4538	S	0	Yes
Garage	1	2676	6409	E	0	No
Garage	2	2676	5498	N	0	Yes
Study/Bedroom 5	3	2590	1071	E	0	Yes
Study/Bedroom 5	3	2590	2644	N	0	Yes
Study/Bedroom 5	3	2590	347	N	0	No
Study/Bedroom 5	3	2590	1080	W	1570	Yes
Media	3	2590	3709	W	0	No
Media	3	2590	960	S	0	Yes
Media	3	2590	1080	E	1570	Yes
Media	3	2590	3879	N	0	No

# **5.1 Star Rating** as of 22 Nov 2021



Entry	3	2590	1869	N	1080 Yes
Kitchen/Living/Dining	3	2590	4438	S	0 No
Kitchen/Living/Dining	3	2590	950	E	0 Yes
Kitchen/Living/Dining	3	2590	2439	S	0 Yes
Kitchen/Living/Dining	3	2590	6738	W	2650 Yes
Laundry	3	2590	1949	S	0 Yes
Laundry	3	2590	2100	E	0 Yes
Bedroom 4	3	2440	3000	W	600 No
Bedroom 4	4	2440	3950	S	600 No
Bedroom 3	3	2440	1080	Е	1680 Yes
Bedroom 3	3	2440	2920	N	600 No
Bedroom 3	3	2440	3710	W	600 No
Bedroom 2	3	2440	2990	N	600 No
Bedroom 2	3	2440	1080	W	1680 Yes
Bedroom 2	3	2440	1080	E	600 Yes
Bedroom 1	5	2440	3749	N	730 Yes
Bedroom 1	5	2440	4000	Е	730 No
WIR	5	2440	1950	S	730 Yes
UF Passage	3	2440	1870	N	1680 Yes
UF Passage	3	2440	2700	W	600 No
Bathroom	4	2440	2840	S	600 No
Bathroom	5	2440	2100	Е	730 Yes
Ensuite	5	2440	2320	Е	730 No
Ensuite	5	2440	169	S	730 Yes
Ensuite	4	2440	2620	S	600 Yes

# Internal wall type

Wall ID	Wall type	Area (m²)	Bulk insulation
1	STANDARD - Internal Stud Walls -R2.0 Batts	31.2	Glass fibre batt: R2.0 (R2.0)
2	STANDARD - Internal Stud Walls	138.9	

# Floor type

		Area	Sub-floor	Added insulation	
Location	Construction	(m²)	ventilation	(R-value)	Covering
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.7	Enclosed	R0.0	none
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	24.3	Enclosed	R0.0	none
Study/Bedroom 5	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.2	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	11.4	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3	Enclosed	R0.0	Carpet
Entry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.6	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	37.7	Enclosed	R0.0	Timber

# **5.1 Star Rating** as of 22 Nov 2021



Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.7	Enclosed	R0.0	Timber
Passage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.7	Enclosed	R0.0	Timber
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.8	Enclosed	R0.0	Tiles
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.8	Enclosed	R0.0	Tiles
Powder	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.9	Enclosed	R0.0	Tiles
Bedroom 4	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.8	Enclosed	R0.0	Timber
Bedroom 3	FLOOR - Framed Internal Suspended Floor (uninsulated)	10.8	Enclosed	R0.0	Timber
Bedroom 2	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.1	Enclosed	R0.0	Timber
Bedroom 1	FLOOR - Framed Internal Suspended Floor (uninsulated)	16.4	Enclosed	R0.0	Timber
WIR	FLOOR - Framed Internal Suspended Floor (uninsulated)	4.5	Enclosed	R0.0	Timber
UF Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	22.3	Enclosed	R0.0	Timber
WC	FLOOR - Framed Internal Suspended Floor (uninsulated)	1.5	Enclosed	R0.0	Tiles
Bathroom	FLOOR - Framed Internal Suspended Floor (uninsulated)	8.1	Enclosed	R0.0	Tiles
Ensuite	FLOOR - Framed Internal Suspended Floor (uninsulated)	6.5	Enclosed	R0.0	Tiles

# Ceiling type

		Bulk insulation R-value (may	Reflective
Location	Construction material/type	include edge batt values)	wrap*
Garage	Plasterboard	R0.0	Yes
Garage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Study/Bedroom 5	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	Plasterboard	R2.5	Yes
Entry	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	R2.5	Yes
Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Laundry	Plasterboard	R2.5	Yes
Laundry	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No

# **5.1 Star Rating** as of 22 Nov 2021



Powder	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Bedroom 4	Plasterboard	R2.5	Yes
Bedroom 3	Plasterboard	R2.5	Yes
Bedroom 2	Plasterboard	R2.5	Yes
Bedroom 1	Plasterboard	R2.5	Yes
WIR	Plasterboard	R2.5	Yes
UF Passage	Plasterboard	R2.5	Yes
WC	Plasterboard	R2.5	Yes
Bathroom	Plasterboard	R2.5	Yes
Ensuite	Plasterboard	R2.5	Yes

# Ceiling penetrations\*

Location	Quantity	Туре	Diameter (mm)	Sealed/unsealed
Kitchen/Living/Dining	1	Exhaust Fans	185	Sealed
Powder	1	Exhaust Fans	250	Sealed
WC	1	Exhaust Fans	250	Sealed
Bathroom	1	Exhaust Fans	250	Sealed
Ensuite	1	Exhaust Fans	250	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	0.8	Dark



# **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.				

# **5.1 Star Rating** as of 22 Nov 2021



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 the 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).	



# ENERGY EFFICIENCY REPORT

**BASIX® Thermal Comfort Simulation Assessment** 

**SITE ADDRESS** 

Lot 1508 (#16) Chapman Street WERRINGTON 2747

LOCAL GOVERNMENT AUTHORITY

Penrith City Council

CLIENT

Lendlease Communities

**COMMISSIONED BY** 

Creation Homes (NSW) Pty. Ltd.

**ASSESSMENT DATE** 

22/11/2021

**DEPOSITED PLAN** 

1226122

**DWELLING TYPE** 

**Double Storey** 

REFERENCE NUMBER

920037\_1508

Document Set ID: 9854629 Version: 1, Version Date: 15/12/2021

# Assessment Date: 22/11/2021 Reference Number: 920037\_1508

# PROJECT CERTIFICATION SUMMARY



# **DESIGN AND APPROVED SOFTWARE INFORMATION**

SIMULATION ENGINE Chenath Engine v3.21

EXPOSURE Suburban

ORIENTATION: 82

Nathers Climate Zone: 28

BCA (NCC) CLIMATE ZONE: 6

Dwelling Areas (m²)

INTERNAL AREAS (m²) 199.78

OUTDOOR AREAS (m²) 15.95

GARAGE/CARPORT (m²) 38.42

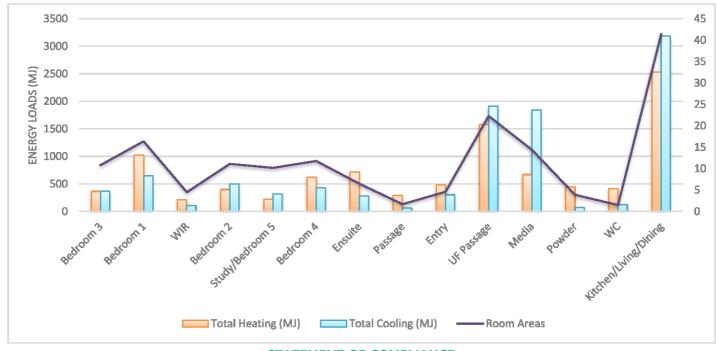
TOTAL: 254.15

#### **ASSESSMENT CALCULATIONS & SOFTWARE RESULTS**

TARGET	(MJ/m².pa)	PROPOSED	(MJ/m².pa)	BUILD EFFICIENC	Y BENCHMARK
Heating:	55.7	Heating:	55.2	PASS:	0.9%
Cooling:	56.2	Cooling:	55.4	PASS:	1.4%
Total:	111.9	Total:	110.6		

#### **DWELLING THERMAL PERFORMANCE PER ZONED AREAS**

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: SIGNATURE:



# **RELEVANT QUALIFICATION STATEMENT**

Certificate 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



Assessment Date: 22/11/2021

# **BUILDING SPECIFICATION SUMMARY**

# **EXTERNAL WALLS**



		CONSTRUCTION TYPE	INSULATION	NOTES
EXTERNAL WALLS	Brick Masonry	None	To the Front Elevation Garage wall (as per drawings)	
	Brick Veneer	None	To the remainder of Garage external walls	
	Framed	R2.0 Batts	Specified Upper Floor external walls (as per drawings)	
		Brick Veneer	R2.0 Batts	Throughout remainder of the external walls (as per drawings)

ADDITIONAL NOTES

Location of Construction Materials as per drawings

# **INTERNAL WALLS**

	CONSTRUCTION TYPE	INSULATION	NOTES
INTERNAL WALLS	Framed	None	Throughout the internal walls

ADDITIONAL NOTES

None

#### **ROOF AND CEILING**

	CONSTRUCTION TYPE	INSULATION	NOTES
ROOF	Tiled (ventilated)	Sarking	Approx. 25"00' Roof Pitch
CEILING	Plasterboard Plasterboard	None R3.0 Insulation	Garage Ceiling Area Main House Area Only
ADDITIONAL NOTES	Location of ceiling insulation as po	er drawings   Roof has been mo	delled as ventilated as per NatHERS Tech

#### **FLOOR**

	CONSTRUCTION TYPE	INSULATION	NOTES
FLOOR	300mm Waffle   85mm Slab	Integrated	Throughout the Ground Floor
	Timber Suspended	None	Throughout the Upper Floor
ADDITIONAL NOTES	Floor Coverings modelled as per Dra	wings and NatHERS Protoco	ols

GLASS TYPE	COLOUR	FRAME	$U_w$ VALUE	SHGC	NOTES
Standard	Clear	Aluminium	6.25	0.72	Sliding Doors
Standard	Clear	Aluminium	6.42	0.76	Sliding Windows
Standard	Clear	Aluminium	6.70	0.70	Fixed Windows
Standard	Clear	Aluminium	6.50	0.63	Awning Windows
Standard	Clear	Timber	5.40	0.63	Entry Sidelight

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.



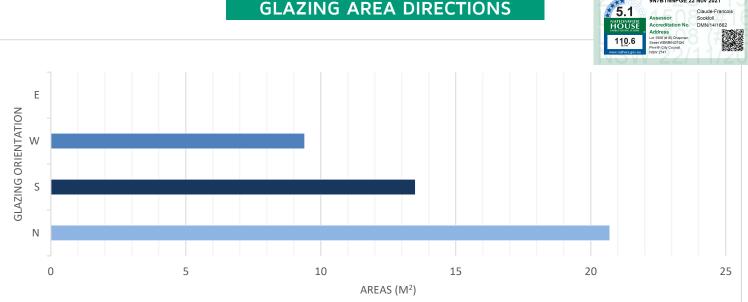
Document Set ID: 9854629

Creation Homes (NSW) Pty. Ltd

Assessment Date: 22/11/2021 Lot 1508 (#16) Chapman Street WERRINGTON 2747

# **GLAZING AREA DIRECTIONS**





The chart above indicates the direction of all glazed doors and windows on the external envelope of the dwelling. To increase the thermal performance of the dwelling:

- 1. Maximise unsheltered northern-aspect glazing.
- 2. Keep west-facing glazing as small as possible: total window area should be less than 5% of the home's total floor area.
- Keep south-facing glazing reasonably small: total window area should be less than 5% of the home's total floor area. Maximise the openable area if possible.
- Keep east-facing glazing to a modest size: total window area should be less than 8% of the home's total floor area

Refer to the floor and elevation plans for shading location

# LIGHTING/PENETRATION CALCULATIONS

# ARTIFICIAL LIGHTING CALCULATION ALLOWANCES

AREA WITHIN THE CLASS 1 BUILDING	199.78 m²	

**Development Total** 998.9 Watts Area Wattage Allowance 5.0 W/m<sup>2</sup>

AREA WITHIN THE CLASS 10 BUILDING 38.42 m<sup>2</sup>

> **Development Total** 115.3 Watts Area Wattage Allowance 3.0 W/m<sup>2</sup>

AREA WITHIN THE OUTDOOR AREAS 15.95 m<sup>2</sup>

> **Development Total** 63.8 Watts Area Wattage Allowance 4.0 W/m<sup>2</sup>

#### **CEILING INSULATION PENETRATION ALLOWANCE**

CLASS 1 MAXIMUM PENETRATION ALLOWANCE

CLASS 1 MAXIMUM PENETRATION AREA (m2)

0.5% TOTAL INSULATED CEILING AREA

1.00

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



Document Set ID: 9854629

# Reference Number: 920037\_1508

Assessment Date: 22/11/2021

# 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. 9N7BTNNPGE

Generated on 22 Nov 2021 using FirstRate5: 5.3.1a (3.21)

**Property** 

Lot 1508 (#16) Chapman Street WERRINGTON, Penrith City

Address Council, NSW, 2747

Lot/DP 1508|1226122

NCC Class\* Class 1a

Type New Home

**Plans** 

Main plan 920037 1508 | 22/11/2021

Prepared by Creation Homes



# Construction and environment

Assessed floor area (m²)\* Exposure type
Conditioned\* 153.6 suburban

Unconditioned\* 48.8 NatHERS climate zone

Total 202.4 28 Richmond

Garage 35

# 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** 

Design Matters National

**Declaration of interest** Declaration completed: no conflicts

# Thermal performance

Heating Cooling

55.2 55.4

MJ/m<sup>2</sup> MJ/m<sup>2</sup>

# 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 https://www.fr5.com.au /QRCodeLanding?PublicId= 9N7BTNNPGE 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.



# 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

Perimeter Insulation has not been included in the modelling of this dwelling

Please note, restricted window openings (%) have been modelled as per NCC 2019 requirements

Eaves indicated by the `Horizontal shading feature\* maximum projection (mm)' may not be directly opposing the respective wall (i.e. some eaves may be horizontally offset)

Where applicable, an additional 150mm has been added to the projection of all `Horizontal shading features & eaves' to account for the Gutter & Fascia Board

# 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	
TIM-002-01 W	Timber B SG Clear	5.4	0.63	0.6	0.66	
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74	

#### Custom\* windows

		Substitution tole		lerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
WID-001-01 A	Al Residential Awning Window SG 3mm Clear	6.5	0.63	0.6	0.66

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9N7BTNNPGE NatHERS Certificate		<b>5.1 Star Rating</b> as of 22	Nov 2021		HOUSE
WID-006-01 A	Al Residential Sliding Window So Clear	G 3mm 6.42	0.76	0.72	0.8
WID-005-01 A	Al Residential Internal Sliding Do 4mm Clear	oor SG 6.25	0.72	0.68	0.76

# Window and glazed door Schedule

								Window
Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	shading device*
Study/Bedroom 5	WID-001-01 A	W3	1800	850	awning	30.0	N	No
Study/Bedroom 5	WID-001-01 A	W4	1800	850	awning	30.0	N	No
Media	WID-001-01 A	W1	1800	610	awning	30.0	N	No
Media	WID-001-01 A	W2	1800	1810	awning	30.0	N	No
Entry	TIM-002-01 W	Sidelight A	2040	325	fixed	0.0	N	No
Entry	TIM-002-01 W	Sidelight B	2040	325	fixed	0.0	N	No
Kitchen/Living/- Dining	WID-006-01 A	W6	1800	2170	sliding	30.0	S	No
Kitchen/Living/- Dining	WID-001-01 A	W5	1800	850	awning	30.0	S	No
Kitchen/Living/- Dining	WID-005-01 A	WD3	2110	2676	other	60.0	W	No
Kitchen/Living/- Dining	WID-001-01 A	W7	1800	850	awning	30.0	W	No
Laundry	WID-005-01 A	WD2	2100	1450	sliding	45.0	S	No
Bedroom 4	WID-006-01 A	W15	1030	2410	sliding	35.0	S	No
Bedroom 3	WID-001-01 A	W8	1200	1810	awning	35.0	N	No
Bedroom 2	WID-001-01 A	W10	1800	850	awning	35.0	N	No
Bedroom 2	WID-001-01 A	W11	1800	850	awning	35.0	N	No
Bedroom 1	WID-005-01 A	WD4	2110	2316	other	60.0	N	No
UF Passage	ALM-002-01 A	W9	1200	1570	fixed	0.0	N	No
UF Passage	WID-006-01 A	W16	1030	2170	sliding	35.0	W	No
Bathroom	WID-001-01 A	W14	1200	1570	awning	35.0	S	No
Ensuite	WID-001-01 A	W13	1030	610	awning	35.0	S	No

# Roof window type and performance value

Default\* roof windows

				Substitution tolerance ranges			
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit		
No Data Available							
Custom* roof windows							
				Substitution to	lerance ranges		
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit		
No Data Available							

# **5.1 Star Rating** as of 22 Nov 2021



# Roof window schedule

				Area		Outdoor	Indoor	
Location	Window ID	Window no.	Opening %	(m²)	Orientation	shade	shade	
•								_

No Data Available

# Skylight type and performance

Skylight ID Skylight description

No Data Available

# Skylight schedule

N. B. C. A. Plate							
Location	Skylight ID	No.	length (mm)	(m²) atior	n shade	Diffuser	reflectance
		Skylight	Skylight shaft	Area Orie	nt- Outdoor		Skylight shaft

No Data Available

# External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation	
Garage	2100	4810	100.0	N	
Entry	2040	920	100.0	N	

# External wall type

Wall ID	Wall type	Solar absorptance	Wall shade	Bulk insulation (R-value)	Reflective wall wrap*
1	STANDARD - Brick Veneer	0.5	Medium	Zam modiation (it value)	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)		Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	1	2676	4538	S	0	Yes
Garage	1	2676	6409	Е	0	No
Garage	2	2676	5498	N	1230	Yes
Study/Bedroom 5	3	2590	1071	Е	3690	Yes
Study/Bedroom 5	3	2590	2644	N	0	Yes
Study/Bedroom 5	3	2590	347	N	0	No
Study/Bedroom 5	3	2590	1080	W	1570	Yes
Media	3	2590	3709	W	0	No
Media	3	2590	960	S	0	Yes
Media	3	2590	1080	E	1570	Yes
Media	3	2590	3879	N	0	No
Entry	3	2590	1869	N	1080	Yes

9N7BTNNPGE NatHERS Certificate	5.1 Star	Rating a	s of 22	Nov 2021		HOUSE
Kitchen/Living/Dining	3	2590	4438	S	0	No
Kitchen/Living/Dining	3	2590	950	Е	0	Yes
Kitchen/Living/Dining	3	2590	2439	S	0	Yes
Kitchen/Living/Dining	3	2590	6738	W	2650	Yes
Laundry	3	2590	1949	S	0	Yes
Laundry	3	2590	2100	E	0	Yes
Bedroom 4	3	2440	3000	W	600	No
Bedroom 4	4	2440	3950	S	730	No
Bedroom 3	3	2440	1080	E	1680	Yes
Bedroom 3	3	2440	2920	N	600	No
Bedroom 3	3	2440	3710	W	600	No
Bedroom 2	3	2440	2665	N	600	Yes
Bedroom 2	3	2440	325	N	600	No
Bedroom 2	3	2440	1080	W	1680	Yes
Bedroom 2	3	2440	1080	E	600	Yes
Bedroom 1	4	2440	3749	N	730	Yes
Bedroom 1	4	2440	4000	E	730	No
WIR	4	2440	1950	S	730	Yes
UF Passage	3	2440	1870	N	1680	Yes
UF Passage	3	2440	2700	W	600	No
Bathroom	4	2440	2840	S	730	No
Bathroom	4	2440	2100	Е	730	Yes

# Internal wall type

Wall ID	Wall type	Area (m²) Bulk insulation
1	STANDARD - Internal Stud Walls	170.1

2440

2440

2320 E

2790 S

# Floor type

Ensuite

Ensuite

		Area	Sub-floor	Added insulation	
Location	Construction	(m²)	ventilation	(R-value)	Covering
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.7	Enclosed	R0.0	none
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	24.3	Enclosed	R0.0	none
Study/Bedroom 5	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.2	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	11.4	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3	Enclosed	R0.0	Carpet
Entry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.6	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	37.7	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.7	Enclosed	R0.0	Timber
Passage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.7	Enclosed	R0.0	Timber

730

730

No

Yes

# **9N7BTNNPGE NatHERS Certificate**

# **5.1 Star Rating** as of 22 Nov 2021



Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.8	Enclosed	R0.0	Tiles
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)		Enclosed	R0.0	Tiles
Powder	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.9	Enclosed	R0.0	Tiles
Bedroom 4	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.8	Enclosed	R0.0	Timber
Bedroom 3	FLOOR - Framed Internal Suspended Floor (uninsulated)	10.8	Enclosed	R0.0	Timber
Bedroom 2	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.1	Enclosed	R0.0	Timber
Bedroom 1	FLOOR - Framed Internal Suspended Floor (uninsulated)	16.4	Enclosed	R0.0	Timber
WIR	FLOOR - Framed Internal Suspended Floor (uninsulated)	4.5	Enclosed	R0.0	Timber
UF Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	22.3	Enclosed	R0.0	Timber
WC	FLOOR - Framed Internal Suspended Floor (uninsulated)	1.5	Enclosed	R0.0	Tiles
Bathroom	FLOOR - Framed Internal Suspended Floor (uninsulated)	8.1	Enclosed	R0.0	Tiles
Ensuite	FLOOR - Framed Internal Suspended Floor (uninsulated)	6.5	Enclosed	R0.0	Tiles

# Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	R0.0	Yes
Garage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Study/Bedroom 5	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	Plasterboard	R3.0	Yes
Entry	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	R3.0	Yes
Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Laundry	Plasterboard	R3.0	Yes
Laundry	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Powder	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Bedroom 4	Plasterboard	R3.0	Yes

# **9N7BTNNPGE NatHERS Certificate**

# 5.1 Star Rating as of 22 Nov 2021



Bedroom 3	Plasterboard	R3.0	Yes
Bedroom 2	Plasterboard	R3.0	Yes
Bedroom 1	Plasterboard	R3.0	Yes
WIR	Plasterboard	R3.0	Yes
UF Passage	Plasterboard	R3.0	Yes
WC	Plasterboard	R3.0	Yes
Bathroom	Plasterboard	R3.0	Yes
Ensuite	Plasterboard	R3.0	Yes

# Ceiling penetrations\*

Location	Quantity	Туре	Diameter (mm)	Sealed/unsealed
Kitchen/Living/Dining	1	Exhaust Fans	185	Sealed
Powder	1	Exhaust Fans	250	Sealed
WC	1	Exhaust Fans	250	Sealed
Bathroom	1	Exhaust Fans	250	Sealed
Ensuite	1	Exhaust Fans	250	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	0.8	Dark



# **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.		

# **9N7BTNNPGE NatHERS Certificate**

# **5.1 Star Rating** as of 22 Nov 2021



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).		



