

## ANZAC Village Renewal

Prepared for RSL LifeCare

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# Document Information

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# 1. Summary

Northrop Consulting Engineers have been engaged to conduct a BCA alternative solution assessment in accordance with the J1V3 performance-based solution verification method in line with the specifications outlined in the 2022 National Construction Code Amendment 1 (NCC 2022) Section J. This summary report outlines the minimum compliance requirements for the building envelope for the proposed works located at 4 Colooli Road, Narrabeen NSW 2101.

This summary report is limited to identifying Section J Part J4 DTS requirements. Section J Parts J5, J6, J7, J8 and J9 DTS requirements will be addressed separately by the architect and building services consulting engineers.

The following sections provide an overview of the total system  $R_T$  values for roofs, walls and floors, and window system values (U and SHGC) for glazed elements for minimum compliance requirements. Note, both building fabric and glazing requirements only apply to the building envelope, i.e. constructions enclosing habitable and conditioned spaces.

## 1.1. Alternative Solution Assessment Result

### 1.1.1. BUILDING FABRIC

Refer to Table 1 for the minimum opaque building fabric thermal performance requirements for NCC 2022 Section J. All  $R_T$  values noted are total system values inclusive of thermal bridging, to be calculated in accordance with NCC 2022 J4D3(5). The Head Contractor must demonstrate the total system values meet or exceed (improve upon) the R-values nominated in this report.

Table 1 Opaque Building Fabric Compliance Requirements

BUILDING FABRIC	PROPOSED COMPLIANT FABRIC <sup>1</sup> (m <sup>2</sup> K/W)	NOTE
Roof & Ceiling (Exposed to outside)	Pool Area & Café $\geq R_T 4.4$ Remaining areas $\geq R_T 3.7$ (Downward), SA $\leq 0.45$	<ol style="list-style-type: none"> <li><math>R_T</math>-value is a total system performance value and must be calculated by the insulation supplier/ sub-contractor in accordance with AS/NZS 4859.22.</li> <li>Upward /Downward refers to the direction of heat flow.</li> <li>SA refers to the maximum Solar Absorptance of the upper surface.</li> <li>Slab on ground is in accordance with NCC2022 Specification 39, the contribution of the soil in contact with the floor has been accounted for. If the Ground Floor slab is not in contact with the ground, it is required to achieve an R2.0 m<sup>2</sup>K/W total construction.</li> </ol>
Semi-Exposed Ceiling (Ceiling to unconditioned space)	$\geq R_T 3.7$ (Downward)	
Envelope Wall (Walls to the exterior of the building)	$\geq R_T 1.4$ SA $\leq 0.6$	
Partition Wall (Walls to non-conditioned spaces)	removed	
Semi-Exposed Floor (Floor to unconditioned space)	$\geq R_T 1.0$ (Downward)	

BUILDING FABRIC	PROPOSED COMPLIANT FABRIC <sup>1</sup> (m <sup>2</sup> K/W)	NOTE
Slab on Ground	≥ R <sub>T</sub> 2.0 <sup>2</sup> (Downward)	

<sup>1</sup>The proposed compliant fabric solution must take the impacts of thermal bridging into account.

<sup>2</sup>The slab on ground does not require insulation and is assumed to be R<sub>T</sub>2.0 as per the NCC 2022 section J4D7.

Refer to Appendix B for the thermal boundary of the site and the location where insulation is required to meet minimum compliance.

### 1.1.2. GLAZING

Glazing was modelled as per dimensions measured from the architectural drawings referenced in Section 1.3. Glazing properties were defined by the DesignBuilder glazing definition of U-value and Solar Heat Gain Coefficient (SHGC).

Table 2 below provides a summary of glazing properties (U-value and SHGC) used in the proposed building model. All glazing values presented are system values (inclusive of both glazed and framing elements). Refer to Appendix A for the Deemed-to-Satisfy (DTS) reference Wall-Glazing calculator results.

Table 2 Glazing Compliance Requirements

GLAZING TYPE	REQUIRED MAXIMUM TOTAL SYSTEM U-VALUE (W/m <sup>2</sup> K)	REQUIRED MAXIMUM TOTAL SYSTEM SHGC
External Glazing	≤ U <sub>T</sub> 3.5	≤ SHGC 0.35
Internal Glazing	≤ U <sub>T</sub> 5.8	≤ SHGC 0.8
Roof Lights	≤ U <sub>T</sub> 3.9	≤ SHGC 0.35

Note, both building fabric and glazing requirements only apply to the building envelope, i.e. constructions enclosing habitable and conditioned spaces. Additionally, Section J, J1V3 assessments results are likely to alter as the detailed design of the development progresses. A revised iteration of the assessment is suggested to formalise the compliance requirements of the development.

