



# ENERGY EFFICIENCY REPORT

## BASIX® Thermal Comfort Simulation Assessment

### SITE ADDRESS

**Lot 102 (#24) Wandeen Road CLAREVILLE 2107**

### LOCAL GOVERNMENT AUTHORITY

**Northern Beaches Council**

### CLIENT

**Rise Projects**

### COMMISSIONED BY

**Rise Projects**

### ASSESSMENT DATE

**14/09/2020**

### DEPOSITED PLAN

**13760**

### DWELLING TYPE

**Multi-Level Dwelling**

### REFERENCE NUMBER

**RP 211**

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## PROJECT CERTIFICATION SUMMARY

### DESIGN AND APPROVED SOFTWARE INFORMATION

SIMULATION ENGINE Chenath Engine v3.21

EXPOSURE Suburban

ORIENTATION: 270

NatHERS CLIMATE ZONE: 56

BCA (NCC) CLIMATE ZONE: 5

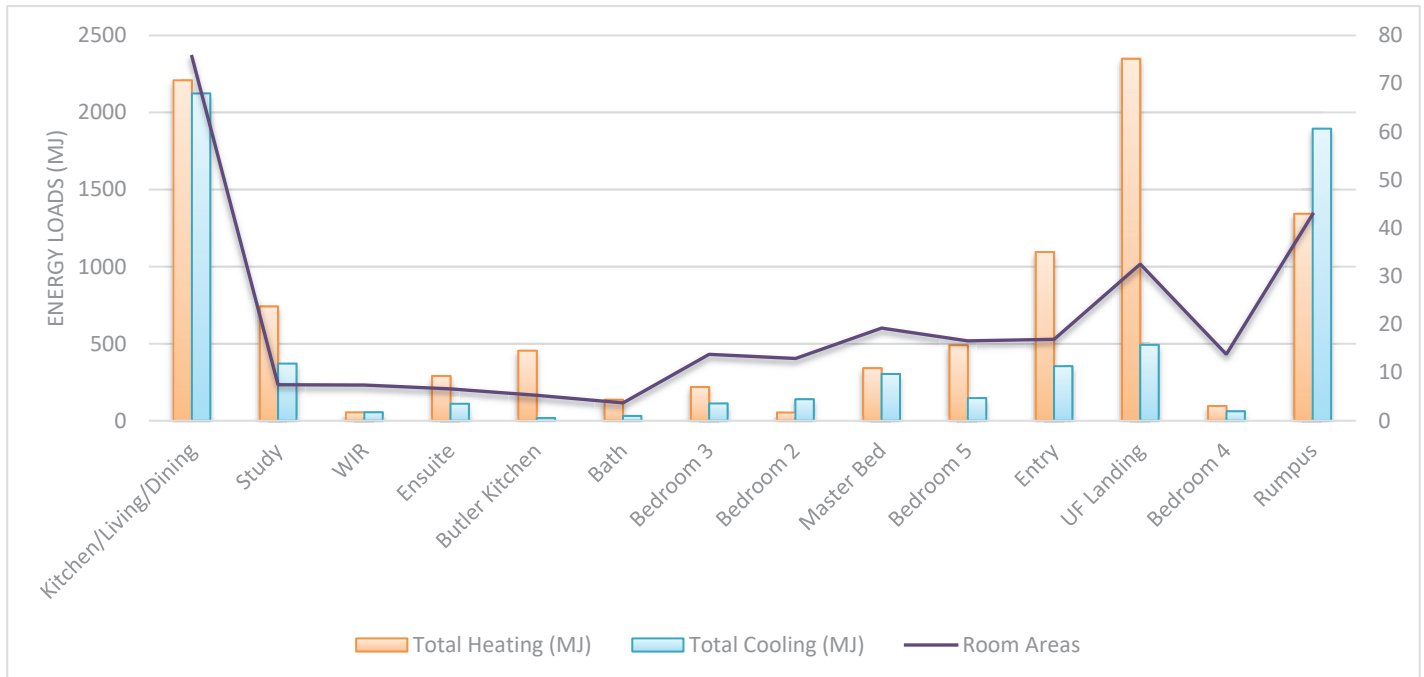
Dwelling Areas (m<sup>2</sup>)INTERNAL AREAS (m<sup>2</sup>) 279.96OUTDOOR AREAS (m<sup>2</sup>) 54.66GARAGE/CARPORT (m<sup>2</sup>) 40.72**TOTAL: 375.34**

### ASSESSMENT CALCULATIONS & SOFTWARE RESULTS

TARGET	(MJ/m <sup>2</sup> .pa)	PROPOSED	(MJ/m <sup>2</sup> .pa)	BUILD EFFICIENCY BENCHMARK
Heating:	47.8	Heating:	42.4	<b>PASS:</b> 12.0%
Cooling:	26.7	Cooling:	26.7	<b>PASS:</b> 0.0%
<b>Total:</b>	<b>74.5</b>	<b>Total:</b>	<b>69.1</b>	

### 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:

C. Sookloll

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/BDVAV/14/1662 | ABSA/61846**

BUILDING SPECIFICATION SUMMARY

EXTERNAL WALLS

	CONSTRUCTION TYPE	INSULATION	NOTES
EXTERNAL WALLS	Framed	None	Garage external walls
	Framed	R2.5 Batts	Throughout the remainder
ADDITIONAL NOTES	None		