# ENERGY EFFICIENCY REPORT

**BASIX® Thermal Comfort Simulation Assessment** 

**SITE ADDRESS** 

Lot 1509 (#16) Chapman Street WERRINGTON 2747

LOCAL GOVERNMENT AUTHORITY

Penrith City Council

CLIENT

Lendlease Communities

**COMMISSIONED BY** 

Creation Homes (NSW) Pty. Ltd.

**ASSESSMENT DATE** 

22/11/2021

**DEPOSITED PLAN** 

1226122

**DWELLING TYPE** 

**Double Storey** 

REFERENCE NUMBER

920037\_1509

Document Set ID: 9854629 Version: 1, Version Date: 15/12/2021

# Reference Number: 920037\_1509

Assessment Date: 22/11/2021

# PROJECT CERTIFICATION SUMMARY

# UANGSHSS13 22 Nov 2021 Claude-Francois Sociolid Accreditation No. DMN/14/1662 Address Latt 1500 (nt) Chapman Sociol 1500

#### **DESIGN AND APPROVED SOFTWARE INFORMATION**

SIMULATION ENGINE Chenath Engine v3.21

EXPOSURE Suburban

ORIENTATION: 82

Nathers Climate Zone: 28

BCA (NCC) CLIMATE ZONE: 6

Dwelling Areas (m²)

INTERNAL AREAS (m²) 199.66

OUTDOOR AREAS (m²) 15.51

GARAGE/CARPORT (m²)

38.42

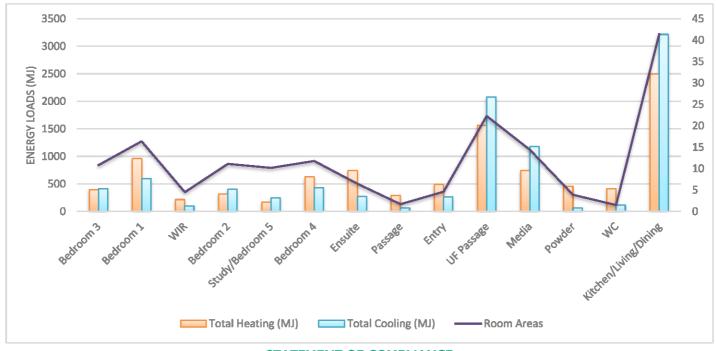
TOTAL: 253.59

#### **ASSESSMENT CALCULATIONS & SOFTWARE RESULTS**

TARGET	(MJ/m².pa)	PROPOSED	(MJ/m².pa)	BUILD EFFICIENC	Y BENCHMARK
Heating:	55.7	Heating:	54.8	PASS:	1.6%
Cooling:	56.2	Cooling:	56.2	PASS:	0.0%
Total:	111.9	Total:	111.0		

#### **DWELLING THERMAL PERFORMANCE PER ZONED AREAS**

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: SIGNATURE:



# **RELEVANT QUALIFICATION STATEMENT**

Certificate 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



Assessment Date: 22/11/2021

# **BUILDING SPECIFICATION SUMMARY**

# **EXTERNAL WALLS**



Reference Number: 920037\_1509

	CONSTRUCTION TYPE	INSULATION	NOTES
	Brick Masonry	None	To the Front Elevation Garage wall (as per drawings)
EXTERNAL WALLS	Brick Veneer	None	To the remainder of Garage external walls
EXTERNAL WALLS	Framed	R2.0 Batts	Specified external walls (as per drawings)
	Brick Veneer	R2.0 Batts	Throughout remainder of the external walls (as per drawings)

ADDITIONAL NOTES

Location of Construction Materials as per drawings

# **INTERNAL WALLS**

	CONSTRUCTION TYPE	INSULATION	NOTES
INTERNAL WALLS	Framed	None	Throughout the internal walls

ADDITIONAL NOTES None

#### **ROOF AND CEILING**

	CONSTRUCTION TYPE	INSULATION	NOTES
ROOF	Tiled (ventilated)	Sarking	Approx. 25"00' Roof Pitch
CEILING	Plasterboard Plasterboard	None R3.0 Insulation	Garage Ceiling Area Main House Area Only
ADDITIONAL NOTES	Location of ceiling insulation as po	er drawings   Roof has been mod	elled as ventilated as per NatHERS Tech

# FLOOR

	CONSTRUCTION TYPE	INSULATION	NOTES
FLOOR	300mm Waffle   85mm Slab	Integrated	Throughout the Ground Floor
	Timber Suspended	None	Throughout the Upper Floor
ADDITIONAL NOTES	Floor Coverings modelled as per Dra	wings and NatHERS Protocols	

GLASS TYPE	COLOUR	FRAME	$U_w$ VALUE	SHGC	NOTES
Standard	Clear	Aluminium	6.25	0.72	Sliding Doors
Standard	Clear	Aluminium	6.42	0.76	Sliding Windows
Standard	Clear	Aluminium	6.70	0.70	Fixed Windows
Standard	Clear	Aluminium	6.50	0.63	Awning Windows
Standard	Clear	Timber	5.40	0.63	Entry Sidelight

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.

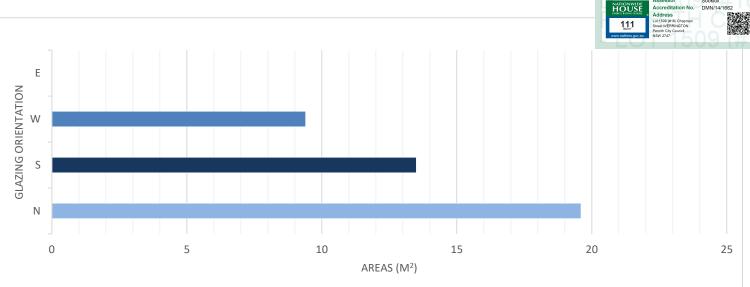


Document Set ID: 9854629

Lot 1509 (#16) Chapman Street WERRINGTON 2747

# **GLAZING AREA DIRECTIONS**





The chart above indicates the direction of all glazed doors and windows on the external envelope of the dwelling. To increase the thermal performance of the dwelling:

- 1. Maximise unsheltered northern-aspect glazing.
- 2. Keep west-facing glazing as small as possible: total window area should be less than 5% of the home's total floor area.
- Keep south-facing glazing reasonably small: total window area should be less than 5% of the home's total floor area. Maximise the openable area if possible.
- Keep east-facing glazing to a modest size: total window area should be less than 8% of the home's total floor area

Refer to the floor and elevation plans for shading location

# LIGHTING/PENETRATION CALCULATIONS

# ARTIFICIAL LIGHTING CALCULATION ALLOWANCES

AREA WITHIN THE CLASS 1 BUILDING	199.66 m²

Development Total Area Wattage Allowance 5.0 W/m<sup>2</sup> 998.3 Watts

AREA WITHIN THE CLASS 10 BUILDING 38.42 m<sup>2</sup>

> **Development Total** 115.3 Watts Area Wattage Allowance 3.0 W/m<sup>2</sup>

AREA WITHIN THE OUTDOOR AREAS 15.51 m<sup>2</sup>

> **Development Total** 62.0 Watts Area Wattage Allowance 4.0 W/m<sup>2</sup>

#### **CEILING INSULATION PENETRATION ALLOWANCE**

CLASS 1 MAXIMUM PENETRATION ALLOWANCE

CLASS 1 MAXIMUM PENETRATION AREA (m2)

0.5% TOTAL INSULATED CEILING AREA

1.00

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



Document Set ID: 9854629

# Reference Number: 920037\_1509

Assessment Date: 22/11/2021

# 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. U4NG5HSS13

Generated on 22 Nov 2021 using FirstRate5: 5.3.1a (3.21)

**Property** 

Lot 1509 (#16) Chapman Street WERRINGTON, Penrith City

Address Council, NSW, 2747

**Lot/DP** 1509|1226122

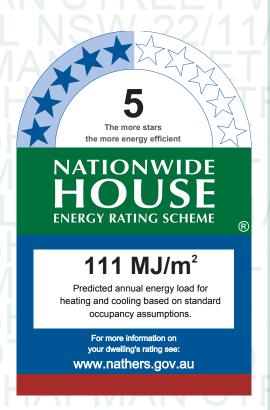
NCC Class\* Class 1a

Type New Home

**Plans** 

Main plan 920037 1509 | 22/11/2021

Prepared by Creation Homes



# Thermal performance

**Heating Cooling** 

54.8

56.2

MJ/m<sup>2</sup>

MJ/m<sup>2</sup>

#### 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

# Verification

To verify this certificate, scan the QR code or visit https://www.fr5.com.au /QRCodeLanding?PublicId=U4NG5HSS13 When using either link, ensure you are visiting www.FR5.com.au.



# Construction and environment

Assessed floor area (m²)\* Exposure type
Conditioned\* 153.6 suburban

Unconditioned\* 48.8 NatHERS climate zone

Total 202.4 28 Richmond

Garage 35

# 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** 

**Design Matters National** 

Declaration of interest Declaration completed: no conflicts

# National Construction Code (NCC) requirements

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

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

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**

BCA Climate Zone: 6

Perimeter Insulation has not been included in the modelling of this dwelling

Please note, restricted window openings (%) have been modelled as per NCC 2019 requirements

Eaves indicated by the `Horizontal shading feature\* maximum projection (mm)' may not be directly opposing the respective wall (i.e. some eaves may be horizontally offset)

Where applicable, an additional 150mm has been added to the projection of all `Horizontal shading features & eaves' to account for the Gutter & Fascia Board

# 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	
TIM-002-01 W	Timber B SG Clear	5.4	0.63	0.6	0.66	
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74	

#### Custom\* windows

				Substitution tolerance ranges		
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit	
WID-001-01 A	Al Residential Awning Window SG 3mm Clear	6.5	0.63	0.6	0.66	

U4NG5HSS13 N	atHERS Certificate 5 Sta	ar Rating as of 22 No	v 2021		HÖÜSE
WID-006-01 A	Al Residential Sliding Window SG 3mr Clear	n 6.42	0.76	0.72	0.8
WID-005-01 A	Al Residential Internal Sliding Door SC 4mm Clear	6.25	0.72	0.68	0.76

# Window and glazed door Schedule

								Window
Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	shading device*
Study/Bedroom 5	WID-001-01 A	W3	1460	850	awning	90.0	N	No
Study/Bedroom 5	WID-001-01 A	W4	1460	850	awning	90.0	N	No
Media	WID-001-01 A	W2	1800	1810	awning	30.0	N	No
Media	WID-001-01 A	W1	1800	610	awning	30.0	N	No
Entry	TIM-002-01 W	Sidelight A	2040	325	fixed	0.0	N	No
Entry	TIM-002-01 W	Sidelight B	2040	325	fixed	0.0	N	No
Kitchen/Living/- Dining	WID-006-01 A	W6	1800	2170	sliding	30.0	S	No
Kitchen/Living/- Dining	WID-001-01 A	W5	1800	850	awning	30.0	S	No
Kitchen/Living/- Dining	WID-005-01 A	WD3	2110	2676	other	60.0	W	No
Kitchen/Living/- Dining	WID-001-01 A	W7	1800	850	awning	30.0	W	No
Laundry	WID-005-01 A	WD2	2100	1450	sliding	45.0	S	No
Bedroom 4	WID-006-01 A	W15	1030	2410	sliding	10.0	S	No
Bedroom 3	WID-001-01 A	W8	1800	1810	awning	10.0	N	No
Bedroom 2	WID-001-01 A	W10	1460	850	awning	10.0	N	No
Bedroom 2	WID-001-01 A	W11	1460	850	awning	10.0	N	No
Bedroom 1	WID-001-01 A	W12	1200	2410	awning	10.0	N	No
UF Passage	ALM-002-01 A	W9	1800	1570	fixed	0.0	N	No
UF Passage	WID-006-01 A	W16	1030	2170	sliding	10.0	W	No
Bathroom	WID-001-01 A	W14	1200	1570	awning	10.0	S	No
Ensuite	WID-001-01 A	W13	1030	610	awning	10.0	S	No

# Roof window type and performance value

Default\* roof windows

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					
Custom* roof windows					
				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					

# 5 Star Rating as of 22 Nov 2021



# Roof window schedule

			<u> </u>	_ ` '				
Location	Window ID	Window no.	Opening %	(m²)	Orientation	shade	shade	
				Area		Outdoor	Indoor	

No Data Available

# Skylight type and performance

Skylight ID Skylight description

No Data Available

# Skylight schedule

N. B. C. A. Plate							
Location	Skylight ID	No.	length (mm)	(m²) atior	n shade	Diffuser	reflectance
		Skylight	Skylight shaft	Area Orie	nt- Outdoor		Skylight shaft

No Data Available

# External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation	
Garage	2100	4810	100.0	N	
Entry	2040	920	100.0	N	

# External wall type

		Solai	vvali Silaue		Reflective
Wall ID	Wall type	absorptance	e (colour)	Bulk insulation (R-value)	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 Thick (Generic) - R2.0 Batts	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No
5	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)		Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	1	2676	4538	S	0	Yes
Garage	1	2676	6409	E	0	No
Garage	2	2676	5498	N	0	Yes
Study/Bedroom 5	3	2590	1071	E	0	Yes
Study/Bedroom 5	3	2590	2644	N	0	Yes
Study/Bedroom 5	3	2590	347	N	0	No
Study/Bedroom 5	3	2590	1080	W	1570	Yes
Media	3	2590	3709	W	0	No
Media	3	2590	960	S	0	Yes
Media	3	2590	1080	E	1570	Yes
Media	4	2590	2706	N	600	Yes

# 5 Star Rating as of 22 Nov 2021



Media	3	2590	489	N	600	No
Media	3	2590	683	N	600	Yes
Entry	3	2590	1869	N	1680	Yes
Kitchen/Living/Dining	3	2590	4438	S	0	No
Kitchen/Living/Dining	3	2590	950	Е	0	Yes
Kitchen/Living/Dining	3	2590	2439	S	0	Yes
Kitchen/Living/Dining	3	2590	6738	W	2650	Yes
Laundry	3	2590	1949	S	0	Yes
Laundry	3	2590	2100	Е	0	Yes
Bedroom 4	3	2440	3000	W	600	No
Bedroom 4	5	2440	3950	S	730	No
Bedroom 3	3	2440	1080	E	1680	Yes
Bedroom 3	4	2440	2728	N	600	Yes
Bedroom 3	4	2440	191	N	600	No
Bedroom 3	3	2440	3710	W	600	No
Bedroom 2	3	2440	2990	N	600	No
Bedroom 2	3	2440	1080	W	1680	Yes
Bedroom 2	3	2440	1080	Е	600	Yes
Bedroom 1	5	2440	3749	N	730	Yes
Bedroom 1	5	2440	4000	Е	730	No
WIR	5	2440	1950	S	730	Yes
UF Passage	4	2440	1870	N	1680	Yes
UF Passage	3	2440	2700	W	600	No
Bathroom	5	2440	2840	S	730	No
Bathroom	5	2440	2100	Е	730	Yes
Ensuite	5	2440	2320	Е	730	No
Ensuite	5	2440	2790	S	730	Yes

# Internal wall type

Wall ID Wall type Area (m²) Bulk insulation

STANDARD - Internal Stud Walls

170.1

# Floor type

		Area	Sub-floor	Added insulation	
Location	Construction	(m²)	ventilation	(R-value)	Covering
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.7	Enclosed	R0.0	none
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	24.3	Enclosed	R0.0	none
Study/Bedroom 5	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.2	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	11.4	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3	Enclosed	R0.0	Carpet
Entry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.6	Enclosed	R0.0	Timber

# 5 Star Rating as of 22 Nov 2021



Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	37.7	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.7	Enclosed	R0.0	Timber
Passage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.7	Enclosed	R0.0	Timber
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.8	Enclosed	R0.0	Tiles
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.8	Enclosed	R0.0	Tiles
Powder	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.9	Enclosed	R0.0	Tiles
Bedroom 4	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.8	Enclosed	R0.0	Timber
Bedroom 3	FLOOR - Framed Internal Suspended Floor (uninsulated)	10.8	Enclosed	R0.0	Timber
Bedroom 2	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.1	Enclosed	R0.0	Timber
Bedroom 1	FLOOR - Framed Internal Suspended Floor (uninsulated)	16.4	Enclosed	R0.0	Timber
WIR	FLOOR - Framed Internal Suspended Floor (uninsulated)	4.5	Enclosed	R0.0	Timber
UF Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	22.3	Enclosed	R0.0	Timber
WC	FLOOR - Framed Internal Suspended Floor (uninsulated)	1.5	Enclosed	R0.0	Tiles
Bathroom	FLOOR - Framed Internal Suspended Floor (uninsulated)	8.1	Enclosed	R0.0	Tiles
Ensuite	FLOOR - Framed Internal Suspended Floor (uninsulated)	6.5	Enclosed	R0.0	Tiles

# Ceiling type

		Bulk insulation R-value (may	Reflective
Location	Construction material/type	include edge batt values)	wrap*
Garage	Plasterboard	R0.0	Yes
Garage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Study/Bedroom 5	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	Plasterboard	R3.0	Yes
Entry	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	R3.0	Yes
Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Laundry	Plasterboard	R3.0	Yes

# 5 Star Rating as of 22 Nov 2021



Laundry	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Powder	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Bedroom 4	Plasterboard	R3.0	Yes
Bedroom 3	Plasterboard	R3.0	Yes
Bedroom 2	Plasterboard	R3.0	Yes
Bedroom 1	Plasterboard	R3.0	Yes
WIR	Plasterboard	R3.0	Yes
UF Passage	Plasterboard	R3.0	Yes
WC	Plasterboard	R3.0	Yes
Bathroom	Plasterboard	R3.0	Yes
Ensuite	Plasterboard	R3.0	Yes

# Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Living/Dining	1	Exhaust Fans	185	Sealed
Powder	1	Exhaust Fans	250	Sealed
WC	1	Exhaust Fans	250	Sealed
Bathroom	1	Exhaust Fans	250	Sealed
Ensuite	1	Exhaust Fans	250	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	0.8	Dark



# **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.

# 5 Star Rating as of 22 Nov 2021



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).



# ENERGY EFFICIENCY REPORT

**BASIX® Thermal Comfort Simulation Assessment** 

**SITE ADDRESS** 

Lot 1510 (#16) Chapman Street WERRINGTON 2747

LOCAL GOVERNMENT AUTHORITY

Penrith City Council

CLIENT

Lendlease Communities

**COMMISSIONED BY** 

Creation Homes (NSW) Pty. Ltd.