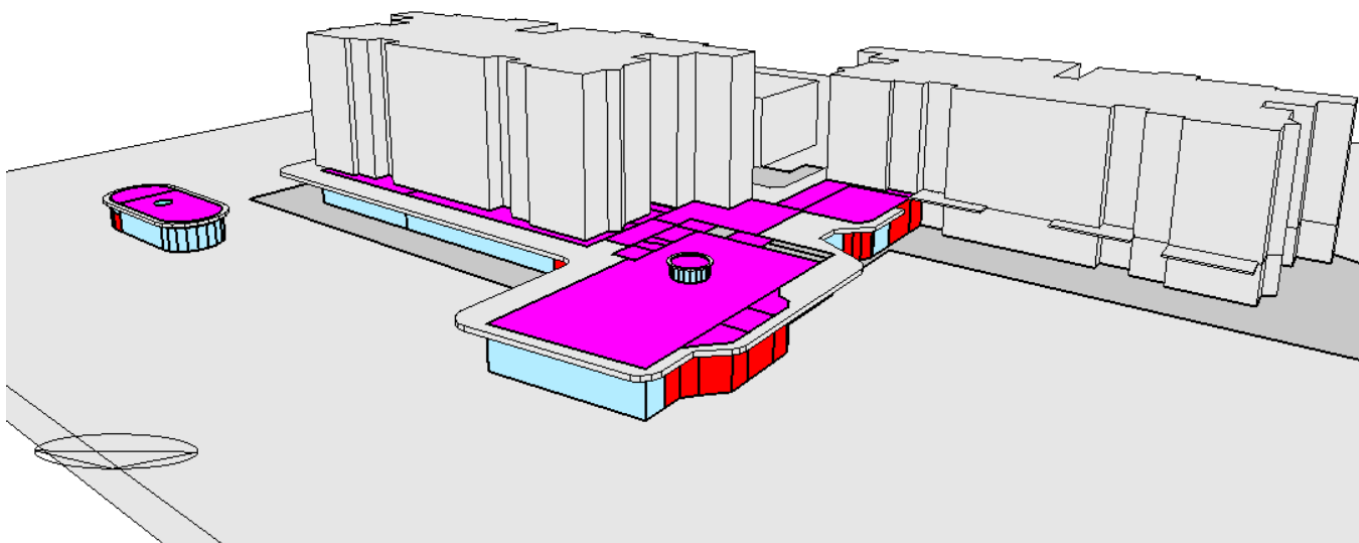


Figure 1 - 3D model with proposed thermal performance for ANZAC Village Renewal

## 1.2. Limitations

Due care and skill have been exercised in the preparation of this report.

The building energy model provides an estimate of the building's energy performance. This estimate is based on a necessarily simplified and idealised version of the building that does not, and cannot, fully represent all of the intricacies of the building and its operation. As a result, the energy model results only represent an interpretation of the potential performance of the building. No guarantee or warranty of building performance in practice can be based on energy modelling results alone.

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## 1.3. Referenced Drawings

Table 3 Referenced Architectural Drawings

DRAWING NO.	REV	DATE	TITLE
DA1102	07	16/12/2025	Site Plan Proposed
DA2001	13	16/12/2025	General Arrangement Plan Level B1
DA2010	15	16/12/2025	General Arrangement Plan Level 00
DA2011	14	16/12/2025	General Arrangement Plan Level 01
DA3101	08	16/12/2025	Site Elevations
DA3111	07	16/12/2025	Building 1 Elevations
DA3112	07	16/12/2025	Building 1 Elevations
DA3121	07	16/12/2025	Building 2 Elevations

DRAWING NO.	REV	DATE	TITLE
DA3122	07	16/12/2025	Building 2 Elevations
DA4103	04	16/12/2025	Building 2 Sections
DA4105	04	16/12/2025	Swimming Pool Sections
DA4107	04	16/12/2025	Cafe Sections
DA3201	08	16/12/2025	Sections
DA3202	08	16/12/2025	Sections
DA4101	04	16/12/2025	Building 1 Sections
DA4102	04	16/12/2025	Building 1 Sections

## 2. Simulation Inputs Summary

### 2.1. Building Description

ANZAC Village Renewal is a proposed retirement living project by RSL Lifecare as part of the Section J assessment. The building classifications are detailed in Table 4. As such, the associated building schedules and inputs were considered for the J1V3 assessment of the building fabric encapsulating conditioned spaces throughout the development.

Table 4 Building classification of the proposed development at ANZAC Village Renewal

BUILDING CLASSIFICATION
Class 9b: Ground Floor Common amenities and facilities area
Class 6: Cafe

The reference and proposed building share an identical building geometry model. The figure below outlines a graphical illustration of the building model.