INTERNAL WALLS

	CONSTRUCTION TYPE	INSULATION	NOTES
INTERNAL WALLS	Framed	R2.0 Batts	Garage/Mud Room, Powder, Laundry & Bath internal walls
	Framed	None	Throughout the remainder
ADDITIONAL NOTES	None		

ROOF AND CEILING

	CONSTRUCTION TYPE	INSULATION	NOTES
ROOF	Colorbond (un-ventilated)	R1.1 Roof Blanket	Approx. 15"O' Roof Pitch
CEILING	Plasterboard	R6.0 Insulation	House & Garage
ADDITIONAL NOTES	None		



FLOOR

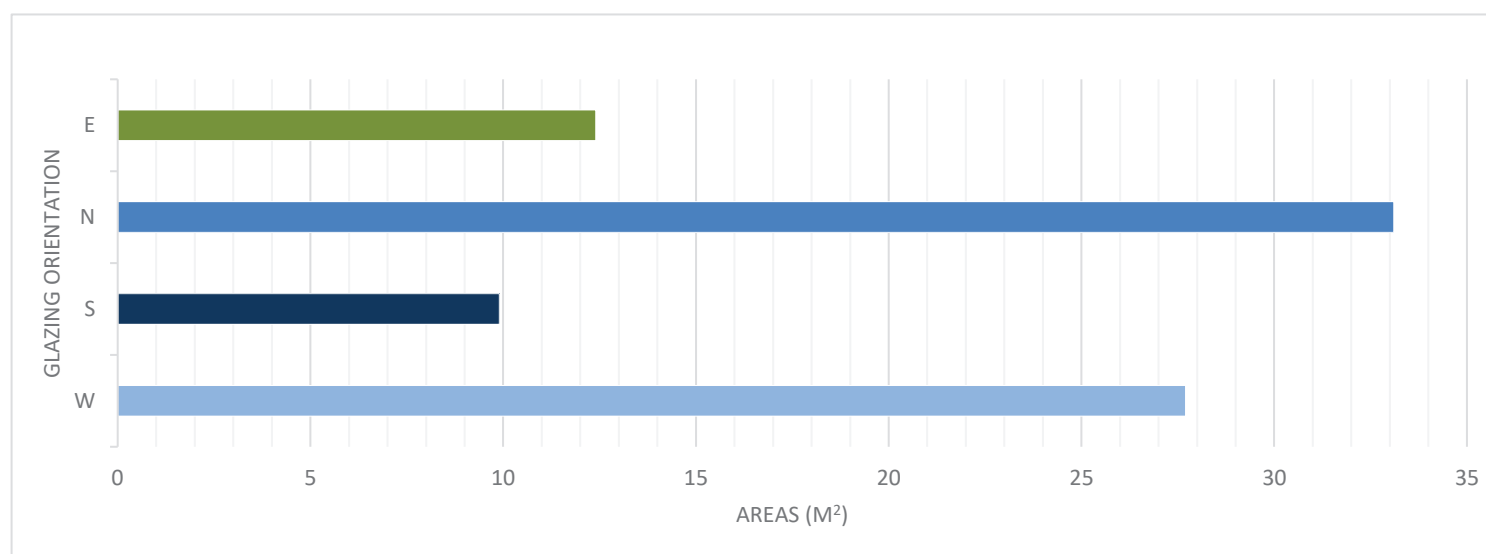
	CONSTRUCTION TYPE	INSULATION	NOTES
FLOOR	Concrete Slab On-Ground	None	Garage
	Framed Suspended	R4.0 Insulation	All Remaining Floor Areas
ADDITIONAL NOTES	Floor coverings modelled as per drawings and NatHERS protocols		

GLASS TYPE	COLOUR	FRAME	U <sub>w</sub> VALUE	SHGC	NOTES
Standard	Grey	Aluminium	6.60	0.41	Front Entry Door
Double-Glazing w/Low-E	Grey	Aluminium	3.66	0.30	Sliding Windows
Double-Glazing w/Low-E	Grey	Aluminium	3.66	0.30	Louvre Window
Double-Glazing w/Low-E	Grey	Aluminium	3.55	0.34	Awning Windows
Double-Glazing w/Low-E	Grey	Aluminium	3.01	0.40	Fixed Windows
Double-Glazing w/Low-E	Grey	Aluminium	3.79	0.38	Sliding Doors

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.



## 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.
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

## LIGHTING/PENETRATION CALCULATIONS

### ARTIFICIAL LIGHTING CALCULATION ALLOWANCES

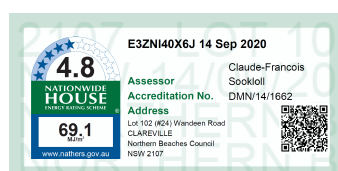
AREA WITHIN THE CLASS 1 BUILDING	279.96 m <sup>2</sup>		
Development Total	1399.8 Watts	Area Wattage Allowance	5.0 W/m <sup>2</sup>
AREA WITHIN THE CLASS 10 BUILDING	40.72 m <sup>2</sup>		
Development Total	122.2 Watts	Area Wattage Allowance	3.0 W/m <sup>2</sup>
AREA WITHIN THE OUTDOOR AREAS	54.66 m <sup>2</sup>		
Development Total	218.6 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	1.40

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



## 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.