**ASSESSMENT DATE** 

22/11/2021

**DEPOSITED PLAN** 

1226122

**DWELLING TYPE** 

**Double Storey** 

REFERENCE NUMBER

920037\_1510

Document Set ID: 9854629 Version: 1, Version Date: 15/12/2021

# Reference Number: 920037\_1510

Assessment Date: 22/11/2021

# PROJECT CERTIFICATION SUMMARY



#### **DESIGN AND APPROVED SOFTWARE INFORMATION**

SIMULATION ENGINE Chenath Engine v3.21

**EXPOSURE Suburban ORIENTATION: 100** 

Nathers Climate Zone: 28

BCA (NCC) CLIMATE ZONE: 6

Dwelling Areas (m2)

199.78 INTERNAL AREAS (m2)

OUTDOOR AREAS (m2) 12.53

GARAGE/CARPORT (m<sup>2</sup>) 38.42

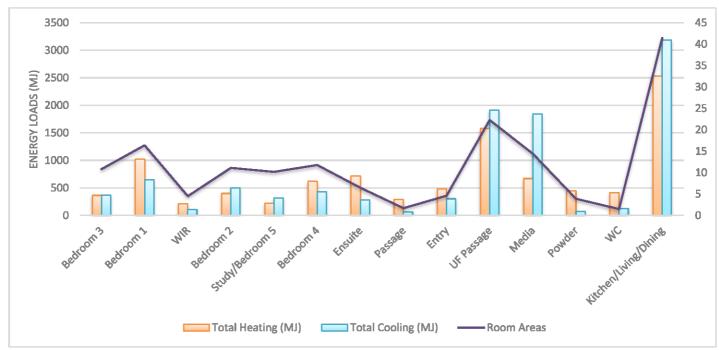
> 250.73 TOTAL:

#### **ASSESSMENT CALCULATIONS & SOFTWARE RESULTS**

TARGET	(MJ/m².pa)	PROPOSED	(MJ/m².pa)	BUILD EFFICIENC	Y BENCHMARK
Heating:	55.7	Heating:	55.7	PASS:	0.0%
Cooling:	56.2	Cooling:	55.7	PASS:	0.9%
Total:	111.9	Total:	111.4		

#### **DWELLING THERMAL PERFORMANCE PER ZONED AREAS**

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: 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



Lot 1510 (#16) Chapman Street WERRINGTON 2747

# **BUILDING SPECIFICATION SUMMARY**

#### **EXTERNAL WALLS**



Assessment Date: 22/11/2021

Reference Number: 920037\_1510

	CONSTRUCTION TYPE	INSULATION	NOTES
EXTERNAL WALLS	Brick Masonry	None	To the Front Elevation Garage wall (as per drawings)
	Brick Veneer	None	To the remainder of Garage external walls
EXTERINAL WALLS	Framed	R2.0 Batts	Specified Upper Floor external walls (as per drawings)
	Brick Veneer	R2.0 Batts	Throughout remainder of the external walls (as per drawings)

ADDITIONAL NOTES

Location of Construction Materials as per drawings

#### **INTERNAL WALLS**

	CONSTRUCTION TYPE	INSULATION	NOTES
INTERNAL WALLS	Framed	None	Throughout the internal walls

ADDITIONAL NOTES

None

#### **ROOF AND CEILING**

	CONSTRUCTION TYPE	INSULATION	NOTES
ROOF	Tiled (ventilated)	Sərking	Approx. 25"00' Roof Pitch
CEILING	Plasterboard Plasterboard	None R3.5 Insulation	Garage Ceiling Area Main House Area Only
ADDITIONAL NOTES	Location of ceiling insulation as p Notes	er drawings   Roof has been mod	delled as ventilated as per NatHERS Tech

#### **FLOOR**

	CONSTRUCTION TYPE	INSULATION	NOTES
FLOOR	300mm Waffle   85mm Slab Timber Suspended	Integrated None	Throughout the Ground Floor Throughout the Upper Floor
ADDITIONAL MOTES		i	1-

ADDITIONAL NOTES Floor Coverings modelled as per Drawings and NatHERS Protocols

GLASS TYPE	COLOUR	FRAME	$U_w$ VALUE	SHGC	NOTES
Standard	Clear	Aluminium	6.25	0.72	Sliding Doors
Standard	Clear	Aluminium	6.42	0.76	Sliding Windows
Standard	Clear	Aluminium	6.70	0.70	Fixed Windows
Standard	Clear	Aluminium	6.50	0.63	Awning Windows
Standard	Clear	Timber	5.40	0.63	Entry Sidelight

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.



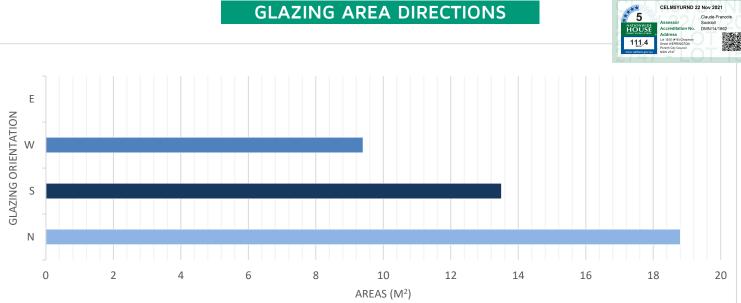
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Lot 1510 (#16) Chapman Street WERRINGTON 2747

## **GLAZING AREA DIRECTIONS**



The chart above indicates the direction of all glazed doors and windows on the external envelope of the dwelling. To increase the thermal performance of the dwelling:

- 1. Maximise unsheltered northern-aspect glazing.
- 2. Keep west-facing glazing as small as possible: total window area should be less than 5% of the home's total floor area.
- 3. Keep south-facing glazing reasonably small: total window area should be less than 5% of the home's total floor area. Maximise the openable area if possible.
- Keep east-facing glazing to a modest size: total window area should be less than 8% of the home's total floor area

Refer to the floor and elevation plans for shading location

AREA WITHIN THE CLASS 1 BUILDING

## LIGHTING/PENETRATION CALCULATIONS

#### ARTIFICIAL LIGHTING CALCULATION ALLOWANCES

199.78 m<sup>2</sup>

I	Development Total	998.9 Watts	Area Wattage Allowance	5.0 W/m <sup>2</sup>
AREA WITHIN THE CLASS 10 BUI	LDING	38.42 m²		
1	Development Total	115.3 Watts	Area Wattage Allowance	3.0 W/m <sup>2</sup>
AREA WITHIN THE OUTDOOR AR	REAS	12.53 m²		
	Development Total	50.1 Watts	Area Wattage Allowance	4.0 W/m <sup>2</sup>

#### **CEILING INSULATION PENETRATION ALLOWANCE**

CLASS 1 MAXIMUM PENETRATION ALLOWANCE

CLASS 1 MAXIMUM PENETRATION AREA (m2)

0.5% TOTAL INSULATED CEILING AREA

1.00

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



Document Set ID: 9854629

### Reference Number: 920037\_1510

Assessment Date: 22/11/2021

## 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. CELM5YURND

Generated on 22 Nov 2021 using FirstRate5: 5.3.1a (3.21)

**Property** 

Lot 1510 (#16) Chapman Street WERRINGTON, Penrith City

Address Council, NSW, 2747

**Lot/DP** 1510|1226122

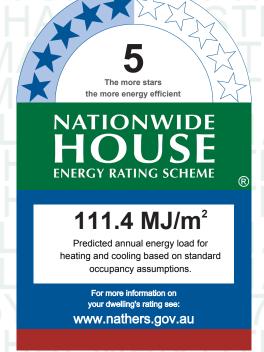
NCC Class\* Class 1a

Type New Home

**Plans** 

Main plan 920037 1510 | 22/11/2021

Prepared by Creation Homes



## Thermal performance

**Heating Cooling** 

55.7 55.7

MJ/m<sup>2</sup> MJ/m<sup>2</sup>

#### 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 https://www.fr5.com.au /QRCodeLanding?PublicId= CELM5YURND When using either link, ensure you are visiting

www.FR5.com.au.



## Construction and environment

Assessed floor area (m²)\* Exposure type
Conditioned\* 153.6 suburban

Unconditioned\* 48.8 NatHERS climate zone

Total 202.4 28 Richmond

Garage 35

# 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** 

Design Matters National

**Declaration of interest** Declaration completed: no conflicts

#### **National Construction Code (NCC) requirements**

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

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

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**

BCA Climate Zone: 6

Perimeter Insulation has not been included in the modelling of this dwelling

Please note, restricted window openings (%) have been modelled as per NCC 2019 requirements

Eaves indicated by the `Horizontal shading feature\* maximum projection (mm)' may not be directly opposing the respective wall (i.e. some eaves may be horizontally offset)

Where applicable, an additional 150mm has been added to the projection of all `Horizontal shading features & eaves' to account for the Gutter & Fascia Board

# 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	
TIM-002-01 W	Timber B SG Clear	5.4	0.63	0.6	0.66	
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74	

#### Custom\* windows

				Substitution tolerance ranges		
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit	
WID-001-01 A	Al Residential Awning Window SG 3mm Clear	6.5	0.63	0.6	0.66	

CELM5YURND NatHERS Certificate		Star Rating as of 22 No	HOUSE		
WID-006-01 A	Al Residential Sliding Window SG 3 Clear	6.42	0.76	0.72	0.8
WID-005-01 A	Al Residential Internal Sliding Door 4mm Clear	SG 6.25	0.72	0.68	0.76

# Window and glazed door Schedule

			Height	Width				Window shading
Location	Window ID	Window no.	(mm)	(mm)	Window type	Opening %	Orientation	device*
Study/Bedroom 5	WID-001-01 A	W3	1800	850	awning	30.0	N	No
Study/Bedroom 5	WID-001-01 A	W4	1800	850	awning	30.0	N	No
Media	WID-001-01 A	W1	1800	610	awning	30.0	N	No
Media	WID-001-01 A	W2	1800	1810	awning	30.0	N	No
Entry	TIM-002-01 W	Sidelight A	2040	325	fixed	0.0	N	No
Entry	TIM-002-01 W	Sidelight B	2040	325	fixed	0.0	N	No
Kitchen/Living/- Dining	WID-006-01 A	W6	1800	2170	sliding	30.0	S	No
Kitchen/Living/- Dining	WID-001-01 A	W5	1800	850	awning	30.0	S	No
Kitchen/Living/- Dining	WID-005-01 A	WD3	2110	2676	other	60.0	W	No
Kitchen/Living/- Dining	WID-001-01 A	W7	1800	850	awning	30.0	W	No
Laundry	WID-005-01 A	WD2	2100	1450	sliding	45.0	S	No
Bedroom 4	WID-006-01 A	W15	1030	2410	sliding	30.0	S	No
Bedroom 3	WID-001-01 A	W8	1200	1810	awning	30.0	N	No
Bedroom 2	WID-001-01 A	W10	1800	850	awning	30.0	N	No
Bedroom 2	WID-001-01 A	W11	1800	850	awning	30.0	N	No
Bedroom 1	WID-001-01 A	W12	1200	2410	awning	30.0	N	No
UF Passage	ALM-002-01 A	W9	1200	1570	fixed	0.0	N	No
UF Passage	WID-006-01 A	W16	1030	2170	sliding	30.0	W	No
Bathroom	WID-001-01 A	W14	1200	1570	awning	30.0	S	No
Ensuite	WID-001-01 A	W13	1030	610	awning	30.0	S	No

# Roof window type and performance value

Default\* roof windows

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					
Custom* roof windows	;				
				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					

## 5 Star Rating as of 22 Nov 2021



## Roof window schedule

				Area		Outdoor	inaoor
Location	Window ID	Window no.	Opening %	(m²)	Orientation	shade	shade
·							

No Data Available

# Skylight type and performance

Skylight ID Skylight description

No Data Available

# Skylight schedule

Na Data Assallabla							
Location	Skylight ID	No.	length (mm)	(m²) atio	n shade	Diffuser	reflectance
		Skylight	Skylight shaft	Area Orie	ent- Outdoor		Skylight shaft

No Data Available

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation	
Garage	2100	4810	100.0	N	
Entry	2040	920	100.0	N	

# 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 Thick (Generic) - R2.0 Batts	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No
5	STANDARD - Framed Slim (Generic) - R2.0 Batts	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No

## External wall schedule

					Horizontal shading	Vertical
	Wall	Height	Width		feature* maximum	shading feature
Location	ID	(mm)	(mm)	Orientation	projection (mm)	(yes/no)
Garage	1	2676	4538	S	0	Yes
Garage	1	2676	6409	E	0	No
Garage	2	2676	5498	N	0	Yes
Study/Bedroom 5	3	2590	1071	E	0	Yes
Study/Bedroom 5	3	2590	2644	N	0	Yes
Study/Bedroom 5	3	2590	347	N	0	No
Study/Bedroom 5	3	2590	1080	W	1570	Yes
Media	3	2590	3709	W	0	No
Media	3	2590	960	S	0	Yes
Media	3	2590	1080	E	1570	Yes
Media	3	2590	3879	N	0	No

CELM5YURND NatHERS Certificate	5 Star R	ating as	of 22 N	ov 2021		HOUSE
Entry	3	2590	1869	N	1080	Yes
Kitchen/Living/Dining	3	2590	4438	S	0	No
Kitchen/Living/Dining	3	2590	950	E	0	Yes
Kitchen/Living/Dining	3	2590	2439	S	0	Yes
Kitchen/Living/Dining	3	2590	6738	W	2650	Yes
Laundry	3	2590	1949	S	0	Yes
Laundry	3	2590	2100	E	0	Yes
Bedroom 4	3	2440	3000	W	600	No
Bedroom 4	4	2440	3950	S	600	No
Bedroom 3	3	2440	1080	E	1680	Yes
Bedroom 3	3	2440	2920	N	600	No
Bedroom 3	3	2440	3710	W	600	No
Bedroom 2	3	2440	2990	N	600	No
Bedroom 2	3	2440	1080	W	1680	Yes
Bedroom 2	3	2440	1080	E	600	Yes
Bedroom 1	5	2440	3749	N	730	Yes
Bedroom 1	5	2440	4000	E	730	No
WIR	5	2440	1950	S	730	Yes
UF Passage	3	2440	1870	N	1680	Yes
UF Passage	3	2440	2700	W	600	No
Bathroom	4	2440	2840	S	600	No
Bathroom	5	2440	2100	E	730	Yes
Ensuite	5	2440	2320	E	730	No
Ensuite	5	2440	169	S	730	Yes
Ensuite	4	2440	2620	S	600	Yes

# Internal wall type

Wall ID	Wall type	Area (m²) Bulk insulation
1	STANDARD - Internal Stud Walls	170.1

# Floor type

		Area	Sub-floor	Added insulation	
Location	Construction	(m²)	ventilation	(R-value)	Covering
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.7	Enclosed	R0.0	none
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	24.3	Enclosed	R0.0	none
Study/Bedroom 5	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.2	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	11.4	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3	Enclosed	R0.0	Carpet
Entry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.6	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	37.7	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.7	Enclosed	R0.0	Timber

#### **CELM5YURND NatHERS Certificate**

## 5 Star Rating as of 22 Nov 2021



Passage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.7	Enclosed	R0.0	Timber
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.8	Enclosed	R0.0	Tiles
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.8	Enclosed	R0.0	Tiles
Powder	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.9	Enclosed	R0.0	Tiles
Bedroom 4	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.8	Enclosed	R0.0	Timber
Bedroom 3	FLOOR - Framed Internal Suspended Floor (uninsulated)	10.8	Enclosed	R0.0	Timber
Bedroom 2	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.1	Enclosed	R0.0	Timber
Bedroom 1	FLOOR - Framed Internal Suspended Floor (uninsulated)	16.4	Enclosed	R0.0	Timber
WIR	FLOOR - Framed Internal Suspended Floor (uninsulated)	4.5	Enclosed	R0.0	Timber
UF Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	22.3	Enclosed	R0.0	Timber
WC	FLOOR - Framed Internal Suspended Floor (uninsulated)	1.5	Enclosed	R0.0	Tiles
Bathroom	FLOOR - Framed Internal Suspended Floor (uninsulated)	8.1	Enclosed	R0.0	Tiles
Ensuite	FLOOR - Framed Internal Suspended Floor (uninsulated)	6.5	Enclosed	R0.0	Tiles

# Ceiling type

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

#### **CELM5YURND NatHERS Certificate**

### 5 Star Rating as of 22 Nov 2021



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

# Ceiling penetrations\*

Location	Quantity	Туре	Diameter (mm)	Sealed/unsealed
Kitchen/Living/Dining	1	Exhaust Fans	185	Sealed
Powder	1	Exhaust Fans	250	Sealed
WC	1	Exhaust Fans	250	Sealed
Bathroom	1	Exhaust Fans	250	Sealed
Ensuite	1	Exhaust Fans	250	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	0.8	Dark



## **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 assu				
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.			

#### **CELM5YURND NatHERS Certificate**

## 5 Star Rating as of 22 Nov 2021



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
<b>Reflective wrap</b> (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
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).



# ENERGY EFFICIENCY REPORT

**BASIX® Thermal Comfort Simulation Assessment** 

SITE ADDRESS

Lot 1515 (#16) Chapman Street WERRINGTON 2747

LOCAL GOVERNMENT AUTHORITY

Penrith City Council

CLIENT

Lendlease Communities

**COMMISSIONED BY** 

Creation Homes (NSW) Pty. Ltd.

**ASSESSMENT DATE** 

22/11/2021

**DEPOSITED PLAN** 

1226122

**DWELLING TYPE** 

**Double Storey** 

REFERENCE NUMBER

920037\_1515

Document Set ID: 9854629 Version: 1, Version Date: 15/12/2021

## Reference Number: 920037\_1515

## PROJECT CERTIFICATION SUMMARY



Assessment Date: 22/11/2021

#### **DESIGN AND APPROVED SOFTWARE INFORMATION**

SIMULATION ENGINE Chenath Engine v3.21 EXPOSURE Suburban

INTERNAL AREAS (m²)

Dwelling Areas ( $m^2$ )  $m^2$ ) 199.78

ORIENTATION: 82

OUTDOOR AREAS (m²)

15.95 38.42

Nathers Climate Zone: 28

GARAGE/CARPORT (m²)

TOTAL:

254.15

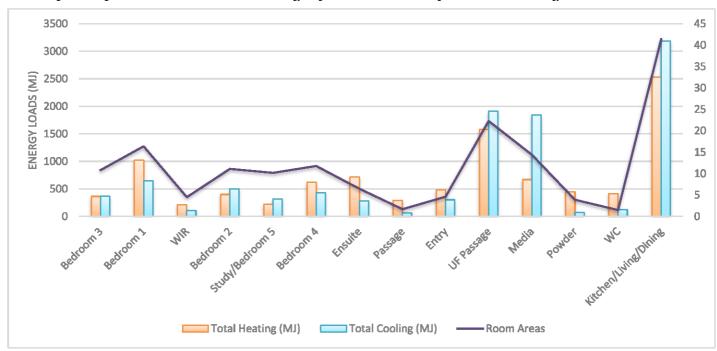
BCA (NCC) CLIMATE ZONE: 6

#### **ASSESSMENT CALCULATIONS & SOFTWARE RESULTS**

TARGET	(MJ/m².pa)	PROPOSED	(MJ/m².pa)	BUILD EFFICIENCY	BENCHMARK
Heating:	55.7	Heating:	55.1	PASS:	1.1%
Cooling:	56.2	Cooling:	55.7	PASS:	0.9%
Total:	111.9	Total:	110.8		

#### **DWELLING THERMAL PERFORMANCE PER ZONED AREAS**

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: SIGNATURE:



### **RELEVANT QUALIFICATION STATEMENT**

Certificate 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



Assessment Date: 22/11/2021 Lot 1515 (#16) Chapman Street WERRINGTON 2747 Reference Number: 920037\_1515

# **BUILDING SPECIFICATION SUMMARY**

#### **EXTERNAL WALLS**



	CONSTRUCTION TYPE	INSULATION	NOTES
EXTERNAL WALLS	Brick Masonry	None	To the Front Elevation Garage wall (as per drawings)
	Brick Veneer	None	To the remainder of Garage external walls
	Framed	R2.0 Batts	Specified Upper Floor external walls (as per drawings)
	Brick Veneer	R2.0 Batts	Throughout remainder of the external walls (as per drawings)

ADDITIONAL NOTES

Location of Construction Materials as per drawings

#### **INTERNAL WALLS**

	CONSTRUCTION TYPE	INSULATION	NOTES
INTERNAL WALLS	Framed	None	Throughout the internal walls

ADDITIONAL NOTES None

#### **ROOF AND CEILING**

	CONSTRUCTION TYPE	INSULATION	NOTES
ROOF	Tiled (ventilated)	Sarking	Approx. 25"00' Roof Pitch
CEILING	Plasterboard Plasterboard	None R3.0 Insulation	Garage Ceiling Area Main House Area Only
ADDITIONAL NOTES	Location of ceiling insulation as p Notes	er drawings   Roof has been mod	delled as ventilated as per NatHERS Tech

#### **FLOOR**

	CONSTRUCTION TYPE	INSULATION	NOTES
FLOOR	300mm Waffle   85mm Slab Timber Suspended	Integrated None	Throughout the Ground Floor Throughout the Upper Floor
ADDITIONAL MOTES		i	1-