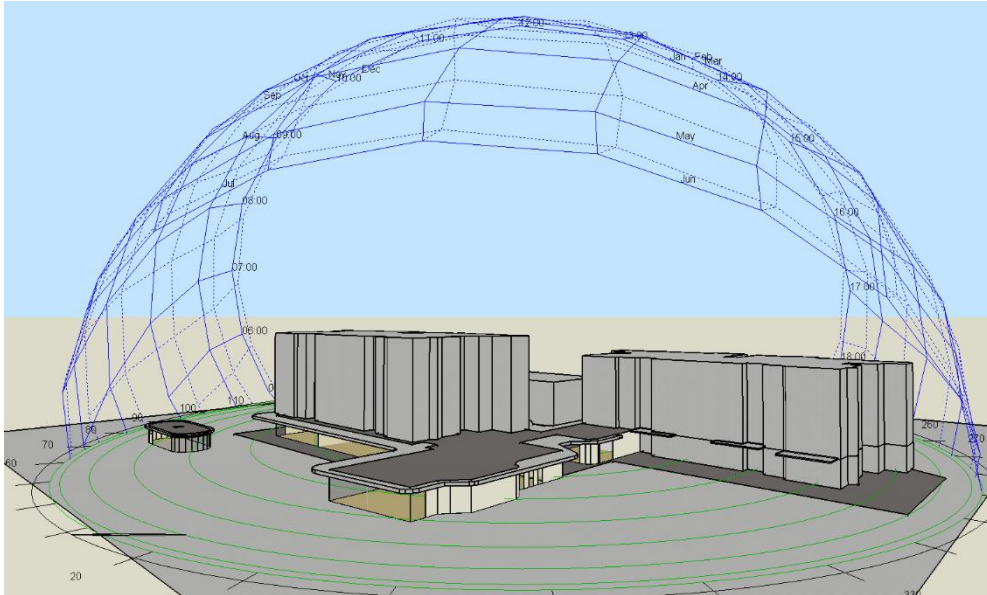


Figure 2 - 3D geometrical representation of ANZAC Village Renewal

## 2.2. Building Fabric

The following tables provide an overview of the Section J minimum requirements for both the reference and proposed cases. This summarises the total system  $R_T$  values for roofs, walls and floors, and window system values (U and SHGC) for glazed elements for minimum compliance requirements.

Building fabric thermal insulation requirements apply to the building fabric enclosing habitable and conditioned spaces forming part of the thermal boundary of the site (building envelope). Refer to Appendix A for the Deemed-to-Satisfy (DTS) reference Wall-Glazing calculator results.

Table 5 Building Fabric Compliance Requirements

BUILDING FABRIC	DTS REQUIREMENT	PROPOSED COMPLIANT FABRIC <sup>1</sup> ( $m^2K/W$ )
Roof & Ceiling (Exposed to outside)	$\geq R_T 3.7$ (Downward), $SA \leq 0.45$	Pool Area & Café $\geq R_T 4.4$ Remaining areas $\geq R_T 3.7$ (Downward), $SA \leq 0.45$
Semi-Exposed Ceiling (Ceiling to unconditioned space)	$\geq R_T 3.7$ (Downward)	$\geq R_T 3.7$ (Downward)
Envelope Wall (Walls to the exterior of the building)	$\geq R_T 1.4$ , $SA \leq 0.6$	$\geq R_T 1.4$ $SA \leq 0.6$
Partition Wall (Walls to non-conditioned spaces)	$\geq R_T 1.4$	removed
Semi-Exposed Floor (Floor to unconditioned space)	$\geq R_T 2.0$ (Downward)	$\geq R_T 1.0$ (Downward)
Slab on Ground	$\geq R_T 2.0^2$ (Downward)	$\geq R_T 2.0^2$ (Downward)

<sup>1</sup>The proposed compliant fabric solution must take the impacts of thermal bridging into account.

<sup>2</sup>The slab on ground does not require insulation and is assumed to be  $R_T 2.0$  as per the NCC 2022 section J4D7.

Table 6 Glazing Compliance Requirements

GLAZING LOCATION	DTS REQUIREMENT	PROPOSED COMPLIANT GLAZING
External Glazing	$\leq U_T 3.20$ $\leq SHGC 0.26$	$\leq U_T 3.5$ $\leq SHGC 0.31$
Internal Glazing	$\leq U_T 5.80$ $\leq SHGC 0.80$	$\leq U_T 5.80$ $\leq SHGC 0.80$

GLAZING LOCATION	DTS REQUIREMENT	PROPOSED COMPLIANT GLAZING
Skylight	$\leq U_T 3.9$ $\leq SHGC 0.45$	$\leq U_T 3.9$ $\leq SHGC 0.35$

### 2.3. Building Climate Zone

This proposed development is located at 4 Colooli Road, Narrabeen NSW 2101 which belongs to Climate Zone 5 as shown in Figure 3 below.

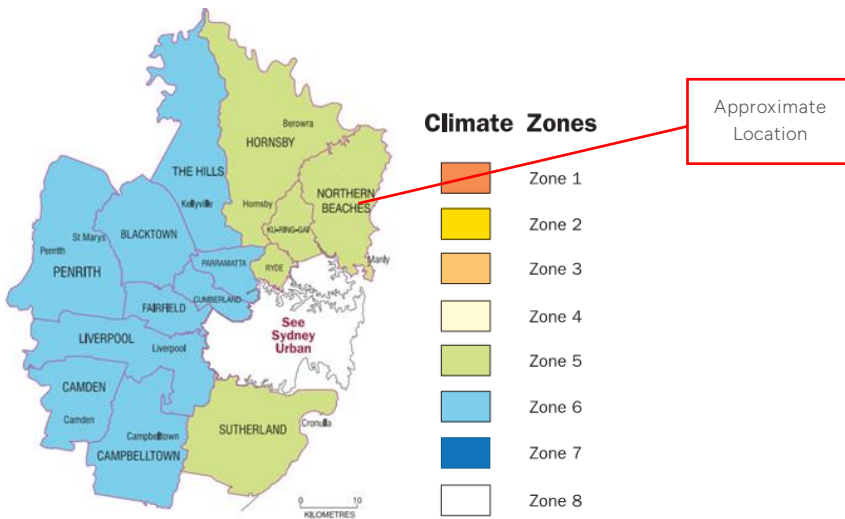


Figure 3 - Climate Zone Map of Sydney Surrounds, NSW

### 2.4. Modelling Software

The building simulation was undertaken via DesignBuilder (v7.3.0.029) user interface with EnergyPlus (v9.4) dynamic simulation engine. DesignBuilder is developed for the EnergyPlus by the U.S. Department of Energy. EnergyPlus is BESTEST certified in accordance with ASHRAE Standard 140:2001.

### 2.5. Location and Weather Data

The weather data used in the simulation was the Australian Reference Meteorological Year (RMY) file derived from EnergyPlus weather file Aus\_NSW\_Sydney\_RMY.epw and World Meteorological Organisation (WMO) station number 947680. All models were simulated with the same weather file.

### 2.6. Air Conditioning System

#### 2.6.1. DETAILED HVAC SYSTEM

For the purposes of the annual greenhouse gas emissions assessment, a mechanical air conditioning system was modelled to represent the mechanical design, which utilised *variable refrigerant flow (VRF)* systems to serve all conditioned spaces within the building.

Figure 4 and Table 7 summarise the simulation inputs used to model the air conditioning system of the development.

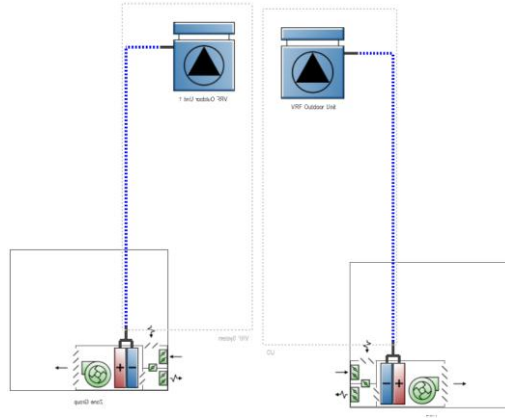


Figure 4 Illustration of the HVAC System for the proposed development at ANZAC Village Renewal

Table 7 Detailed HVAC System Inputs

PARAMETER	INPUT
Heating Set-point	21°C
Cooling Set-point	24°C
Cooling Coil COP	2.9
Heating Coil COP	3.0
Supply fan efficiency	55%
Supply Fan Pressure	150Pa

## 2.7. Other Modelling Parameters and Profiles

### 2.7.1. OCCUPANCY

The building occupant density used was based on the values stipulated in Table D2D18 of the National Construction Code 2022. Each of the zones were assigned with adequate occupancy density values based on the function and purpose of use for each space modelled.

The reference and proposed buildings shared the same occupancy schedules in line with NCC 2022 Specification 35 – Modelling profiles for J1V3.

Table 8 Occupancy density of the proposed development at ANZAC Village Renewal

<b>ZONE</b>	<b>OCCUPANCY DENSITY (m<sup>2</sup>/PERSON)</b>
Office	<b>10.0</b>
Kitchen	<b>10.0</b>
Gym	<b>3.0</b>
Pool	<b>1.5</b>
Café Seating Area	<b>1.0</b>

### 2.7.2. EQUIPMENT

The heat gain from internal equipment was modelled based on the values stipulated in Table S35C2I of the National Construction Code 2022. Each of the zones were assigned with adequate equipment load values based on the function and purpose of use for each space modelled.

The reference and proposed buildings shared the same equipment schedules in line with Specification 35 – Modelling profiles for J1V3 stipulated in the corresponding profile tables for each Class of the NCC 2022.

Table 9 Maximum equipment power density of the proposed development at ANZAC Village Renewal

<b>ZONE</b>	<b>EQUIPMENT POWER DENSITY (W/m<sup>2</sup>)</b>
Class 9b	<b>5.0</b>
Class 6- Cafe	<b>5.0</b>

### 2.7.3. INTERIOR LIGHTING

The internal gains from artificial internal lighting were determined based on the illumination power density values stipulated in Table J7D3a of the National Construction Code 2022. Each of the zones were assigned with adequate maximum IPD values based on the function and purpose of use for each space modelled.