Floor Coverings modelled as per Drawings and NatHERS Protocols ADDITIONAL NOTES

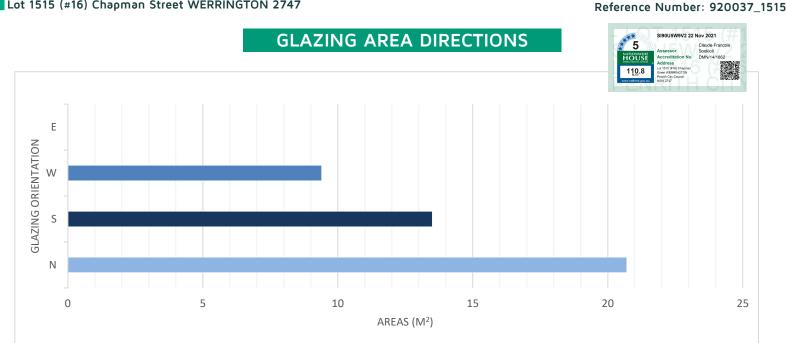
GLASS TYPE	COLOUR	FRAME	U <sub>w</sub> VALUE	SHGC	NOTES
Standard	Clear	Aluminium	6.25	0.72	Sliding Doors
Standard	Clear	Aluminium	6.42	0.76	Sliding Windows
Standard	Clear	Aluminium	6.70	0.70	Fixed Windows
Standard	Clear	Aluminium	6.50	0.63	Awning Windows
Standard	Clear	Timber	5.40	0.63	Entry Sidelight

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



Document Set ID: 9854629

Lot 1515 (#16) Chapman Street WERRINGTON 2747



The chart above indicates the direction of all glazed doors and windows on the external envelope of the dwelling. To increase the thermal performance of the dwelling:

- 1. Maximise unsheltered northern-aspect glazing.
- 2. Keep west-facing glazing as small as possible: total window area should be less than 5% of the home's total floor area.
- Keep south-facing glazing reasonably small: total window area should be less than 5% of the home's total floor area. Maximise the openable area if possible.
- Keep east-facing glazing to a modest size: total window area should be less than 8% of the home's total floor area

Refer to the floor and elevation plans for shading location

AREA WITHIN THE CLASS 1 BUILDING

## LIGHTING/PENETRATION CALCULATIONS

#### ARTIFICIAL LIGHTING CALCULATION ALLOWANCES

199.78 m<sup>2</sup>

	Development Total	998.9 Watts	Area Wattage Allowance	5.0 W/m <sup>2</sup>
AREA WITHIN THE CLASS 10 B	UILDING	38.42 m <sup>2</sup>		
	Development Total	115.3 Watts	Area Wattage Allowance	$3.0 \text{ W/m}^2$
AREA WITHIN THE OUTDOOR	AREAS	15.95 m²		
	Development Total	63.8 Watts	Area Wattage Allowance	$4.0 \text{ W/m}^2$

#### **CEILING INSULATION PENETRATION ALLOWANCE**

CLASS 1 MAXIMUM PENETRATION ALLOWANCE

CLASS 1 MAXIMUM PENETRATION AREA (m2)

0.5% TOTAL INSULATED CEILING AREA

1.00

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



Document Set ID: 9854629

## 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**

# SISOUSWAY 22 Nov 2021 Claude-Francois Sociolal Acceptitation No. DMN-141602 Acceptitation No. DMN-141602 Latistic information Market Market

Assessment Date: 22/11/2021

Reference Number: 920037\_1515

#### 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. SI90U5W9V2

Generated on 22 Nov 2021 using FirstRate5: 5.3.1a (3.21)

**Property** 

Lot 1515 (#16) Chapman Street WERRINGTON, Penrith City

Address Council, NSW, 2747

Lot/DP 1515|1226122

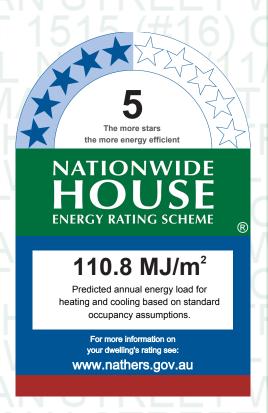
NCC Class\* Class 1a

Type New Home

**Plans** 

Main plan 920037 1515 | 22/11/2021

Prepared by Creation Homes



## Construction and environment

Assessed floor area (m²)\* Exposure type
Conditioned\* 153.6 suburban

Unconditioned\* 48.8 NatHERS climate zone

Total 202.4 28 Richmond

Garage 35

# 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** 

Design Matters National

**Declaration of interest** Declaration completed: no conflicts

# Thermal performance

**Heating Cooling** 

55.1 55.7

MJ/m<sup>2</sup> MJ/m<sup>2</sup>

#### 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 https://www.fr5.com.au /QRCodeLanding?PublicId= SI90U5W9V2 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.



#### 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

Perimeter Insulation has not been included in the modelling of this dwelling

Please note, restricted window openings (%) have been modelled as per NCC 2019 requirements

Eaves indicated by the `Horizontal shading feature\* maximum projection (mm)' may not be directly opposing the respective wall (i.e. some eaves may be horizontally offset)

Where applicable, an additional 150mm has been added to the projection of all `Horizontal shading features & eaves' to account for the Gutter & Fascia Board

# 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	
TIM-002-01 W	Timber B SG Clear	5.4	0.63	0.6	0.66	
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74	

#### Custom\* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
WID-001-01 A	Al Residential Awning Window SG 3mm Clear	6.5	0.63	0.6	0.66

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SI90U5W9V2 Na	tHERS Certificate 5 Star R	ating as of 22 No	ov 2021		HOUSE
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

# Window and glazed door Schedule

								Window
Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	shading device*
Study/Bedroom 5	WID-001-01 A	W3	1800	850	awning	30.0	N	No
Study/Bedroom 5	WID-001-01 A	W4	1800	850	awning	30.0	N	No
Media	WID-001-01 A	W1	1800	610	awning	30.0	N	No
Media	WID-001-01 A	W2	1800	1810	awning	30.0	N	No
Entry	TIM-002-01 W	Sidelight A	2040	325	fixed	0.0	N	No
Entry	TIM-002-01 W	Sidelight B	2040	325	fixed	0.0	N	No
Kitchen/Living/- Dining	WID-006-01 A	W6	1800	2170	sliding	30.0	S	No
Kitchen/Living/- Dining	WID-001-01 A	W5	1800	850	awning	30.0	S	No
Kitchen/Living/- Dining	WID-005-01 A	WD3	2110	2676	other	60.0	W	No
Kitchen/Living/- Dining	WID-001-01 A	W7	1800	850	awning	30.0	W	No
Laundry	WID-005-01 A	WD2	2100	1450	sliding	45.0	S	No
Bedroom 4	WID-006-01 A	W15	1030	2410	sliding	25.0	S	No
Bedroom 3	WID-001-01 A	W8	1200	1810	awning	25.0	N	No
Bedroom 2	WID-001-01 A	W10	1800	850	awning	25.0	N	No
Bedroom 2	WID-001-01 A	W11	1800	850	awning	25.0	N	No
Bedroom 1	WID-005-01 A	WD4	2110	2316	other	60.0	N	No
UF Passage	ALM-002-01 A	W9	1200	1570	fixed	0.0	N	No
UF Passage	WID-006-01 A	W16	1030	2170	sliding	25.0	W	No
Bathroom	WID-001-01 A	W14	1200	1570	awning	25.0	S	No
Ensuite	WID-001-01 A	W13	1030	610	awning	25.0	S	No

# Roof window type and performance value

Default*	roof	wind	ows
Delault	1001	VVIIIU	UVVS

				Substitution tolerance ranges		
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit	
No Data Available						
Custom* roof windows						
				Substitution to	lerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit	
No Data Available						

#### 5 Star Rating as of 22 Nov 2021



## Roof window schedule

				Area		Outdoor	Indoor	
Location	Window ID	Window no.	Opening %	(m²)	Orientation	shade	shade	
								Ξ

No Data Available

# Skylight type and performance

Skylight ID Skylight description

No Data Available

# Skylight schedule

N. B. C. A. Plate							
Location	Skylight ID	No.	length (mm)	(m²) atior	n shade	Diffuser	reflectance
		Skylight	Skylight shaft	Area Orie	nt- Outdoor		Skylight shaft

No Data Available

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation	
Garage	2100	4810	100.0	N	
Entry	2040	920	100.0	N	

# External wall type

Wall ID	Wall type	Solar absorptance	Wall shade	Bulk insulation (R-value)	Reflective wall wrap*
1	STANDARD - Brick Veneer	0.5	Medium	Zam modiation (it value)	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)		Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	1	2676	4538	S	0	Yes
Garage	1	2676	6409	Е	0	No
Garage	2	2676	5498	N	1230	Yes
Study/Bedroom 5	3	2590	1071	Е	3690	Yes
Study/Bedroom 5	3	2590	2644	N	0	Yes
Study/Bedroom 5	3	2590	347	N	0	No
Study/Bedroom 5	3	2590	1080	W	1570	Yes
Media	3	2590	3709	W	0	No
Media	3	2590	960	S	0	Yes
Media	3	2590	1080	E	1570	Yes
Media	3	2590	3879	N	0	No
Entry	3	2590	1869	N	1080	Yes

SI90U5W9V2 NatHERS Certificate	5 Star F	<b>Rating</b> as	of 22 N	ov 2021		NATIONWIDE HOUSE
Kitchen/Living/Dining	3	2590	4438	S	0	No
Kitchen/Living/Dining	3	2590	950	E	0	Yes
Kitchen/Living/Dining	3	2590	2439	S	0	Yes
Kitchen/Living/Dining	3	2590	6738	W	2650	Yes
Laundry	3	2590	1949	S	0	Yes
Laundry	3	2590	2100	E	0	Yes
Bedroom 4	3	2440	3000	W	600	No
Bedroom 4	4	2440	3950	S	730	No
Bedroom 3	3	2440	1080	E	1680	Yes
Bedroom 3	3	2440	2920	N	600	No
Bedroom 3	3	2440	3710	W	600	No
Bedroom 2	3	2440	2665	N	600	Yes
Bedroom 2	3	2440	325	N	600	No
Bedroom 2	3	2440	1080	W	1680	Yes
Bedroom 2	3	2440	1080	E	600	Yes
Bedroom 1	4	2440	3749	N	730	Yes
Bedroom 1	4	2440	4000	E	730	No
WIR	4	2440	1950	S	730	Yes
UF Passage	3	2440	1870	N	1680	Yes
UF Passage	3	2440	2700	W	600	No
Bathroom	4	2440	2840	S	730	No
Bathroom	4	2440	2100	E	730	Yes
Ensuite	4	2440	2320	E	730	No
Ensuite	4	2440	2790	S	730	Yes

# Internal wall type

Wall ID	Wall type	Area (m²) Bulk insulation
1	STANDARD - Internal Stud Walls	170.1

# Floor type

		Area	Sub-floor	Added insulation	
Location	Construction	(m²)	ventilation	(R-value)	Covering
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.7	Enclosed	R0.0	none
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	24.3	Enclosed	R0.0	none
Study/Bedroom 5	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.2	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	11.4	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3	Enclosed	R0.0	Carpet
Entry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.6	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	37.7	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.7	Enclosed	R0.0	Timber
Passage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.7	Enclosed	R0.0	Timber

#### SI90U5W9V2 NatHERS Certificate

## 5 Star Rating as of 22 Nov 2021



Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.8	Enclosed	R0.0	Tiles
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.8	Enclosed	R0.0	Tiles
Powder	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.9	Enclosed	R0.0	Tiles
Bedroom 4	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.8	Enclosed	R0.0	Timber
Bedroom 3	FLOOR - Framed Internal Suspended Floor (uninsulated)	10.8	Enclosed	R0.0	Timber
Bedroom 2	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.1	Enclosed	R0.0	Timber
Bedroom 1	FLOOR - Framed Internal Suspended Floor (uninsulated)	16.4	Enclosed	R0.0	Timber
WIR	FLOOR - Framed Internal Suspended Floor (uninsulated)	4.5	Enclosed	R0.0	Timber
UF Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	22.3	Enclosed	R0.0	Timber
WC	FLOOR - Framed Internal Suspended Floor (uninsulated)	1.5	Enclosed	R0.0	Tiles
Bathroom	FLOOR - Framed Internal Suspended Floor (uninsulated)	8.1	Enclosed	R0.0	Tiles
Ensuite	FLOOR - Framed Internal Suspended Floor (uninsulated)	6.5	Enclosed	R0.0	Tiles

# Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	R0.0	Yes
Garage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Study/Bedroom 5	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	Plasterboard	R3.0	Yes
Entry	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	R3.0	Yes
Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Laundry	Plasterboard	R3.0	Yes
Laundry	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Powder	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Bedroom 4	Plasterboard	R3.0	Yes

#### SI90U5W9V2 NatHERS Certificate

### 5 Star Rating as of 22 Nov 2021



Bedroom 3	Plasterboard	R3.0	Yes
Bedroom 2	Plasterboard	R3.0	Yes
Bedroom 1	Plasterboard	R3.0	Yes
WIR	Plasterboard	R3.0	Yes
UF Passage	Plasterboard	R3.0	Yes
WC	Plasterboard	R3.0	Yes
Bathroom	Plasterboard	R3.0	Yes
Ensuite	Plasterboard	R3.0	Yes

# Ceiling penetrations\*

Location	Quantity	Туре	Diameter (mm)	Sealed/unsealed
Kitchen/Living/Dining	1	Exhaust Fans	185	Sealed
Powder	1	Exhaust Fans	250	Sealed
WC	1	Exhaust Fans	250	Sealed
Bathroom	1	Exhaust Fans	250	Sealed
Ensuite	1	Exhaust Fans	250	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	0.8	Dark



## **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	ual 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.			

#### SI90U5W9V2 NatHERS Certificate

## **5 Star Rating** as of 22 Nov 2021



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)	an be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides sulative properties.		
Roof window	or NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an ttic 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).		



# ENERGY EFFICIENCY REPORT

**BASIX® Thermal Comfort Simulation Assessment** 

SITE ADDRESS

Lot 1516 (#16) Chapman Street WERRINGTON 2747

LOCAL GOVERNMENT AUTHORITY

Penrith City Council

CLIENT

Lendlease Communities

**COMMISSIONED BY** 

Creation Homes (NSW) Pty. Ltd.

**ASSESSMENT DATE** 

22/11/2021

**DEPOSITED PLAN** 

1226122

**DWELLING TYPE** 

**Double Storey** 

REFERENCE NUMBER

920037\_1516

Document Set ID: 9854629 Version: 1, Version Date: 15/12/2021

#### Reference Number: 920037\_1516

## **PROJECT CERTIFICATION SUMMARY**



Assessment Date: 22/11/2021

#### **DESIGN AND APPROVED SOFTWARE INFORMATION**

SIMULATION ENGINE Chenath Engine v3.21

EXPOSURE Suburban

ORIENTATION: 82
Nathers Climate Zone: 28

BCA (NCC) CLIMATE ZONE: 6

Dwelling Areas (m²)

INTERNAL AREAS (m²) 199.66

OUTDOOR AREAS (m²) 15.51

GARAGE/CARPORT (m²)

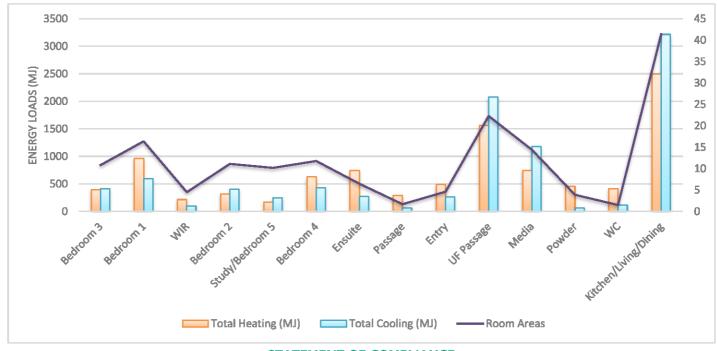
ORT (m²) 38.42 **TOTAL: 253.59** 

#### **ASSESSMENT CALCULATIONS & SOFTWARE RESULTS**

TARGET	(MJ/m².pa)	PROPOSED	(MJ/m².pa)	BUILD EFFICIENCY	<b>PENCHMARK</b>
Heating:	55.7	Heating:	54.9	PASS:	1.4%
Cooling:	56.2	Cooling:	56.1	PASS:	0.2%
Total:	111.9	Total:	111.0		

#### **DWELLING THERMAL PERFORMANCE PER ZONED AREAS**

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: SIGNATURE:



### **RELEVANT QUALIFICATION STATEMENT**

Certificate 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



d. Assessment Date: 22/11/2021

# **BUILDING SPECIFICATION SUMMARY**

#### **EXTERNAL WALLS**



Reference Number: 920037\_1516

	CONSTRUCTION TYPE	INSULATION	NOTES
	Brick Masonry	None	To the Front Elevation Garage wall (as per drawings)
EXTERNAL WALLS	Brick Veneer	None	To the remainder of Garage external walls
EXTERNAL WALLS	Framed	R2.0 Batts	Specified external walls (as per drawings)
	Brick Veneer	R2.0 Batts	Throughout remainder of the external walls (as per drawings)

ADDITIONAL NOTES

Location of Construction Materials as per drawings

#### **INTERNAL WALLS**

	CONSTRUCTION TYPE	INSULATION	NOTES
INTERNAL WALLS	Framed	None	Throughout the internal walls

ADDITIONAL NOTES None

#### **ROOF AND CEILING**

	CONSTRUCTION TYPE	INSULATION	NOTES
ROOF	Tiled (ventilated)	Sarking	Approx. 25"00' Roof Pitch
CEILING	Plasterboard Plasterboard	None R3.0 Insulation	Garage Ceiling Area Main House Area Only
ADDITIONAL NOTES	Location of ceiling insulation as p Notes	er drawings   Roof has been mod	delled as ventilated as per NatHERS Tech

#### **FLOOR**

	CONSTRUCTION TYPE	INSULATION	NOTES
FLOOR	300mm Waffle   85mm Slab	Integrated	Throughout the Ground Floor
	Timber Suspended	None	Throughout the Upper Floor
ADDITIONAL NOTES	Floor Coverings modelled as per Dra	wings and NatHERS Protocols	

GLASS TYPE	COLOUR	FRAME	U <sub>w</sub> VALUE	SHGC	NOTES
Standard	Clear	Aluminium	6.25	0.72	Sliding Doors
Standard	Clear	Aluminium	6.42	0.76	Sliding Windows
Standard	Clear	Aluminium	6.70	0.70	Fixed Windows
Standard	Clear	Aluminium	6.50	0.63	Awning Windows
Standard	Clear	Timber	5.40	0.63	Entry Sidelight

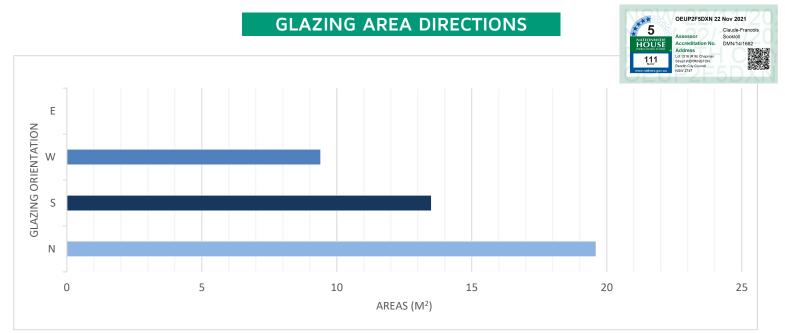
Note: Only a +/-5% SHGC tolerance is allowed with this rating. NB: This tolerance ONLY applies to SHGC, the U-value can always be lower but not higher than the values stated in the report. If any of the windows selected are outside the 5% tolerance then this certificate is no longer valid and the dwelling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



Document Set ID: 9854629

Assessment Date: 22/11/2021
Reference Number: 920037\_1516

Lot 1516 (#16) Chapman Street WERRINGTON 2747



The chart above indicates the direction of all glazed doors and windows on the external envelope of the dwelling. To increase the thermal performance of the dwelling:

- 1. Maximise unsheltered northern-aspect glazing.
- 2. Keep west-facing glazing as small as possible: total window area should be less than 5% of the home's total floor area.
- 3. Keep south-facing glazing reasonably small: total window area should be less than 5% of the home's total floor area. Maximise the openable area if possible.
- 4. Keep east-facing glazing to a modest size: total window area should be less than 8% of the home's total floor area

Refer to the floor and elevation plans for shading location

AREA WITHIN THE CLASS 1 BUILDING

## LIGHTING/PENETRATION CALCULATIONS

### ARTIFICIAL LIGHTING CALCULATION ALLOWANCES

199.66 m<sup>2</sup>

	Development Total	998.3 Watts	Area Wattage Allowance	5.0 W/m <sup>2</sup>
AREA WITHIN THE CLASS 10 BU	JILDING	38.42 m <sup>2</sup>		
	Development Total	115.3 Watts	Area Wattage Allowance	3.0 W/m <sup>2</sup>
AREA WITHIN THE OUTDOOR A	REAS	15.51 m²		
	Development Total	62.0 Watts	Area Wattage Allowance	4.0 W/m <sup>2</sup>

#### **CEILING INSULATION PENETRATION ALLOWANCE**

CLASS 1 MAXIMUM PENETRATION ALLOWANCE

CLASS 1 MAXIMUM PENETRATION AREA (m<sup>2</sup>)

0.5% TOTAL INSULATED CEILING AREA

1.00

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



Document Set ID: 9854629

# 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**



Assessment Date: 22/11/2021

Reference Number: 920037\_1516

#### 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. OEUP2F5DXN

Generated on 22 Nov 2021 using FirstRate5: 5.3.1a (3.21)

**Property** 

Lot 1516 (#16) Chapman Street WERRINGTON, Penrith City

Address Council, NSW, 2747

**Lot/DP** 1516|1226122

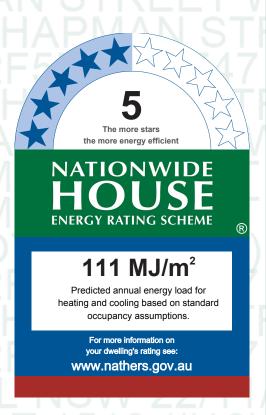
NCC Class\* Class 1a

Type New Home

**Plans** 

Main plan 920037 1516 | 22/11/2021

Prepared by Creation Homes



## Thermal performance

Heating Cooling

54.9

56.1

MJ/m<sup>2</sup>

MJ/m<sup>2</sup>

#### 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 https://www.fr5.com.au /QRCodeLanding?PublicId= OEUP2F5DXN When using either link, ensure you are visiting www.FR5.com.au.