The reference and proposed buildings shared the same lighting schedules in line with Specification 35 – Modelling profiles for J1V3 stipulated in the corresponding profile tables for each Class of the NCC 2022.

Table 10 Maximum illumination power density of the proposed development at ANZAC Village Renewal

ZONE	ILLUMINATION POWER DENSITY (W/m <sup>2</sup> )
Office, GF Common Areas	4.5
Entry lobby	9.0
Kitchen	4.0
Corridor/ Waiting area	5.0
Storage	1.5
Toilet	3
Café	14

## 2.8. Thermal Comfort Modelling Inputs

### 2.8.1. AIR TEMPERATURE, HUMIDITY AND AIR VELOCITY SETPOINT

As previously outlined in Section 2.5, the air temperature band of 21°C – 24°C, humidity ratio of 10 – 90% and air velocity of 0.1370m/s have been applied in the assessment.

### 2.8.2. ACTIVITY AND METABOLIC RATE

The metabolic rate and clothing insulation levels of each representative occupant of the building was determined in consideration of the building classification and the primary purpose of the space encapsulating the occupant. These inputs were determined in line with the ANSI/ASHRAE Standard 55-2013 – Thermal Environmental Conditions for Human Occupancy, which are summarised in Table 9 below.

Table 11 Activity and Metabolic Rates of the proposed buildings at ANZAC Village Renewal

BUILDING AREA	ACTIVITY DESCRIPTION	METABOLIC RATE (W/PERSON)
All areas	Standing/Walking/Light Office Work	123

Table 12 'Clo' (I<sub>cl</sub>) – Seasonal Clothing Insulation Values

BUILDING AREA	JAN	FEB	MAR	APR	MAY-JUNE	JULY-AUG	SEP	OCT	NOV	DEC
All Areas	0.7	0.7	0.9	0.9	1.4	1.6	1.2	1.2	0.9	0.9

### 3. Simulation Results

As per the J1V3 requirement of the NCC 2022, compliance with the performance requirement J1P1 is verified when –

- i) It is determined that the annual greenhouse gas emissions of the proposed building are not more than that of a reference building when –
  - a. The proposed building is modelled with proposed services; and
  - b. The proposed building is modelled with the same services as the reference building; and
- ii) In the proposed building, a thermal comfort level of between a Predicted Mean Vote of -1 to +1 is achieved across not less than 95% of the floor areas of all occupied zones for not less than 98% of the annual hours of operation of the building; and
- iii) The building complies with the additional requirements of Specification 33.

#### 3.1. Annual Greenhouse Gas Emissions Assessment

A comparative annual greenhouse gas emissions assessment of the building models was carried out in accordance with the J1V3 requirements above. The following models were assessed:

1. Reference building with DTS fabric and reference services
2. Proposed building with proposed building fabric and reference services

The simulated annual greenhouse gas emissions of the reference building and the proposed building are illustrated in Figure 5 below. A breakdown of the results is also summarised in Table 13 below.