## Construction and environment

Assessed floor area (m²)\* Exposure type

Conditioned\* 153.6 suburban

Unconditioned\* 48.8 NatHERS climate zone

Total 202.4 28 Richmond

Garage 35

# 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** 

Design Matters National

**Declaration of interest** Declaration completed: no conflicts

#### National Construction Code (NCC) requirements

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

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

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**

BCA Climate Zone: 6

Perimeter Insulation has not been included in the modelling of this dwelling

Please note, restricted window openings (%) have been modelled as per NCC 2019 requirements

Eaves indicated by the `Horizontal shading feature\* maximum projection (mm)' may not be directly opposing the respective wall (i.e. some eaves may be horizontally offset)

Where applicable, an additional 150mm has been added to the projection of all `Horizontal shading features & eaves' to account for the Gutter & Fascia Board

# 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
TIM-002-01 W	Timber B SG Clear	5.4	0.63	0.6	0.66
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74

#### Custom\* windows

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
WID-001-01 A	Al Residential Awning Window SG 3mm Clear	6.5	0.63	0.6	0.66

OEUP2F5DXN N	atHERS Certificate 5 Star	Rating as of 22 No	v 2021		HÖÜÜSE
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

# Window and glazed door Schedule

			Height	Width				Window shading
Location	Window ID	Window no.	(mm)	(mm)	Window type	Opening %	Orientation	device*
Study/Bedroom 5	WID-001-01 A	W3	1460	850	awning	90.0	N	No
Study/Bedroom 5	WID-001-01 A	W4	1460	850	awning	90.0	N	No
Media	WID-001-01 A	W2	1800	1810	awning	30.0	N	No
Media	WID-001-01 A	W1	1800	610	awning	30.0	N	No
Entry	TIM-002-01 W	Sidelight A	2040	325	fixed	0.0	N	No
Entry	TIM-002-01 W	Sidelight B	2040	325	fixed	0.0	N	No
Kitchen/Living/- Dining	WID-006-01 A	W6	1800	2170	sliding	30.0	S	No
Kitchen/Living/- Dining	WID-001-01 A	W5	1800	850	awning	30.0	S	No
Kitchen/Living/- Dining	WID-005-01 A	WD3	2110	2676	other	60.0	W	No
Kitchen/Living/- Dining	WID-001-01 A	W7	1800	850	awning	30.0	W	No
Laundry	WID-005-01 A	WD2	2100	1450	sliding	45.0	S	No
Bedroom 4	WID-006-01 A	W15	1030	2410	sliding	10.0	S	No
Bedroom 3	WID-001-01 A	W8	1800	1810	awning	10.0	N	No
Bedroom 2	WID-001-01 A	W10	1460	850	awning	10.0	N	No
Bedroom 2	WID-001-01 A	W11	1460	850	awning	10.0	N	No
Bedroom 1	WID-001-01 A	W12	1200	2410	awning	10.0	N	No
UF Passage	ALM-002-01 A	W9	1800	1570	fixed	0.0	N	No
UF Passage	WID-006-01 A	W16	1030	2170	sliding	10.0	W	No
Bathroom	WID-001-01 A	W14	1200	1570	awning	10.0	S	No
Ensuite	WID-001-01 A	W13	1030	610	awning	10.0	S	No

# Roof window type and performance value

Default\* roof windows

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					
Custom* roof windows	6				
				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					

#### 5 Star Rating as of 22 Nov 2021



## Roof window schedule

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

No Data Available

# Skylight type and performance

Skylight ID Skylight description

No Data Available

# Skylight schedule

N. B. C. A. Plate							
Location	Skylight ID	No.	length (mm)	(m²) atior	n shade	Diffuser	reflectance
		Skylight	Skylight shaft	Area Orie	nt- Outdoor		Skylight shaft

No Data Available

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation	
Garage	2100	4810	100.0	N	
Entry	2040	920	100.0	N	

# External wall type

		Solai	vvali Silaue		Reflective
Wall ID	Wall type	absorptance	e (colour)	Bulk insulation (R-value)	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 Thick (Generic) - R2.0 Batts	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No
5	STANDARD - Framed Slim (Generic) - R2.0 Batts	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No

## External wall schedule

feature

## **OEUP2F5DXN NatHERS Certificate**

### 5 Star Rating as of 22 Nov 2021



						<del></del>
Media	3	2590	489	N	600	No
Media	3	2590	683	N	600	Yes
Entry	3	2590	1869	N	1680	Yes
Kitchen/Living/Dining	3	2590	4438	S	0	No
Kitchen/Living/Dining	3	2590	950	Е	0	Yes
Kitchen/Living/Dining	3	2590	2439	S	0	Yes
Kitchen/Living/Dining	3	2590	6738	W	2650	Yes
Laundry	3	2590	1949	S	0	Yes
Laundry	3	2590	2100	Е	0	Yes
Bedroom 4	3	2440	3000	W	600	No
Bedroom 4	5	2440	3950	S	730	No
Bedroom 3	3	2440	1080	Е	1680	Yes
Bedroom 3	4	2440	2728	N	600	Yes
Bedroom 3	4	2440	191	N	600	No
Bedroom 3	3	2440	3710	W	600	No
Bedroom 2	3	2440	2990	N	600	No
Bedroom 2	3	2440	1080	W	1680	Yes
Bedroom 2	3	2440	1080	Е	600	Yes
Bedroom 1	5	2440	3749	N	730	Yes
Bedroom 1	5	2440	4000	Е	730	No
WIR	5	2440	1950	S	730	Yes
UF Passage	4	2440	1870	N	1680	Yes
UF Passage	3	2440	2700	W	600	No
Bathroom	5	2440	2840	S	730	No
Bathroom	5	2440	2100	Е	730	Yes
Ensuite	5	2440	2320	Е	730	No
Ensuite	5	2440	2790	S	730	Yes

# Internal wall type

Wall ID Wall type Area (m²) Bulk insulation

1 STANDARD - Internal Stud Walls 170.1

# Floor type

Location	Construction		Sub-floor ventilation	Added insulation (R-value)	Covering
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.7	Enclosed	R0.0	none
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	24.3	Enclosed	R0.0	none
Study/Bedroom 5	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.2	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	11.4	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3	Enclosed	R0.0	Carpet
Entry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.6	Enclosed	R0.0	Timber

#### **OEUP2F5DXN NatHERS Certificate**

#### 5 Star Rating as of 22 Nov 2021



Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	37.7	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.7	Enclosed	R0.0	Timber
Passage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.7	Enclosed	R0.0	Timber
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.8	Enclosed	R0.0	Tiles
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.8	Enclosed	R0.0	Tiles
Powder	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.9	Enclosed	R0.0	Tiles
Bedroom 4	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.8	Enclosed	R0.0	Timber
Bedroom 3	FLOOR - Framed Internal Suspended Floor (uninsulated)	10.8	Enclosed	R0.0	Timber
Bedroom 2	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.1	Enclosed	R0.0	Timber
Bedroom 1	FLOOR - Framed Internal Suspended Floor (uninsulated)	16.4	Enclosed	R0.0	Timber
WIR	FLOOR - Framed Internal Suspended Floor (uninsulated)	4.5	Enclosed	R0.0	Timber
UF Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	22.3	Enclosed	R0.0	Timber
WC	FLOOR - Framed Internal Suspended Floor (uninsulated)	1.5	Enclosed	R0.0	Tiles
Bathroom	FLOOR - Framed Internal Suspended Floor (uninsulated)	8.1	Enclosed	R0.0	Tiles
Ensuite	FLOOR - Framed Internal Suspended Floor (uninsulated)	6.5	Enclosed	R0.0	Tiles

# Ceiling type

		Bulk insulation R-value (may	Reflective
Location	Construction material/type	include edge batt values)	wrap*
Garage	Plasterboard	R0.0	Yes
Garage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Study/Bedroom 5	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	Plasterboard	R3.0	Yes
Entry	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	R3.0	Yes
Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Laundry	Plasterboard	R3.0	Yes

#### **OEUP2F5DXN NatHERS Certificate**

#### 5 Star Rating as of 22 Nov 2021



Laundry	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Powder	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Bedroom 4	Plasterboard	R3.0	Yes
Bedroom 3	Plasterboard	R3.0	Yes
Bedroom 2	Plasterboard	R3.0	Yes
Bedroom 1	Plasterboard	R3.0	Yes
WIR	Plasterboard	R3.0	Yes
UF Passage	Plasterboard	R3.0	Yes
WC	Plasterboard	R3.0	Yes
Bathroom	Plasterboard	R3.0	Yes
Ensuite	Plasterboard	R3.0	Yes

# Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Living/Dining	1	Exhaust Fans	185	Sealed
Powder	1	Exhaust Fans	250	Sealed
WC	1	Exhaust Fans	250	Sealed
Bathroom	1	Exhaust Fans	250	Sealed
Ensuite	1	Exhaust Fans	250	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	0.8	Dark



#### **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	I 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.		

#### **OEUP2F5DXN NatHERS Certificate**

#### 5 Star Rating as of 22 Nov 2021



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).



# **ENERGY EFFICIENCY REPORT**

**BASIX® Thermal Comfort Simulation Assessment** 

**SITE ADDRESS** 

Lot 1517 (#16) Chapman Street WERRINGTON 2747

LOCAL GOVERNMENT AUTHORITY

Penrith City Council

CLIENT

Lendlease Communities

**COMMISSIONED BY** 

Creation Homes (NSW) Pty. Ltd.

**ASSESSMENT DATE** 

22/11/2021

**DEPOSITED PLAN** 

1226122

**DWELLING TYPE** 

**Double Storey** 

**REFERENCE NUMBER** 

920037\_1517

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Document Set ID: 9854629 Version: 1, Version Date: 15/12/2021

## Reference Number: 920037\_1517

#### PROJECT CERTIFICATION SUMMARY



Assessment Date: 22/11/2021

#### **DESIGN AND APPROVED SOFTWARE INFORMATION**

SIMULATION ENGINE Chenath Engine v3.21

EXPOSURE Suburban

ORIENTATION: 100

Nathers Climate Zone: 28

BCA (NCC) CLIMATE ZONE: 6

Dwelling Areas (m²)

INTERNAL AREAS (m²) 199.78

OUTDOOR AREAS (m²) 12.53

GARAGE/CARPORT (m²) 38.42

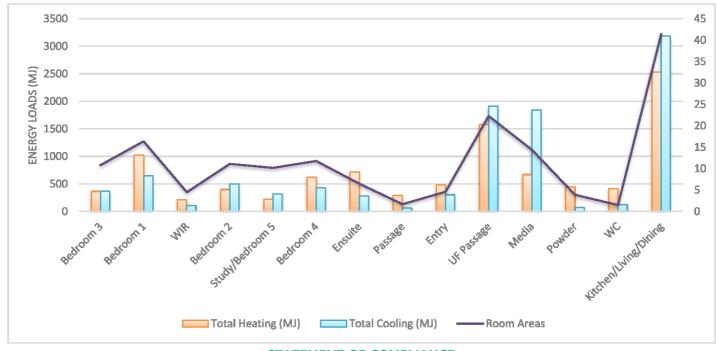
TOTAL: 250.73

#### **ASSESSMENT CALCULATIONS & SOFTWARE RESULTS**

TARGET	(MJ/m².pa)	PROPOSED	(MJ/m².pa)	BUILD EFFICIENC	Y BENCHMARK
Heating:	55.7	Heating:	55.7	PASS:	0.0%
Cooling:	56.2	Cooling:	55.4	PASS:	1.4%
Total:	111.9	Total:	111.1		

#### **DWELLING THERMAL PERFORMANCE PER ZONED AREAS**

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: SIGNATURE:



#### **RELEVANT QUALIFICATION STATEMENT**

Certificate 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



Lot 1517 (#16) Chapman Street WERRINGTON 2747

# **BUILDING SPECIFICATION SUMMARY**

#### **EXTERNAL WALLS**



Assessment Date: 22/11/2021

Reference Number: 920037\_1517

	CONSTRUCTION TYPE	INSULATION	NOTES
EXTERNAL WALLS	Brick Masonry	None	To the Front Elevation Garage wall (as per drawings)
	Brick Veneer	None	To the remainder of Garage external walls
	Framed	R2.0 Batts	Specified Upper Floor external walls (as per drawings)
	Brick Veneer	R2.0 Batts	Throughout remainder of the external walls (as per drawings)

ADDITIONAL NOTES

Location of Construction Materials as per drawings

#### **INTERNAL WALLS**

	CONSTRUCTION TYPE	INSULATION	NOTES
INTERNAL WALLS	Framed	None	Throughout the internal walls

ADDITIONAL NOTES None

#### **ROOF AND CEILING**

	CONSTRUCTION TYPE	INSULATION	NOTES
ROOF	Tiled (ventilated)	Sarking	Approx. 25"00' Roof Pitch
CEILING	Plasterboard Plasterboard	None R3.5 Insulation	Garage Ceiling Area Main House Area Only
ADDITIONAL NOTES	Location of ceiling insulation as po	er drawings   Roof has been mod	elled as ventilated as per NatHERS Tech

#### **FLOOR**

	CONSTRUCTION TYPE	INSULATION	NOTES
FLOOR	300mm Waffle   85mm Slab Timber Suspended	Integrated None	Throughout the Ground Floor Throughout the Upper Floor
ADDITIONAL MOTES		i	1-

ADDITIONAL NOTES Floor Coverings modelled as per Drawings and NatHERS Protocols

GLASS TYPE	COLOUR	FRAME	U <sub>w</sub> VALUE	SHGC	NOTES
Standard	Clear	Aluminium	6.25	0.72	Sliding Doors
Standard	Clear	Aluminium	6.42	0.76	Sliding Windows
Standard	Clear	Aluminium	6.70	0.70	Fixed Windows
Standard	Clear	Aluminium	6.50	0.63	Awning Windows
Standard	Clear	Timber	5.40	0.63	Entry Sidelight

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.

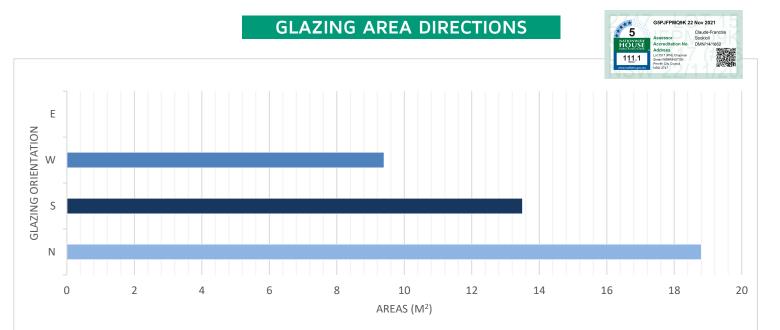


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#### Lot 1517 (#16) Chapman Street WERRINGTON 2747



The chart above indicates the direction of all glazed doors and windows on the external envelope of the dwelling. To increase the thermal performance of the dwelling:

- 1. Maximise unsheltered northern-aspect glazing.
- 2. Keep west-facing glazing as small as possible: total window area should be less than 5% of the home's total floor area.
- 3. Keep south-facing glazing reasonably small: total window area should be less than 5% of the home's total floor area. Maximise the openable area if possible.
- 4. Keep east-facing glazing to a modest size: total window area should be less than 8% of the home's total floor area

Refer to the floor and elevation plans for shading location

AREA WITHIN THE CLASS 1 BUILDING

#### LIGHTING/PENETRATION CALCULATIONS

#### ARTIFICIAL LIGHTING CALCULATION ALLOWANCES

199.78 m<sup>2</sup>

Development	Total 998.9 Wa	tts Area Wattage Allowance	5.0 W/m <sup>2</sup>
	_		
AREA WITHIN THE CLASS 10 BUILDING	38.42 m <sup>2</sup>		
Development	Total 115.3 Wa	tts Area Wattage Allowance	3.0 W/m <sup>2</sup>
	_		
AREA WITHIN THE OUTDOOR AREAS	12.53 m <sup>2</sup>		
Development	Total 50.1 Wa	tts Area Wattage Allowance	4.0 W/m <sup>2</sup>

#### **CEILING INSULATION PENETRATION ALLOWANCE**

CLASS 1 MAXIMUM PENETRATION ALLOWANCE

CLASS 1 MAXIMUM PENETRATION AREA (m<sup>2</sup>)

0.5% TOTAL INSULATED CEILING AREA

1.00

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



Document Set ID: 9854629

# 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**



Assessment Date: 22/11/2021

Reference Number: 920037\_1517

#### 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. G5PJFPMQ9K

Generated on 22 Nov 2021 using FirstRate5: 5.3.1a (3.21)

**Property** 

Lot 1517 (#16) Chapman Street WERRINGTON, Penrith City

Address Council, NSW, 2747

**Lot/DP** 1517|1226122

NCC Class\* Class 1a

Type New Home

**Plans** 

Main plan 920037 1517 | 22/11/2021

Prepared by Creation Homes

# The more stars the more energy efficient NATIONWIDE HOUSE ENERGY RATING SCHEME \*\*E \*\*Interval of the start of the start

# Thermal performance

Heating Cooling

55.7

55.4

MJ/m<sup>2</sup>

MJ/m<sup>2</sup>

#### 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 https://www.fr5.com.au /QRCodeLanding?PublicId=G5PJFPMQ9K When using either link, ensure you are visiting

www.FR5.com.au.