Figure 5 Simulation of Results

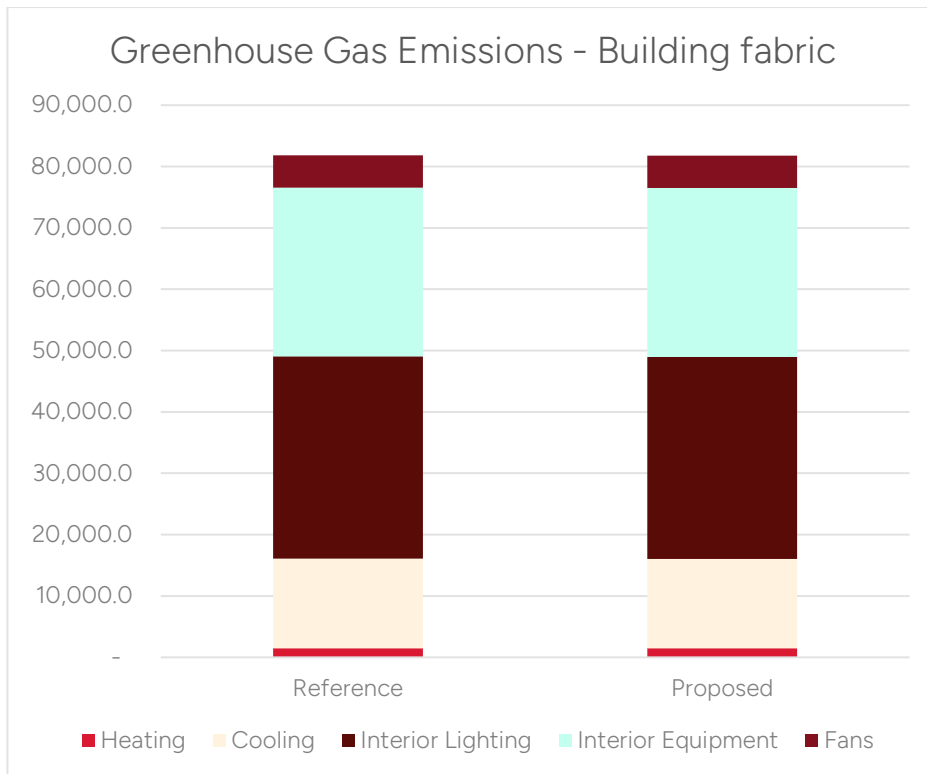


Table 13 Simulated Annual Greenhouse Gas Emissions Results

	REFERENCE BUILDING (KG CO <sub>2</sub> -E)	PROPOSED BUILDING (KG CO <sub>2</sub> -E)
Heating	1,480.8	1,486.8
Cooling	14,633.2	14,557.5
Lighting	32,934.4	32,934.4
Interior Equipment	27,519.0	27,519.0
Fans	5,276.2	5,298.2
Total	81,843.6	81,796.0

Evidently from above, the simulated annual greenhouse gas emission of the proposed building does not exceed that of the reference building and hence satisfies the annual greenhouse gas emissions requirements of the J1V3 provisions.

### 3.2. Thermal Comfort Assessment

The proposed building fabric was further assessed for its ability to maintain a predicted mean vote (PMV) level of -1 to +1 in order to satisfy the following verification requirement of the J1V3 pathway:

- In the proposed building, a thermal comfort level of between predicted mean vote of -1 to +1 is achieved across not less than 95% of the floor area of all occupied zones for not less than 98% of the annual hours of operation of the building;

It is also noteworthy that the following design guidelines and standards have been used to carry out the modelling process:

1. National Construction Code 2022 – Section J Energy Efficiency Provisions
2. ANSI/ASHRAE Standard 55-2013 – Thermal Environmental Conditions for Human Occupancy

Table 14 Simulated Annual Predicted Mean Vote Simulation Results

CONDITIONED SPACE	AREA	PERCENTAGE OF AREA EXCEEDING 98% PMV COMPLIANT HOURS
Total Conditioned Floor Space	1774.29 m <sup>2</sup>	98%

Evidently from above, since the building meets the required thermal comfort level across not less than 95% of the occupied floor area for more than 98% of the annual hours of operation of the building, the proposed building satisfies the thermal comfort requirements of the J1V3 provisions.

Please refer to Appendix C for the Predicted Mean Vote Simulation Results.

# Appendix A - Deemed-To-Satisfy (DTS) Wall-Glazing Calculator

NCC 2019 & 2022 Wall-Glazing Calculator v3.0												
Wall and glazing energy efficiency in Class 2-9 buildings - Method 2 of Specification J1.5a, NCC 2019												
Roof & Ceiling R-Value					Classification			Climate Zone				
Building name and description					Other			5				
RSL Anzac Village - Building 1 Amenities + Pool												
Calculated Area-Weighted U-Value					1.96			Calculated Representative Air-Conditioning Energy Value				270.0
Allowable Area-Weighted U-Value					2.00			Allowable Representative Air-Conditioning Energy Value				276.6
Building total U-Value allowance met					99%			Building total SHGC allowance met				98%
Check Values					Wall Element Requirements			Display Glazing Element Requirements				
Visible					Met			-				
Use of this calculator does not guarantee compliance with the NCC. The disclaimer and a version update check are available at the bottom of the page.												
Element Description					U-Value			SHGC and Shading				
ID	Description (optional)	Element Type	Facing Sector	Area (m <sup>2</sup> )	U-Value	U-Value Element share of allowance used	SHGC	Glazing Height (m)	Shading Height (m)	Shading Projection (m)	SHGC Element share of allowance used	
1	North Wall	Wall	North	133.42	0.71	3% of building total					Not counted	
2	East Wall	Wall	East	87.30	0.71	2% of building total					Not counted	
3	South Wall	Wall	South	73.27	0.71	2% of building total					Not counted	
4	West Wall	Wall	West	184.45	0.71	4% of building total					Not counted	
5	Internal Wall	Wall	Internal	267.15	0.71	6% of building total					Not counted	
6						Not counted					Not counted	
7	North_Shading_1	Glazing	North	14.40	3.20	2% of building total	0.26	3	4.2		0.8 3% of building total	
8	North_Shading_2	Glazing	North	69.09	3.20	8% of building total	0.26	4.9	5.3		0.6 14% of building total	
9	North_Shading_3	Glazing	North	9.00	3.20	1% of building total	0.26	3	4.2		6.5 1% of building total	
10	North_Shading_4	Glazing	North	101.40	3.20	11% of building total	0.26	3	4.2		3.9 14% of building total	
11	North_Shading_5	Glazing	North	0.00	3.20	0% of building total	0.26	0	4.2		19.5 0% of building total	
12	North_Shading_6	Glazing	North	7.16	3.20	1% of building total	0.26	2.7	3.5		1.5 1% of building total	
13	North_Shading_7	Glazing	North	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
14	North_Shading_8	Glazing	North	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
15	North_Shading_9	Glazing	North	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
16	North_Shading_10	Glazing	North	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
17	North_No Shading	Glazing	North	24.84	3.20	3% of building total	0.26	2.7	0		0 5% of building total	
18						Not counted					Not counted	
19	East_Shading_1	Glazing	East	74.97	3.20	8% of building total	0.26	4.9	5.3		0.6 12% of building total	
20	East_Shading_2	Glazing	East	42.60	3.20	5% of building total	0.26	3	4.2		10 4% of building total	
21	East_Shading_3	Glazing	East	24.60	3.20	3% of building total	0.26	3	4.2		2 4% of building total	
22	East_Shading_4	Glazing	East	7.80	3.20	1% of building total	0.26	3	4.2		24.7 1% of building total	
23	East_Shading_5	Glazing	East	66.60	3.20	7% of building total	0.26	3	4.2		2.4 9% of building total	
24	East_Shading_6	Glazing	East	14.31	3.20	2% of building total	0.26	2.7	3.5		1.5 2% of building total	
25	East_Shading_7	Glazing	East	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
26	East_Shading_8	Glazing	East	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
27	East_Shading_9	Glazing	East	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
28	East_Shading_10	Glazing	East	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
29	East_No Shading	Glazing	East	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
30						Not counted					Not counted	
31	South_Shading_1	Glazing	South	57.90	3.20	6% of building total	0.26	3	4.2		3.3 5% of building total	
32	South_Shading_2	Glazing	South	88.50	3.20	10% of building total	0.26	3	4.2		4 7% of building total	
35	South_Shading_3	Glazing	South	23.40	3.20	3% of building total	0.26	3	4.2		5.2 2% of building total	
36	South_Shading_4	Glazing	South	33.08	3.20	4% of building total	0.26	2.7	3.5		1.5 3% of building total	
37	South_Shading_5	Glazing	South	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
38	South_Shading_6	Glazing	South	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
39	South_Shading_7	Glazing	South	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
40	South_Shading_8	Glazing	South	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
42	South_Shading_9	Glazing	South	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
43	South_Shading_10	Glazing	South	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
44	South_No Shading	Glazing	South	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
45						Not counted					Not counted	
46	West_Shading_1	Glazing	West	11.70	3.20	1% of building total	0.26	3	4.2		19.7 1% of building total	
47	West_Shading_2	Glazing	West	15.60	3.20	2% of building total	0.26	3	4.2		0.8 3% of building total	
48	West_Shading_3	Glazing	West	26.40	3.20	3% of building total	0.26	3	4.2		1.6 4% of building total	
49	West_Shading_4	Glazing	West	24.03	3.20	3% of building total	0.26	0.9	1.1		0.6 3% of building total	
50	West_Shading_5	Glazing	West	15.00	3.20	2% of building total	0.26	3	5.3		0.6 3% of building total	
51	West_Shading_6	Glazing	West	0.00	3.20	0% of building total	0.26	0	3.5		1.5 0% of building total	
52	West_Shading_7	Glazing	West	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
53	West_Shading_8	Glazing	West	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
54	West_Shading_9	Glazing	West	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
55	West_Shading_10	Glazing	West	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
56	West_No Shading	Glazing	West	0.00	3.20	0% of building total	0.26	0	0		0 0% of building total	
57						Not counted					Not counted	
58	Internal_Glazing	Glazing	Internal	0.00	5.80	0% of building total	0.80				Not counted	