#### Construction and environment

Assessed floor area (m²)\* Exposure type
Conditioned\* 153.6 suburban

Unconditioned\* 48.8 NatHERS climate zone

Total 202.4 28 Richmond

Garage 35

# 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** 

Design Matters National

**Declaration of interest** Declaration completed: no conflicts

#### **National Construction Code (NCC) requirements**

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

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

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**

BCA Climate Zone: 6

Perimeter Insulation has not been included in the modelling of this dwelling

Please note, restricted window openings (%) have been modelled as per NCC 2019 requirements

Eaves indicated by the `Horizontal shading feature\* maximum projection (mm)' may not be directly opposing the respective wall (i.e. some eaves may be horizontally offset)

Where applicable, an additional 150mm has been added to the projection of all `Horizontal shading features & eaves' to account for the Gutter & Fascia Board

# 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	
TIM-002-01 W	Timber B SG Clear	5.4	0.63	0.6	0.66	
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74	

#### Custom\* windows

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
WID-001-01 A	Al Residential Awning Window SG 3mm Clear	6.5	0.63	0.6	0.66

G5PJFPMQ9K N	latHERS Certificate 5 Star	Rating as of 22 No	v 2021		HÖÜÜSE
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

# Window and glazed door Schedule

								Window
Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	shading device*
Study/Bedroom 5	WID-001-01 A	W3	1800	850	awning	30.0	N	No
Study/Bedroom 5	WID-001-01 A	W4	1800	850	awning	30.0	N	No
Media	WID-001-01 A	W1	1800	610	awning	30.0	N	No
Media	WID-001-01 A	W2	1800	1810	awning	30.0	N	No
Entry	TIM-002-01 W	Sidelight A	2040	325	fixed	0.0	N	No
Entry	TIM-002-01 W	Sidelight B	2040	325	fixed	0.0	N	No
Kitchen/Living/- Dining	WID-006-01 A	W6	1800	2170	sliding	30.0	S	No
Kitchen/Living/- Dining	WID-001-01 A	W5	1800	850	awning	30.0	S	No
Kitchen/Living/- Dining	WID-005-01 A	WD3	2110	2676	other	60.0	W	No
Kitchen/Living/- Dining	WID-001-01 A	W7	1800	850	awning	30.0	W	No
Laundry	WID-005-01 A	WD2	2100	1450	sliding	45.0	S	No
Bedroom 4	WID-006-01 A	W15	1030	2410	sliding	35.0	S	No
Bedroom 3	WID-001-01 A	W8	1200	1810	awning	35.0	N	No
Bedroom 2	WID-001-01 A	W10	1800	850	awning	35.0	N	No
Bedroom 2	WID-001-01 A	W11	1800	850	awning	35.0	N	No
Bedroom 1	WID-001-01 A	W12	1200	2410	awning	35.0	N	No
UF Passage	ALM-002-01 A	W9	1200	1570	fixed	0.0	N	No
UF Passage	WID-006-01 A	W16	1030	2170	sliding	35.0	W	No
Bathroom	WID-001-01 A	W14	1200	1570	awning	35.0	S	No
Ensuite	WID-001-01 A	W13	1030	610	awning	35.0	S	No

# Roof window type and performance value

Default\* roof windows

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					
Custom* roof windows					
				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					

#### 5 Star Rating as of 22 Nov 2021



## Roof window schedule

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

No Data Available

# Skylight type and performance

Skylight ID Skylight description

No Data Available

# Skylight schedule

N. B. C. A. Plate							
Location	Skylight ID	No.	length (mm)	(m²) atior	n shade	Diffuser	reflectance
		Skylight	Skylight shaft	Area Orie	nt- Outdoor		Skylight shaft

No Data Available

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation	
Garage	2100	4810	100.0	N	
Entry	2040	920	100.0	N	

# External wall type

		Solai	vvali Silaue		Reflective
Wall ID	Wall type	absorptance	e (colour)	Bulk insulation (R-value)	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 Thick (Generic) - R2.0 Batts	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No
5	STANDARD - Framed Slim (Generic) - R2.0 Batts	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No

## External wall schedule

					Horizontal shading	Vertical
	Wall	Height	Width		feature* maximum	shading feature
Location	ID	(mm)	(mm)	Orientation	projection (mm)	(yes/no)
Garage	1	2676	4538	S	0	Yes
Garage	1	2676	6409	E	0	No
Garage	2	2676	5498	N	0	Yes
Study/Bedroom 5	3	2590	1071	E	0	Yes
Study/Bedroom 5	3	2590	2644	N	0	Yes
Study/Bedroom 5	3	2590	347	N	0	No
Study/Bedroom 5	3	2590	1080	W	1570	Yes
Media	3	2590	3709	W	0	No
Media	3	2590	960	S	0	Yes
Media	3	2590	1080	E	1570	Yes
Media	3	2590	3879	N	0	No

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Entry	3	2590	1869	N	1080	Yes
Kitchen/Living/Dining	3	2590	4438	S	0	No
Kitchen/Living/Dining	3	2590	950	E	0	Yes
Kitchen/Living/Dining	3	2590	2439	S	0	Yes
Kitchen/Living/Dining	3	2590	6738	W	2650	Yes
Laundry	3	2590	1949	S	0	Yes
Laundry	3	2590	2100	E	0	Yes
Bedroom 4	3	2440	3000	W	600	No
Bedroom 4	4	2440	3950	S	600	No
Bedroom 3	3	2440	1080	E	1680	Yes
Bedroom 3	3	2440	2920	N	600	No
Bedroom 3	3	2440	3710	W	600	No
Bedroom 2	3	2440	2990	N	600	No
Bedroom 2	3	2440	1080	W	1680	Yes
Bedroom 2	3	2440	1080	E	600	Yes
Bedroom 1	5	2440	3749	N	730	Yes
Bedroom 1	5	2440	4000	E	730	No
WIR	5	2440	1950	S	730	Yes
UF Passage	3	2440	1870	N	1680	Yes
UF Passage	3	2440	2700	W	600	No
Bathroom	4	2440	2840	S	600	No
Bathroom	5	2440	2100	E	730	Yes
Ensuite	5	2440	2320	E	730	No
Ensuite	5	2440	169	S	730	Yes

Internal wall type

Wall ID Wall type Area (m²) Bulk insulation

STANDARD - Internal Stud Walls 170.1

# Floor type

Ensuite

		Area	Sub-floor	Added insulation	
Location	Construction	(m²)	ventilation	(R-value)	Covering
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.7	Enclosed	R0.0	none
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	24.3	Enclosed	R0.0	none
Study/Bedroom 5	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.2	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	11.4	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3	Enclosed	R0.0	Carpet
Entry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.6	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	37.7	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.7	Enclosed	R0.0	Timber

2440 2620 S

600

Yes

#### **G5PJFPMQ9K NatHERS Certificate**

#### 5 Star Rating as of 22 Nov 2021

HOUSE HOUSE	

Passage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.7	Enclosed	R0.0	Timber
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.8	Enclosed	R0.0	Tiles
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.8	Enclosed	R0.0	Tiles
Powder	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.9	Enclosed	R0.0	Tiles
Bedroom 4	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.8	Enclosed	R0.0	Timber
Bedroom 3	FLOOR - Framed Internal Suspended Floor (uninsulated)	10.8	Enclosed	R0.0	Timber
Bedroom 2	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.1	Enclosed	R0.0	Timber
Bedroom 1	FLOOR - Framed Internal Suspended Floor (uninsulated)	16.4	Enclosed	R0.0	Timber
WIR	FLOOR - Framed Internal Suspended Floor (uninsulated)	4.5	Enclosed	R0.0	Timber
UF Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	22.3	Enclosed	R0.0	Timber
WC	FLOOR - Framed Internal Suspended Floor (uninsulated)	1.5	Enclosed	R0.0	Tiles
Bathroom	FLOOR - Framed Internal Suspended Floor (uninsulated)	8.1	Enclosed	R0.0	Tiles
Ensuite	FLOOR - Framed Internal Suspended Floor (uninsulated)	6.5	Enclosed	R0.0	Tiles

# Ceiling type

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

#### **G5PJFPMQ9K NatHERS Certificate**

#### 5 Star Rating as of 22 Nov 2021



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

# Ceiling penetrations\*

Location	Quantity	Туре	Diameter (mm)	Sealed/unsealed
Kitchen/Living/Dining	1	Exhaust Fans	185	Sealed
Powder	1	Exhaust Fans	250	Sealed
WC	1	Exhaust Fans	250	Sealed
Bathroom	1	Exhaust Fans	250	Sealed
Ensuite	1	Exhaust Fans	250	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	0.8	Dark



## **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.

#### **G5PJFPMQ9K NatHERS Certificate**

#### 5 Star Rating as of 22 Nov 2021



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).



# ENERGY EFFICIENCY REPORT

**BASIX® Thermal Comfort Simulation Assessment** 

SITE ADDRESS

Lot 1518 (#16) Chapman Street WERRINGTON 2747

LOCAL GOVERNMENT AUTHORITY

Penrith City Council

CLIENT

Lendlease Communities

**COMMISSIONED BY** 

Creation Homes (NSW) Pty. Ltd.

**ASSESSMENT DATE** 

22/11/2021

**DEPOSITED PLAN** 

1226122

**DWELLING TYPE** 

**Double Storey** 

REFERENCE NUMBER

920037\_1518

Document Set ID: 9854629 Version: 1, Version Date: 15/12/2021

# Reference Number: 920037\_1518

#### PROJECT CERTIFICATION SUMMARY



Assessment Date: 22/11/2021

#### **DESIGN AND APPROVED SOFTWARE INFORMATION**

SIMULATION ENGINE Chenath Engine v3.21

EXPOSURE Suburban

ORIENTATION: 82

Nathers Climate Zone: 28

BCA (NCC) CLIMATE ZONE: 6

Dwelling Areas (m²)

INTERNAL AREAS (m²) 199.78

OUTDOOR AREAS (m²) 15.95

GARAGE/CARPORT (m²) 38.42

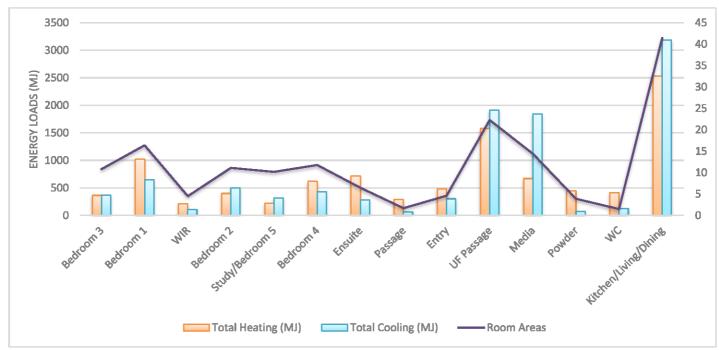
TOTAL: 254.15

#### **ASSESSMENT CALCULATIONS & SOFTWARE RESULTS**

TARGET	(MJ/m².pa)	PROPOSED	(MJ/m².pa)	BUILD EFFICIENC	Y BENCHMARK
Heating:	55.7	Heating:	54.8	PASS:	1.6%
Cooling:	56.2	Cooling:	56.2	PASS:	0.0%
Total:	111.9	Total:	111.0		

#### **DWELLING THERMAL PERFORMANCE PER ZONED AREAS**

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: SIGNATURE:



#### **RELEVANT QUALIFICATION STATEMENT**

Certificate 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



Lot 1518 (#16) Chapman Street WERRINGTON 2747

# **BUILDING SPECIFICATION SUMMARY**

#### **EXTERNAL WALLS**



Reference Number: 920037\_1518

Assessment Date: 22/11/2021

	CONSTRUCTION TYPE	INSULATION	NOTES
	Brick Məsonry	None	To the Front Elevation Garage wall (as per drawings)
EXTERNAL WALLS	Brick Veneer	None	To the remainder of Garage external walls
EXTERNAL WALLS	Framed	R2.0 Batts	Specified Upper Floor external walls (as per drawings)
	Brick Veneer	R2.0 Batts	Throughout remainder of the external walls (as per drawings)

ADDITIONAL NOTES

Location of Construction Materials as per drawings

#### **INTERNAL WALLS**

	CONSTRUCTION TYPE	INSULATION	NOTES
INTERNAL WALLS	Framed	None	Throughout the internal walls
ADDITIONAL NOTES	None		

#### **ROOF AND CEILING**

	CONSTRUCTION TYPE	INSULATION	NOTES
ROOF	Tiled (ventilated)	Sarking	Approx. 25"00' Roof Pitch
CEILING	Plasterboard Plasterboard	None R3.0 Insulation	Garage Ceiling Area Main House Area Only
ADDITIONAL NOTES	Location of ceiling insulation as po	er drawings   Roof has been mod	elled as ventilated as per NatHERS Tech

#### **FLOOR**

	CONSTRUCTION TYPE	INSULATION	NOTES
FLOOR	300mm Waffle   85mm Slab	Integrated	Throughout the Ground Floor
	Timber Suspended	None	Throughout the Upper Floor
ADDITIONAL NOTES	Floor Coverings modelled as per Dra	wings and NatHERS Protocols	

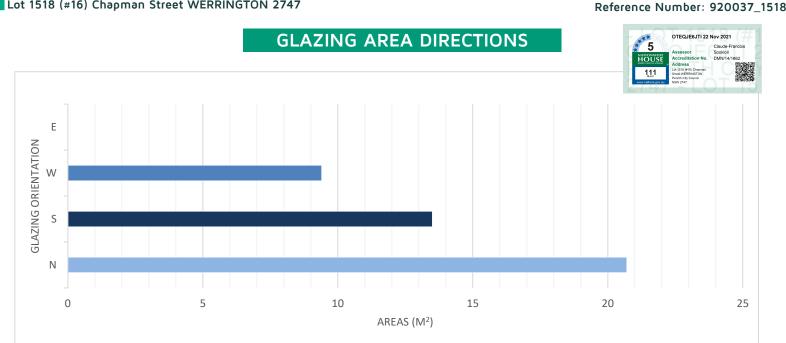
GLASS TYPE	COLOUR	FRAME	$U_w$ VALUE	SHGC	NOTES
Standard	Clear	Aluminium	6.25	0.72	Sliding Doors
Standard	Clear	Aluminium	6.42	0.76	Sliding Windows
Standard	Clear	Aluminium	6.70	0.70	Fixed Windows
Standard	Clear	Aluminium	6.50	0.63	Awning Windows
Standard	Clear	Timber	5.40	0.63	Entry Sidelight

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



Document Set ID: 9854629

Lot 1518 (#16) Chapman Street WERRINGTON 2747



The chart above indicates the direction of all glazed doors and windows on the external envelope of the dwelling. To increase the thermal performance of the dwelling:

- 1. Maximise unsheltered northern-aspect glazing.
- 2. Keep west-facing glazing as small as possible: total window area should be less than 5% of the home's total floor area.
- Keep south-facing glazing reasonably small: total window area should be less than 5% of the home's total floor area. Maximise the openable area if possible.
- Keep east-facing glazing to a modest size: total window area should be less than 8% of the home's total floor area

Refer to the floor and elevation plans for shading location

AREA WITHIN THE CLASS 1 BUILDING

#### LIGHTING/PENETRATION CALCULATIONS

#### ARTIFICIAL LIGHTING CALCULATION ALLOWANCES

199.78 m<sup>2</sup>

	Development Total	998.9 Watts	Area Wattage Allowance	5.0 W/m <sup>2</sup>
AREA WITHIN THE CLASS 10 B	UILDING	38.42 m <sup>2</sup>		
	Development Total	115.3 Watts	Area Wattage Allowance	$3.0 \text{ W/m}^2$
AREA WITHIN THE OUTDOOR	AREAS	15.95 m²		
	Development Total	63.8 Watts	Area Wattage Allowance	$4.0 \text{ W/m}^2$

#### **CEILING INSULATION PENETRATION ALLOWANCE**

CLASS 1 MAXIMUM PENETRATION ALLOWANCE

CLASS 1 MAXIMUM PENETRATION AREA (m2)

0.5% TOTAL INSULATED CEILING AREA

1.00

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



Document Set ID: 9854629

#### Reference Number: 920037\_1518

Assessment Date: 22/11/2021

#### 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. OTEQJE6JTI

Generated on 22 Nov 2021 using FirstRate5: 5.3.1a (3.21)

**Property** 

Lot 1518 (#16) Chapman Street WERRINGTON, Penrith City

Address Council, NSW, 2747

**Lot/DP** 1518|1226122

NCC Class\* Class 1a

Type New Home

**Plans** 

Main plan 920037 1518 | 22/11/2021

Prepared by Creation Homes



## Construction and environment

Assessed floor area (m²)\* Exposure type
Conditioned\* 153.6 suburban

Unconditioned\* 48.8 NatHERS climate zone

Total 202.4 28 Richmond

Garage 35

# - FOT 15

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** 

**Design Matters National** 

**Declaration of interest** Declaration completed: no conflicts

## Thermal performance

**Heating Cooling** 

54.8 56.2

MJ/m<sup>2</sup> MJ/m<sup>2</sup>

#### 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 https://www.fr5.com.au /QRCodeLanding?PublicId=OTEQJE6JTI 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.



#### 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

Perimeter Insulation has not been included in the modelling of this dwelling

Please note, restricted window openings (%) have been modelled as per NCC 2019 requirements

Eaves indicated by the `Horizontal shading feature\* maximum projection (mm)' may not be directly opposing the respective wall (i.e. some eaves may be horizontally offset)

Where applicable, an additional 150mm has been added to the projection of all `Horizontal shading features & eaves' to account for the Gutter & Fascia Board

# Window and glazed door type and performance

#### Default\* windows

				Substitution tolerance ranges		
Window ID	Window description	Maximum ow description U-value* SHG		SHGC lower limit	SHGC upper limit	
TIM-002-01 W	Timber B SG Clear	5.4	0.63	0.6	0.66	
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74	

#### Custom\* windows

				Substitution tolerance ranges		
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit	
WID-001-01 A	Al Residential Awning Window SG 3mm Clear	6.5	0.63	0.6	0.66	

OTEQJE6JTI Na	atHERS Certificate 5 Star R	5 Star Rating as of 22 Nov 2021			
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

# Window and glazed door Schedule

			U a i a b t	Width				Window shading
Location	Window ID	Window no.	Height (mm)	(mm)	Window type	Opening %	Orientation	device*
Study/Bedroom 5	WID-001-01 A	W3	1800	850	awning	30.0	N	No
Study/Bedroom 5	WID-001-01 A	W4	1800	850	awning	30.0	N	No
Media	WID-001-01 A	W1	1800	610	awning	30.0	N	No
Media	WID-001-01 A	W2	1800	1810	awning	30.0	N	No
Entry	TIM-002-01 W	Sidelight A	2040	325	fixed	0.0	N	No
Entry	TIM-002-01 W	Sidelight B	2040	325	fixed	0.0	N	No
Kitchen/Living/- Dining	WID-006-01 A	W6	1800	2170	sliding	30.0	S	No
Kitchen/Living/- Dining	WID-001-01 A	W5	1800	850	awning	30.0	S	No
Kitchen/Living/- Dining	WID-005-01 A	WD3	2110	2676	other	60.0	W	No
Kitchen/Living/- Dining	WID-001-01 A	W7	1800	850	awning	30.0	W	No
Laundry	WID-005-01 A	WD2	2100	1450	sliding	45.0	S	No
Bedroom 4	WID-006-01 A	W15	1030	2410	sliding	30.0	S	No
Bedroom 3	WID-001-01 A	W8	1200	1810	awning	30.0	N	No
Bedroom 2	WID-001-01 A	W10	1800	850	awning	30.0	N	No
Bedroom 2	WID-001-01 A	W11	1800	850	awning	30.0	N	No
Bedroom 1	WID-005-01 A	WD4	2110	2316	other	60.0	N	No
UF Passage	ALM-002-01 A	W9	1200	1570	fixed	0.0	N	No
UF Passage	WID-006-01 A	W16	1030	2170	sliding	30.0	W	No
Bathroom	WID-001-01 A	W14	1200	1570	awning	30.0	S	No
Ensuite	WID-001-01 A	W13	1030	610	awning	30.0	S	No

# Roof window type and performance value

Default*	roof	wind	ows
Delault	1001	VVIIIU	UVVS

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					
Custom* roof windows					
				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					

#### 5 Star Rating as of 22 Nov 2021



## Roof window schedule

ation	Window ID	Window no.	Opening %	(m²)	Orientation	shade	shade
				Area		Outdoor	Indoor

No Data Available

# Skylight type and performance

Skylight ID Skylight description

No Data Available

# Skylight schedule

Na Data Available							
Location	Skylight ID	No.	length (mm)	(m²) atio	n shade	Diffuser	reflectance
		Skylight	Skylight shaft	Area Orie	ent- Outdoor		Skylight shaft

No Data Available

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation	
Garage	2100	4810	100.0	N	
Entry	2040	920	100.0	N	

# 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 Thick (Generic) - R2.0 Batts	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No

## External wall schedule

	Wall	Height	Width		Horizontal shading feature* maximum	Vertical shading feature
Location	ID	(mm)		Orientation	projection (mm)	(yes/no)
Garage	1	2676	4538	S	0	Yes
Garage	1	2676	6409	E	0	No
Garage	2	2676	5498	N	1230	Yes
Study/Bedroom 5	3	2590	1071	E	3690	Yes
Study/Bedroom 5	3	2590	2644	N	0	Yes
Study/Bedroom 5	3	2590	347	N	0	No
Study/Bedroom 5	3	2590	1080	W	1570	Yes
Media	3	2590	3709	W	0	No
Media	3	2590	960	S	0	Yes
Media	3	2590	1080	E	1570	Yes
Media	3	2590	3879	N	0	No
Entry	3	2590	1869	N	1080	Yes

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Kitchen/Living/Dining	3	2590	4438	S	0	No
Kitchen/Living/Dining	3	2590	950	E	0	Yes
Kitchen/Living/Dining	3	2590	2439	S	0	Yes
Kitchen/Living/Dining	3	2590	6738	W	2650	Yes
Laundry	3	2590	1949	S	0	Yes
Laundry	3	2590	2100	E	0	Yes
Bedroom 4	3	2440	3000	W	600	No
Bedroom 4	4	2440	3950	S	600	No
Bedroom 3	3	2440	1080	E	1680	Yes
Bedroom 3	3	2440	2920	N	600	No
Bedroom 3	3	2440	3710	W	600	No
Bedroom 2	3	2440	2665	N	600	Yes
Bedroom 2	3	2440	325	N	600	No
Bedroom 2	3	2440	1080	W	1680	Yes
Bedroom 2	3	2440	1080	E	600	Yes
Bedroom 1	4	2440	3749	N	600	Yes
Bedroom 1	4	2440	4000	E	600	No
WIR	4	2440	1950	S	600	Yes
UF Passage	3	2440	1870	N	1680	Yes
UF Passage	3	2440	2700	W	600	No
Bathroom	4	2440	2840	S	600	No
Bathroom	4	2440	2100	E	600	Yes
Ensuite	4	2440	2320	E	600	No
Ensuite	4	2440	2790	S	600	Yes

# Internal wall type

Wall ID	Wall type	Area (m²) Bulk insulation
1	STANDARD - Internal Stud Walls	170.1

# Floor type

		Area	Sub-floor	Added insulation	
Location	Construction	(m²)	ventilation	(R-value)	Covering
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.7	Enclosed	R0.0	none
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	24.3	Enclosed	R0.0	none
Study/Bedroom 5	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.2	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	11.4	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3	Enclosed	R0.0	Carpet
Entry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.6	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	37.7	Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.7	Enclosed	R0.0	Timber
Passage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.7	Enclosed	R0.0	Timber

#### **OTEQJE6JTI NatHERS Certificate**

#### 5 Star Rating as of 22 Nov 2021



Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.8	Enclosed	R0.0	Tiles
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.8	Enclosed	R0.0	Tiles
Powder	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.9	Enclosed	R0.0	Tiles
Bedroom 4	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.8	Enclosed	R0.0	Timber
Bedroom 3	FLOOR - Framed Internal Suspended Floor (uninsulated)	10.8	Enclosed	R0.0	Timber
Bedroom 2	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.1	Enclosed	R0.0	Timber
Bedroom 1	FLOOR - Framed Internal Suspended Floor (uninsulated)	16.4	Enclosed	R0.0	Timber
WIR	FLOOR - Framed Internal Suspended Floor (uninsulated)	4.5	Enclosed	R0.0	Timber
UF Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	22.3	Enclosed	R0.0	Timber
WC	FLOOR - Framed Internal Suspended Floor (uninsulated)	1.5	Enclosed	R0.0	Tiles
Bathroom	FLOOR - Framed Internal Suspended Floor (uninsulated)	8.1	Enclosed	R0.0	Tiles
Ensuite	FLOOR - Framed Internal Suspended Floor (uninsulated)	6.5	Enclosed	R0.0	Tiles

# Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	R0.0	Yes
Garage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Study/Bedroom 5	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	Plasterboard	R3.0	Yes
Entry	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	R3.0	Yes
Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Laundry	Plasterboard	R3.0	Yes
Laundry	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Powder	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Bedroom 4	Plasterboard	R3.0	Yes

#### **OTEQJE6JTI NatHERS Certificate**

#### 5 Star Rating as of 22 Nov 2021



Bedroom 3	Plasterboard	R3.0	Yes
Bedroom 2	Plasterboard	R3.0	Yes
Bedroom 1	Plasterboard	R3.0	Yes
WIR	Plasterboard	R3.0	Yes
UF Passage	Plasterboard	R3.0	Yes
WC	Plasterboard	R3.0	Yes
Bathroom	Plasterboard	R3.0	Yes
Ensuite	Plasterboard	R3.0	Yes

# Ceiling penetrations\*

Location	Quantity	Туре	Diameter (mm)	Sealed/unsealed
Kitchen/Living/Dining	1	Exhaust Fans	185	Sealed
Powder	1	Exhaust Fans	250	Sealed
WC	1	Exhaust Fans	250	Sealed
Bathroom	1	Exhaust Fans	250	Sealed
Ensuite	1	Exhaust Fans	250	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	0.8	Dark



## **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.

#### **OTEQJE6JTI NatHERS Certificate**

#### 5 Star Rating as of 22 Nov 2021



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).



# **ENERGY EFFICIENCY REPORT**

**BASIX® Thermal Comfort Simulation Assessment** 

**SITE ADDRESS** 

Lot 1519 (#16) Chapman Street WERRINGTON 2747

LOCAL GOVERNMENT AUTHORITY

Penrith City Council

CLIENT

Lendlease Communities

**COMMISSIONED BY** 

Creation Homes (NSW) Pty. Ltd.

**ASSESSMENT DATE** 

1/12/2021

**DEPOSITED PLAN** 

1226122

**DWELLING TYPE** 

**Double Storey** 

REFERENCE NUMBER

920037\_1519

Document Set ID: 9854629 Version: 1, Version Date: 15/12/2021

#### Reference Number: 920037\_1519

Assessment Date: 01/12/2021

#### PROJECT CERTIFICATION SUMMARY

# 

#### **DESIGN AND APPROVED SOFTWARE INFORMATION**

SIMULATION ENGINE Chenath Engine v3.21

EXPOSURE Suburban

ORIENTATION: 82

Nathers Climate Zone: 28

BCA (NCC) CLIMATE ZONE: 6

Dwelling Areas (m²)

INTERNAL AREAS (m²) 199.66

OUTDOOR AREAS (m²) 15.51

TOTAL:

GARAGE/CARPORT (m²) 3

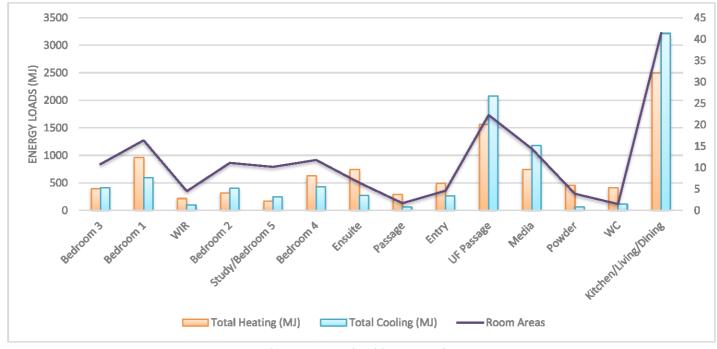
38.42 **253.59** 

#### **ASSESSMENT CALCULATIONS & SOFTWARE RESULTS**

TARGET	(MJ/m².pa)	PROPOSED	(MJ/m².pa)	BUILD EFFICIENCY	BENCHMARK
Heating:	55.7	Heating:	53.9	PASS:	3.3%
Cooling:	56.2	Cooling:	56.1	PASS:	0.2%
Total:	111.9	Total:	110.0		

#### **DWELLING THERMAL PERFORMANCE PER ZONED AREAS**

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: SIGNATURE:



#### **RELEVANT QUALIFICATION STATEMENT**

Certificate 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



Assessment Date: 01/12/2021

Reference Number: 920037\_1519

# BUILDING SPECIFICATION SUMMARY 5.1 Assessor Claude-France Clau

# EXTERNAL WALLS



	CONSTRUCTION TYPE	INSULATION	NOTES
EXTERNAL WALLS	Brick Məsonry	None	To the Front Elevation Garage wall (as per drawings)
	Brick Veneer	None	To the remainder of Garage external walls
	Framed	R2.0 Batts	Specified external walls (as per drawings)
	Brick Veneer	R2.0 Batts	Throughout remainder of the external walls (as per drawings)

ADDITIONAL NOTES

Location of Construction Materials as per drawings

#### **INTERNAL WALLS**

	CONSTRUCTION TYPE	INSULATION	NOTES
INTERNAL WALLS	Framed	R2.0 Batts	To the Garage internal walls
	Framed	None	Throughout the remaining internal walls

ADDITIONAL NOTES

None

#### **ROOF AND CEILING**

	CONSTRUCTION TYPE	INSULATION	NOTES
ROOF	Tiled (ventilated)	Sarking	Approx. 25"00' Roof Pitch
CEILING	Plasterboard Plasterboard	None R2.5 Insulation	Garage Ceiling Area Main House Area Only
ADDITIONAL MOTES	Location of ceiling insulation as po	er drawings   Roof has been mod	elled as ventilated as per NatHERS Tech

ADDITIONAL NOTES

Location of ceiling insulation as per drawings | Roof has been modelled as ventilated as per NatHERS Tech Notes

#### **FLOOR**

	CONSTRUCTION TYPE	INSULATION	NOTES
FLOOR	300mm Waffle   85mm Slab	Integrated	Throughout the Ground Floor
	Timber Suspended	None	Throughout the Upper Floor
ADDITIONAL MOTES	Timber Suspended		Throughout the Upper Floor

ADDITIONAL NOTES

Floor Coverings modelled as per Drawings and NatHERS Protocols

GLASS TYPE	COLOUR	FRAME	U <sub>w</sub> VALUE	SHGC	NOTES
Standard	Clear	Aluminium	6.25	0.72	Sliding Doors
Standard	Clear	Aluminium	6.42	0.76	Sliding Windows
Standard	Clear	Aluminium	6.70	0.70	Fixed Windows
Standard	Clear	Aluminium	6.50	0.63	Awning Windows
Standard	Clear	Timber	5.40	0.63	Entry Sidelight

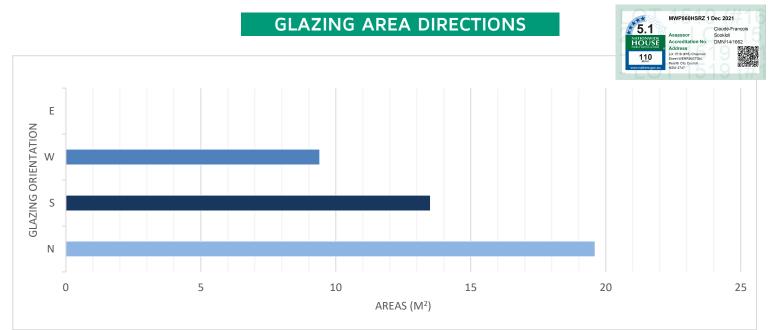
Note: Only a +/-5% SHGC tolerance is allowed with this rating. NB: This tolerance ONLY applies to SHGC, the U-value can always be lower but not higher than the values stated in the report. If any of the windows selected are outside the 5% tolerance then this certificate is no longer valid and the dwelling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



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Reference Number: 920037\_1519

Lot 1519 (#16) Chapman Street WERRINGTON 2747



The chart above indicates the direction of all glazed doors and windows on the external envelope of the dwelling. To increase the thermal performance of the dwelling:

- 1. Maximise unsheltered northern-aspect glazing.
- 2. Keep west-facing glazing as small as possible: total window area should be less than 5% of the home's total floor area.
- 3. Keep south-facing glazing reasonably small: total window area should be less than 5% of the home's total floor area. Maximise the openable area if possible.
- 4. Keep east-facing glazing to a modest size: total window area should be less than 8% of the home's total floor area

Refer to the floor and elevation plans for shading location

AREA WITHIN THE CLASS 1 BUILDING

#### LIGHTING/PENETRATION CALCULATIONS

#### ARTIFICIAL LIGHTING CALCULATION ALLOWANCES

199.66 m<sup>2</sup>

	Development Total	998.3 Watts	Area Wattage Allowance	5.0 W/m <sup>2</sup>
AREA WITHIN THE CLASS 10 BU	JILDING	38.42 m <sup>2</sup>		
	Development Total	115.3 Watts	Area Wattage Allowance	3.0 W/m <sup>2</sup>
AREA WITHIN THE OUTDOOR A	REAS	15.51 m²		
	Development Total	62.0 Watts	Area Wattage Allowance	4.0 W/m <sup>2</sup>

#### **CEILING INSULATION PENETRATION ALLOWANCE**

CLASS 1 MAXIMUM PENETRATION ALLOWANCE

CLASS 1 MAXIMUM PENETRATION AREA (m<sup>2</sup>)

0.5% TOTAL INSULATED CEILING AREA

1.00

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



Document Set ID: 9854629

# Reference Number: 920037\_1519

Assessment Date: 01/12/2021

# 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**

# MWP860HSRZ 1 Dec 2021 Assessor Address Lot 199 artip Column Brief WR80F0NN, May 272' May 274' May 274

#### 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. MWP860HSRZ

Generated on 1 Dec 2021 using FirstRate5: 5.3.1a (3.21)

**Property** 

Lot 1519 (#16) Chapman Street WERRINGTON, Penrith City

Address Council, NSW, 2747

**Lot/DP** 1519|1226122

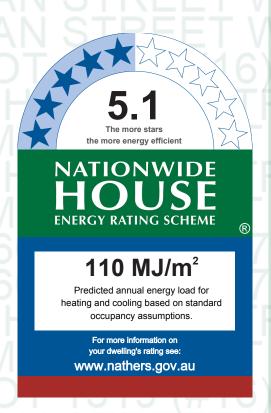
NCC Class\* Class 1a

Type New Home

**Plans** 

Main plan 920037 1519 | 01/12/2021

Prepared by Creation Homes



# Construction and environment

Assessed floor area (m²)\* Exposure type
Conditioned\* 153.6 suburban

Unconditioned\* 48.8 NatHERS climate zone

Total 202.4 28 Richmond

Garage 35

# Accredited assessor

Name Claude-François Sookloll

Business name Energy Advance

**Email** energy@energyadvance.com.au

 Phone
 1300 850 228

 Accreditation No.
 DMN/14/1662

**Assessor Accrediting Organisation** 

Design Matters National

**Declaration of interest** Declaration completed: no conflicts

# Thermal performance

Heating Cooling

53.9

56.1

MJ/m<sup>2</sup>

MJ/m<sup>2</sup>

## 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 https://www.fr5.com.au /QRCodeLanding?PublicId= MWP860HSRZ 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.



## 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

Perimeter Insulation has not been included in the modelling of this dwelling

Please note, restricted window openings (%) have been modelled as per NCC 2019 requirements

Eaves indicated by the `Horizontal shading feature\* maximum projection (mm)' may not be directly opposing the respective wall (i.e. some eaves may be horizontally offset)

Where applicable, an additional 150mm has been added to the projection of all `Horizontal shading features & eaves' to account for the Gutter & Fascia Board

# Window and glazed door type and performance

#### Default\* windows

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
TIM-002-01 W	Timber B SG Clear	5.4	0.63	0.6	0.66
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74

#### Custom\* windows

				Substitution tolerance ranges			
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit		
WID-001-01 A	Al Residential Awning Window SG 3mm Clear	6.5	0.63	0.6	0.66		

MWP860HSRZ	NatHERS Certificate	5.1 Star Rating as of 1 D	ec 2021		HOUSE
WID-006-01 A	Al Residential Sliding Window SG Clear	3mm 6.42	0.76	0.72	0.8
WID-005-01 A	Al Residential Internal Sliding Doo 4mm Clear	or SG 6.25	0.72	0.68	0.76

# Window and glazed door Schedule

								Window
Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	shading device*
Study/Bedroom 5	WID-001-01 A	W3	1460	850	awning	90.0	N	No
Study/Bedroom 5	WID-001-01 A	W4	1460	850	awning	90.0	N	No
Media	WID-001-01 A	W2	1800	1810	awning	30.0	N	No
Media	WID-001-01 A	W1	1800	610	awning	30.0	N	No
Entry	TIM-002-01 W	Sidelight A	2040	325	fixed	0.0	N	No
Entry	TIM-002-01 W	Sidelight B	2040	325	fixed	0.0	N	No
Kitchen/Living/- Dining	WID-006-01 A	W6	1800	2170	sliding	30.0	S	No
Kitchen/Living/- Dining	WID-001-01 A	W5	1800	850	awning	30.0	S	No
Kitchen/Living/- Dining	WID-005-01 A	WD3	2110	2676	other	60.0	W	No
Kitchen/Living/- Dining	WID-001-01 A	W7	1800	850	awning	30.0	W	No
Laundry	WID-005-01 A	WD2	2100	1450	sliding	45.0	S	No
Bedroom 4	WID-006-01 A	W15	1030	2410	sliding	10.0	S	No
Bedroom 3	WID-001-01 A	W8	1800	1810	awning	10.0	N	No
Bedroom 2	WID-001-01 A	W10	1460	850	awning	10.0	N	No
Bedroom 2	WID-001-01 A	W11	1460	850	awning	10.0	N	No
Bedroom 1	WID-001-01 A	W12	1200	2410	awning	10.0	N	No
UF Passage	ALM-002-01 A	W9	1800	1570	fixed	0.0	N	No
UF Passage	WID-006-01 A	W16	1030	2170	sliding	10.0	W	No
Bathroom	WID-001-01 A	W14	1200	1570	awning	10.0	S	No
Ensuite	WID-001-01 A	W13	1030	610	awning	10.0	S	No

# Roof window type and performance value

Default\* roof windows

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					
Custom* roof windows	;				
				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					

## 5.1 Star Rating as of 1 Dec 2021



# Roof window schedule

				Area		Outdoor	inaoor
Location	Window ID	Window no.	Opening %	(m²)	Orientation	shade	shade
·							

No Data Available

# Skylight type and performance

Skylight ID Skylight description

No Data Available

# Skylight schedule

Na Data Assallabla							
Location	Skylight ID	No.	length (mm)	(m²) atio	n shade	Diffuser	reflectance
		Skylight	Skylight shaft	Area Orie	ent- Outdoor		Skylight shaft

No Data Available

# External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation	
Garage	2100	4810	100.0	N	
Entry	2040	920	100.0	N	

# 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 Thick (Generic) - R2.0 Batts	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No
5	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)		Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	1	2676	4538	S	0	Yes
Garage	1	2676	6409	E	0	No
Garage	2	2676	5498	N	0	Yes
Study/Bedroom 5	3	2590	1071	E	0	Yes
Study/Bedroom 5	3	2590	2644	N	0	Yes
Study/Bedroom 5	3	2590	347	N	0	No
Study/Bedroom 5	3	2590	1080	W	1570	Yes
Media	3	2590	3709	W	0	No
Media	3	2590	960	S	0	Yes
Media	3	2590	1080	E	1570	Yes
Media	4	2590	2706	N	600	Yes

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# 5.1 Star Rating as of 1 Dec 2021



Media	3	2590	489	N	600	No
Media	3	2590	683	N	600	Yes
Entry	3	2590	1869	N	1680	Yes
Kitchen/Living/Dining	3	2590	4438	S	0	No
Kitchen/Living/Dining	3	2590	950	Е	0	Yes
Kitchen/Living/Dining	3	2590	2439	S	0	Yes
Kitchen/Living/Dining	3	2590	6738	W	2650	Yes
Laundry	3	2590	1949	S	0	Yes
Laundry	3	2590	2100	Е	0	Yes
Bedroom 4	3	2440	3000	W	600	No
Bedroom 4	5	2440	3950	S	730	No
Bedroom 3	3	2440	1080	Е	1680	Yes
Bedroom 3	4	2440	2728	N	600	Yes
Bedroom 3	4	2440	191	N	600	No
Bedroom 3	3	2440	3710	W	600	No
Bedroom 2	3	2440	2990	N	600	No
Bedroom 2	3	2440	1080	W	1680	Yes
Bedroom 2	3	2440	1080	E	600	Yes
Bedroom 1	5	2440	3749	N	730	Yes
Bedroom 1	5	2440	4000	E	730	No
WIR	5	2440	1950	S	730	Yes
UF Passage	4	2440	1870	N	1680	Yes
UF Passage	3	2440	2700	W	600	No
Bathroom	5	2440	2840	S	730	No
Bathroom	5	2440	2100	E	730	Yes
Ensuite	5	2440	2320	E	730	No
Ensuite	5	2440	2790	S	730	Yes

# Internal wall type

Wall ID	Wall type	Area (m²)	Bulk insulation
1	STANDARD - Internal Stud Walls -R2.0 Batts	20.9	Glass fibre batt: R2.0 (R2.0)
2	STANDARD - Internal Stud Walls	149.2	

# Floor type

		Area	Sub-floor	Added insulation	
Location	Construction	(m²)	ventilation	(R-value)	Covering
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.7	Enclosed	R0.0	none
Garage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	24.3	Enclosed	R0.0	none
Study/Bedroom 5	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.2	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	11.4	Enclosed	R0.0	Carpet
Media	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3	Enclosed	R0.0	Carpet
Entry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.6	Enclosed	R0.0	Timber

# 5.1 Star Rating as of 1 Dec 2021



Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)		Enclosed	R0.0	Timber
Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.7	Enclosed	R0.0	Timber
Passage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.7	Enclosed	R0.0	Timber
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.8	Enclosed	R0.0	Tiles
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.8	Enclosed	R0.0	Tiles
Powder	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.9	Enclosed	R0.0	Tiles
Bedroom 4	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.8	Enclosed	R0.0	Timber
Bedroom 3	FLOOR - Framed Internal Suspended Floor (uninsulated)	10.8	Enclosed	R0.0	Timber
Bedroom 2	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.1	Enclosed	R0.0	Timber
Bedroom 1	FLOOR - Framed Internal Suspended Floor (uninsulated)	16.4	Enclosed	R0.0	Timber
WIR	FLOOR - Framed Internal Suspended Floor (uninsulated)	4.5	Enclosed	R0.0	Timber
UF Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	22.3	Enclosed	R0.0	Timber
WC	FLOOR - Framed Internal Suspended Floor (uninsulated)	1.5	Enclosed	R0.0	Tiles
Bathroom	FLOOR - Framed Internal Suspended Floor (uninsulated)	8.1	Enclosed	R0.0	Tiles
Ensuite	FLOOR - Framed Internal Suspended Floor (uninsulated)	6.5	Enclosed	R0.0	Tiles

# Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	R0.0	Yes
Garage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Study/Bedroom 5	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	Plasterboard	R2.5	Yes
Entry	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	R2.5	Yes
Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Laundry	Plasterboard	R2.5	Yes

# 5.1 Star Rating as of 1 Dec 2021



Laundry	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Powder	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Bedroom 4	Plasterboard	R2.5	Yes
Bedroom 3	Plasterboard	R2.5	Yes
Bedroom 2	Plasterboard	R2.5	Yes
Bedroom 1	Plasterboard	R2.5	Yes
WIR	Plasterboard	R2.5	Yes
UF Passage	Plasterboard	R2.5	Yes
WC	Plasterboard	R2.5	Yes
Bathroom	Plasterboard	R2.5	Yes
Ensuite	Plasterboard	R2.5	Yes

# Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Living/Dining	1	Exhaust Fans	185	Sealed
Powder	1	Exhaust Fans	250	Sealed
WC	1	Exhaust Fans	250	Sealed
Bathroom	1	Exhaust Fans	250	Sealed
Ensuite	1	Exhaust Fans	250	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	0.8	Dark



# **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.				

# 5.1 Star Rating as of 1 Dec 2021



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		
<b>Reflective wrap</b> (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.		
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 a 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).		



# ENERGY EFFICIENCY REPORT

**BASIX® Thermal Comfort Simulation Assessment** 

**SITE ADDRESS** 

Lot 1520 (#16) Chapman Street WERRINGTON 2747

LOCAL GOVERNMENT AUTHORITY

Penrith City Council

CLIENT

Lendlease Communities

**COMMISSIONED BY** 

Creation Homes (NSW) Pty. Ltd.

**ASSESSMENT DATE** 

1/12/2021

**DEPOSITED PLAN** 

1226122

**DWELLING TYPE** 

**Double Storey** 

REFERENCE NUMBER

920037\_1520

Document Set ID: 9854629 Version: 1, Version Date: 15/12/2021

## Assessment Date: 01/12/2021 Reference Number: 920037\_1520

# PROJECT CERTIFICATION SUMMARY



#### **DESIGN AND APPROVED SOFTWARE INFORMATION**

SIMULATION ENGINE Chenath Engine v3.21

**EXPOSURE Suburban** 

**ORIENTATION: 100** 

Nathers Climate Zone: 28

BCA (NCC) CLIMATE ZONE: 6

Dwelling Areas (m2)

199.78 INTERNAL AREAS (m2)

OUTDOOR AREAS (m2) 12.53

TOTAL:

GARAGE/CARPORT (m<sup>2</sup>)

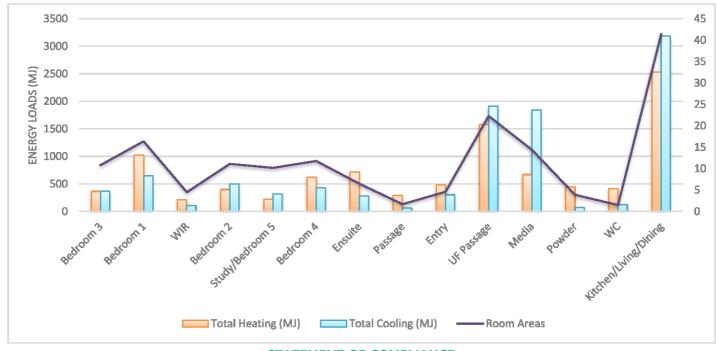
38.42 250.73

#### **ASSESSMENT CALCULATIONS & SOFTWARE RESULTS**

TARGET	(MJ/m².pa)	PROPOSED	(MJ/m².pa)	BUILD EFFICIENCY	BENCHMARK
Heating:	55.7	Heating:	54.8	PASS:	1.6%
Cooling:	56.2	Cooling:	55.8	PASS:	0.7%
Total:	111.9	Total:	110.6		

#### **DWELLING THERMAL PERFORMANCE PER ZONED AREAS**

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:

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



Assessment Date: 01/12/2021
Reference Number: 920037\_1520

#### WERKINGTON 2747

# **BUILDING SPECIFICATION SUMMARY**

## **EXTERNAL WALLS**



	CONSTRUCTION TYPE	INSULATION	NOTES
	Brick Masonry	None	To the Front Elevation Garage wall (as per drawings)
EXTERNAL WALLS	Brick Veneer	None	To the remainder of Garage external walls
EXTERNAL WALLS	Framed	R2.0 Batts	Specified Upper Floor external walls (as per drawings)
	Brick Veneer	R2.0 Batts	Throughout remainder of the external walls (as per drawings)

ADDITIONAL NOTES

Location of Construction Materials as per drawings

## **INTERNAL WALLS**

	CONSTRUCTION TYPE	INSULATION	NOTES
INTERNAL WALLS	Framed Framed	R2.0 Batts None	To the Garage and Laundry internal walls Throughout the remaining internal walls

ADDITIONAL NOTES

None

#### **ROOF AND CEILING**

	CONSTRUCTION TYPE	INSULATION	NOTES
ROOF	Tiled (ventilated)	Sarking	Approx. 25"00' Roof Pitch
CEILING	Plasterboard Plasterboard	None R2.5 Insulation	Garage Ceiling Area Main House Area Only
ADDITIONAL MOTES	Location of ceiling insulation as p	er drawings   Roof has been mode	elled as ventilated as per NatHERS Tech

ADDITIONAL NOTES

Location of ceiling insulation as per drawings | Roof has been modelled as ventilated as per NatHERS Tech Notes

Notes

#### **FLOOR**

	CONSTRUCTION TYPE	INSULATION	NOTES
FLOOR	300mm Waffle   85mm Slab	Integrated	Throughout the Ground Floor
	Timber Suspended	None	Throughout the Upper Floor
ADDITIONAL MOTES	Timber Suspended		<u> </u>

ADDITIONAL NOTES

Floor Coverings modelled as per Drawings and NatHERS Protocols

GLASS TYPE	COLOUR	FRAME	U <sub>w</sub> VALUE	SHGC	NOTES
Standard	Clear	Aluminium	6.25	0.72	Sliding Doors
Standard	Clear	Aluminium	6.42	0.76	Sliding Windows
Standard	Clear	Aluminium	6.70	0.70	Fixed Windows
Standard	Clear	Aluminium	6.50	0.63	Awning Windows
Standard	Clear	Timber	5.40	0.63	Entry Sidelight

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.



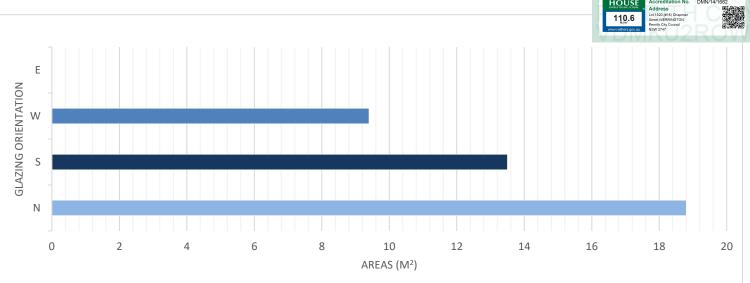
Document Set ID: 9854629

Reference Number: 920037\_1520

Lot 1520 (#16) Chapman Street WERRINGTON 2747

# **GLAZING AREA DIRECTIONS**





The chart above indicates the direction of all glazed doors and windows on the external envelope of the dwelling. To increase the thermal performance of the dwelling:

- 1. Maximise unsheltered northern-aspect glazing.
- 2. Keep west-facing glazing as small as possible: total window area should be less than 5% of the home's total floor area.
- Keep south-facing glazing reasonably small: total window area should be less than 5% of the home's total floor area. Maximise the openable area if possible.
- Keep east-facing glazing to a modest size: total window area should be less than 8% of the home's total floor area

Refer to the floor and elevation plans for shading location

AREA WITHIN THE CLASS 1 BUILDING

# LIGHTING/PENETRATION CALCULATIONS

## ARTIFICIAL LIGHTING CALCULATION ALLOWANCES

199.78 m<sup>2</sup>

Development Total	998.9 Watts	Area Wattage Allowance	$5.0 \text{ W/m}^2$

AREA WITHIN THE CLASS 10 BUILDING 38.42 m<sup>2</sup>

> **Development Total** 115.3 Watts Area Wattage Allowance 3.0 W/m<sup>2</sup>

AREA WITHIN THE OUTDOOR AREAS 12.53 m<sup>2</sup>

> **Development Total** 50.1 Watts Area Wattage Allowance 4.0 W/m<sup>2</sup>

### **CEILING INSULATION PENETRATION ALLOWANCE**

CLASS 1 MAXIMUM PENETRATION ALLOWANCE

CLASS 1 MAXIMUM PENETRATION AREA (m2)

0.5% TOTAL INSULATED CEILING AREA

1.00

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



Document Set ID: 9854629

# Reference Number: 920037\_1520

Assessment Date: 01/12/2021

# 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. VDMKU2ROWY

Generated on 1 Dec 2021 using FirstRate5: 5.3.1a (3.21)

**Property** 

Lot 1520 (#16) Chapman Street WERRINGTON, Penrith City

**Address** Council, NSW, 2747

Lot/DP 1520|1226122

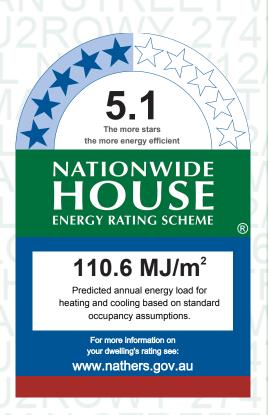
**NCC Class\*** Class 1a Type New Home

**Plans** 

Garage

Main plan 920037 1520 | 01/12/2021

Prepared by Creation Homes



# Construction and environment

Assessed floor area (m2)\* **Exposure type** Conditioned\* suburban 153.6

NatHERS climate zone Unconditioned\* 48.8

28 Richmond Total 202.4

35



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** 

Design Matters National

Declaration of interest Declaration completed: no conflicts

# Thermal performance

Heating Cooling

54.8

55.8

MJ/m<sup>2</sup>

MJ/m<sup>2</sup>

## 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

# Verification

To verify this certificate, scan the QR code or visit https://www.fr5.com.au /QRCodeLanding?PublicId= VDMKU2ROWY 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.



## 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

Perimeter Insulation has not been included in the modelling of this dwelling

Please note, restricted window openings (%) have been modelled as per NCC 2019 requirements

Eaves indicated by the `Horizontal shading feature\* maximum projection (mm)' may not be directly opposing the respective wall (i.e. some eaves may be horizontally offset)

Where applicable, an additional 150mm has been added to the projection of all `Horizontal shading features & eaves' to account for the Gutter & Fascia Board

# 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		
TIM-002-01 W	Timber B SG Clear	5.4	0.63	0.6	0.66		
ALM-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74		

#### Custom\* windows

				Substitution to	lerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit	
WID-001-01 A	Al Residential Awning Window SG 3mm Clear	6.5	0.63	0.6	0.66	

VDMKU2ROWY	NatHERS Certificate	5.1 Star Ra	ating as of 1 D	ec 2021		HOUSE
WID-006-01 A	Al Residential Sliding Windo	ow SG 3mm	6.42	0.76	0.72	0.8
WID-005-01 A	Al Residential Internal Slidir 4mm Clear	ng Door SG	6.25	0.72	0.68	0.76

# Window and glazed door Schedule

								Window
Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	shading device*
Study/Bedroom 5	WID-001-01 A	W3	1800	850	awning	30.0	N	No
Study/Bedroom 5	WID-001-01 A	W4	1800	850	awning	30.0	N	No
Media	WID-001-01 A	W1	1800	610	awning	30.0	N	No
Media	WID-001-01 A	W2	1800	1810	awning	30.0	N	No
Entry	TIM-002-01 W	Sidelight A	2040	325	fixed	0.0	N	No
Entry	TIM-002-01 W	Sidelight B	2040	325	fixed	0.0	N	No
Kitchen/Living/- Dining	WID-006-01 A	W6	1800	2170	sliding	30.0	S	No
Kitchen/Living/- Dining	WID-001-01 A	W5	1800	850	awning	30.0	S	No
Kitchen/Living/- Dining	WID-005-01 A	WD3	2110	2676	other	60.0	W	No
Kitchen/Living/- Dining	WID-001-01 A	W7	1800	850	awning	30.0	W	No
Laundry	WID-005-01 A	WD2	2100	1450	sliding	45.0	S	No
Bedroom 4	WID-006-01 A	W15	1030	2410	sliding	30.0	S	No
Bedroom 3	WID-001-01 A	W8	1200	1810	awning	30.0	N	No
Bedroom 2	WID-001-01 A	W10	1800	850	awning	30.0	N	No
Bedroom 2	WID-001-01 A	W11	1800	850	awning	30.0	N	No
Bedroom 1	WID-001-01 A	W12	1200	2410	awning	30.0	N	No
UF Passage	ALM-002-01 A	W9	1200	1570	fixed	0.0	N	No
UF Passage	WID-006-01 A	W16	1030	2170	sliding	30.0	W	No
Bathroom	WID-001-01 A	W14	1200	1570	awning	30.0	S	No
Ensuite	WID-001-01 A	W13	1030	610	awning	30.0	S	No

# Roof window type and performance value

Default*	roof	wind	ows
DCIGGIL	1001	VVIIIO	OVV

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					
Custom* roof windows					
				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available					

## 5.1 Star Rating as of 1 Dec 2021



# Roof window schedule

				Area		Outdoor	inaoor
Location	Window ID	Window no.	Opening %	(m²)	Orientation	shade	shade
·							

No Data Available

# Skylight type and performance

Skylight ID Skylight description

No Data Available

# Skylight schedule

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

# External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation	
Garage	2100	4810	100.0	N	
Entry	2040	920	100.0	N	

# 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 Thick (Generic) - R2.0 Batts	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No
5	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)		Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Garage	1	2676	4538	S	0	Yes
Garage	1	2676	6409	E	0	No
Garage	2	2676	5498	N	0	Yes
Study/Bedroom 5	3	2590	1071	E	0	Yes
Study/Bedroom 5	3	2590	2644	N	0	Yes
Study/Bedroom 5	3	2590	347	N	0	No
Study/Bedroom 5	3	2590	1080	W	1570	Yes
Media	3	2590	3709	W	0	No
Media	3	2590	960	S	0	Yes
Media	3	2590	1080	Е	1570	Yes
Media	3	2590	3879	N	0	No

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## 5.1 Star Rating as of 1 Dec 2021



Entry	3	2590	1869	N	1080	Yes
Kitchen/Living/Dining	3	2590	4438	S	0	No
Kitchen/Living/Dining	3	2590	950	E	0	Yes
Kitchen/Living/Dining	3	2590	2439	S	0	Yes
Kitchen/Living/Dining	3	2590	6738	W	2650	Yes
Laundry	3	2590	1949	S	0	Yes
Laundry	3	2590	2100	Е	0	Yes
Bedroom 4	3	2440	3000	W	600	No
Bedroom 4	4	2440	3950	S	600	No
Bedroom 3	3	2440	1080	Е	1680	Yes
Bedroom 3	3	2440	2920	N	600	No
Bedroom 3	3	2440	3710	W	600	No
Bedroom 2	3	2440	2990	N	600	No
Bedroom 2	3	2440	1080	W	1680	Yes
Bedroom 2	3	2440	1080	Е	600	Yes
Bedroom 1	5	2440	3749	N	730	Yes
Bedroom 1	5	2440	4000	Е	730	No
WIR	5	2440	1950	S	730	Yes
UF Passage	3	2440	1870	N	1680	Yes
UF Passage	3	2440	2700	W	600	No
Bathroom	4	2440	2840	S	600	No
Bathroom	5	2440	2100	Е	730	Yes
Ensuite	5	2440	2320	Е	730	No
Ensuite	5	2440	169	S	730	Yes
Ensuite	4	2440	2620	S	600	Yes

# Internal wall type

Wall ID	Wall type	Area (m²)	Bulk insulation
1	STANDARD - Internal Stud Walls -R2.0 Batts	31.2	Glass fibre batt: R2.0 (R2.0)
2	STANDARD - Internal Stud Walls	138.9	

# Floor type

	Area	Sub-floor	Added insulation	
Construction	(m²)	ventilation	(R-value)	Covering
FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.7	Enclosed	R0.0	none
FR5 - 300mm waffle pod, 85mm concrete (R0.63)	24.3	Enclosed	R0.0	none
FR5 - 300mm waffle pod, 85mm concrete (R0.63)	10.2	Enclosed	R0.0	Carpet
FR5 - 300mm waffle pod, 85mm concrete (R0.63)	11.4	Enclosed	R0.0	Carpet
FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3	Enclosed	R0.0	Carpet
FR5 - 300mm waffle pod, 85mm concrete (R0.63)	4.6	Enclosed	R0.0	Timber
FR5 - 300mm waffle pod, 85mm concrete (R0.63)	37.7	Enclosed	R0.0	Timber
	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	Construction         (m²)           FR5 - 300mm waffle pod, 85mm concrete (R0.63)         10.7           FR5 - 300mm waffle pod, 85mm concrete (R0.63)         24.3           FR5 - 300mm waffle pod, 85mm concrete (R0.63)         10.2           FR5 - 300mm waffle pod, 85mm concrete (R0.63)         11.4           FR5 - 300mm waffle pod, 85mm concrete (R0.63)         3           FR5 - 300mm waffle pod, 85mm concrete (R0.63)         4.6	FR5 - 300mm waffle pod, 85mm concrete (R0.63) 10.7 Enclosed FR5 - 300mm waffle pod, 85mm concrete (R0.63) 24.3 Enclosed FR5 - 300mm waffle pod, 85mm concrete (R0.63) 10.2 Enclosed FR5 - 300mm waffle pod, 85mm concrete (R0.63) 11.4 Enclosed FR5 - 300mm waffle pod, 85mm concrete (R0.63) 3 Enclosed FR5 - 300mm waffle pod, 85mm concrete (R0.63) 4.6 Enclosed	Construction         (m²)         ventilation         (R-value)           FR5 - 300mm waffle pod, 85mm concrete (R0.63)         10.7         Enclosed         R0.0           FR5 - 300mm waffle pod, 85mm concrete (R0.63)         24.3         Enclosed         R0.0           FR5 - 300mm waffle pod, 85mm concrete (R0.63)         10.2         Enclosed         R0.0           FR5 - 300mm waffle pod, 85mm concrete (R0.63)         11.4         Enclosed         R0.0           FR5 - 300mm waffle pod, 85mm concrete (R0.63)         3         Enclosed         R0.0           FR5 - 300mm waffle pod, 85mm concrete (R0.63)         4.6         Enclosed         R0.0

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Kitchen/Living/D-ining	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.7	Enclosed	R0.0	Timber
Passage	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.7	Enclosed	R0.0	Timber
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.8	Enclosed	R0.0	Tiles
Laundry	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	1.8	Enclosed	R0.0	Tiles
Powder	FR5 - 300mm waffle pod, 85mm concrete (R0.63)	3.9	Enclosed	R0.0	Tiles
Bedroom 4	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.8	Enclosed	R0.0	Timber
Bedroom 3	FLOOR - Framed Internal Suspended Floor (uninsulated)	10.8	Enclosed	R0.0	Timber
Bedroom 2	FLOOR - Framed Internal Suspended Floor (uninsulated)	11.1	Enclosed	R0.0	Timber
Bedroom 1	FLOOR - Framed Internal Suspended Floor (uninsulated)	16.4	Enclosed	R0.0	Timber
WIR	FLOOR - Framed Internal Suspended Floor (uninsulated)	4.5	Enclosed	R0.0	Timber
UF Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	22.3	Enclosed	R0.0	Timber
WC	FLOOR - Framed Internal Suspended Floor (uninsulated)	1.5	Enclosed	R0.0	Tiles
Bathroom	FLOOR - Framed Internal Suspended Floor (uninsulated)	8.1	Enclosed	R0.0	Tiles
Ensuite	FLOOR - Framed Internal Suspended Floor (uninsulated)	6.5	Enclosed	R0.0	Tiles

# Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Garage	Plasterboard	R0.0	Yes
Garage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Study/Bedroom 5	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Media	Plasterboard	R2.5	Yes
Entry	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	R2.5	Yes
Passage	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Laundry	Plasterboard	R2.5	Yes
Laundry	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No

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Powder	FLOOR - Framed Internal Suspended Floor (uninsulated)	R0.0	No
Bedroom 4	Plasterboard	R2.5	Yes
Bedroom 3	Plasterboard	R2.5	Yes
Bedroom 2	Plasterboard	R2.5	Yes
Bedroom 1	Plasterboard	R2.5	Yes
WIR	Plasterboard	R2.5	Yes
UF Passage	Plasterboard	R2.5	Yes
WC	Plasterboard	R2.5	Yes
Bathroom	Plasterboard	R2.5	Yes
Ensuite	Plasterboard	R2.5	Yes

# Ceiling penetrations\*

Location	Quantity	Туре	Diameter (mm)	Sealed/unsealed
Kitchen/Living/Dining	1	Exhaust Fans	185	Sealed
Powder	1	Exhaust Fans	250	Sealed
WC	1	Exhaust Fans	250	Sealed
Bathroom	1	Exhaust Fans	250	Sealed
Ensuite	1	Exhaust Fans	250	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	0.8	Dark



# **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.

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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 ar 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).