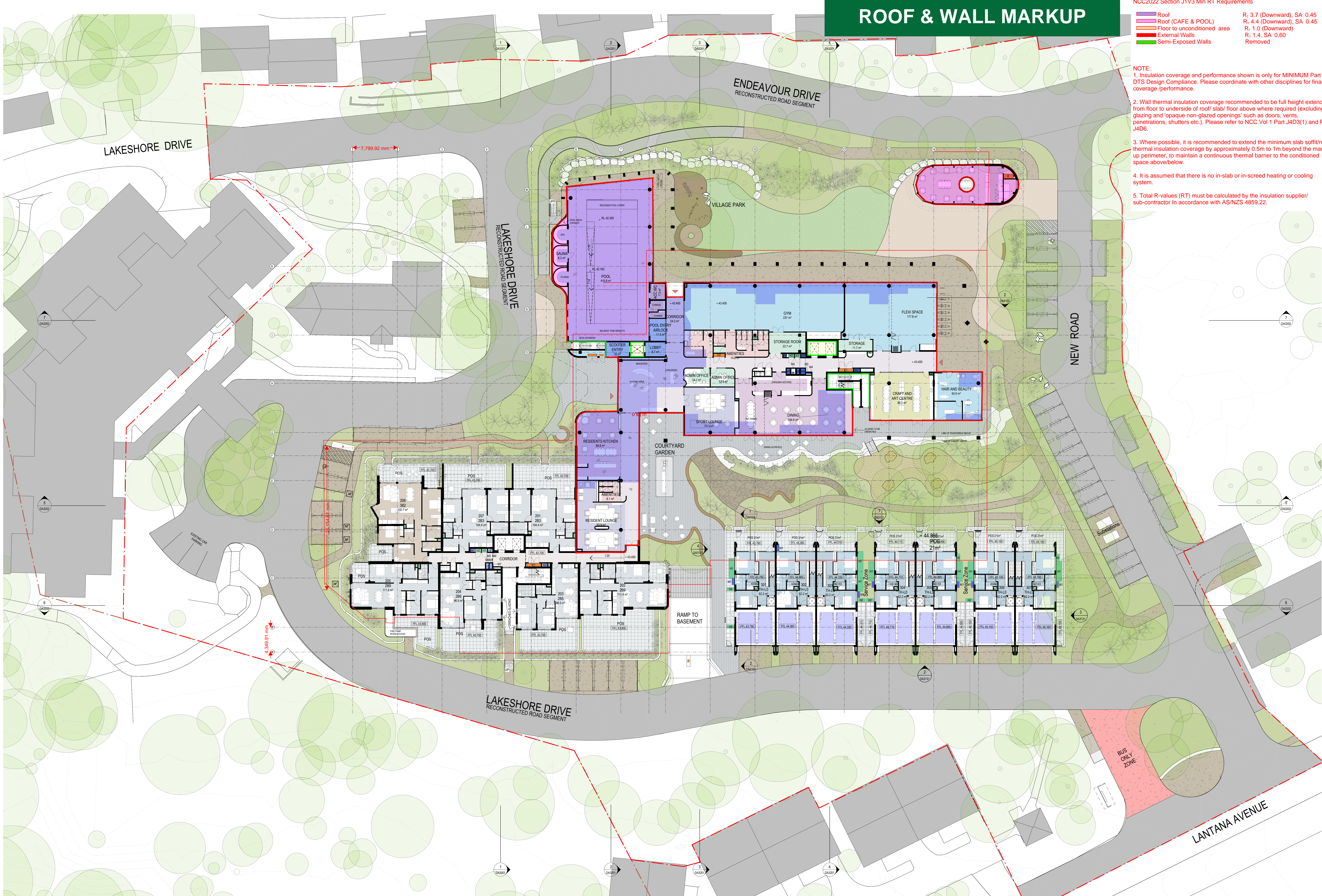
## Appendix B - Building Thermal Boundary Markup

# ROOF & WALL MARKUP

NCC2022 Section J1V3 Min RT Requirements

- Roof R: 3.7 (Downward), SA 0.45
- Roof (CAFE & POOL) R: 4.4 (Downward), SA 0.45
- Floor to unconditioned area R: 1.0 (Downward)
- External Walls R: 1.4, SA 0.60
- Semi-Exposed Walls Removed

- NOTE:**
- Insulation coverage and performance shown is only for MINIMUM Part J4 DTS Design Compliance. Please coordinate with other disciplines for final coverage/performance.
  - Wall thermal insulation coverage recommended to be full height extending from floor to underside of roof slab/floor above where required (excluding glazing and opaque non-glazed openings such as doors, vents, penetrations, shutters etc.). Please refer to NCC Vol 1 Part J4D3(1) and Part J4D6.
  - Where possible, it is recommended to extend the minimum slab soffit/roof thermal insulation coverage by approximately 0.5m to 1m beyond the marked up perimeter, to maintain a continuous thermal barrier to the conditioned space above/below.
  - It is assumed that there is no in-slab or in-screed heating or cooling system.
  - Total R-values (RT) must be calculated by the insulation supplier/sub-contractor in accordance with AS/NZS 4859.22.



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**NOMINATED ARCHITECTS**  
 MICHAEL HETMAN OAM  
 BRIAN MAROTTA BAO  
 JOHN WHITTINGHAM TSO

**CLIENT**  
 RSL LifeCare (RSL) Ltd  
 90 Waverley Parade  
 Narrabeen, New South  
 Wales

**PROJECT**  
 RSL ANZAC Village  
 Renewal Project - Stage 1  
 LifeCare Project  
**PROJECT NO**  
 24015

**LOCATION**  
 90 Waverley Parade  
 Narrabeen, New South  
 Wales

**DEPARTMENT LEGEND**

1-BED	CAFE	RESIDENTIAL 1
2-BED	CIRCULATION ZONES	RESIDENTIAL 2
3-BED	DINING	RESIDENTIAL COMMUNITY
ADMINISTRATION WEAIR	FITNESS CLUB	SERVICES
AMENITIES	LOUNGES	TOWNHOUSE
ARTS - CRAFTS	PENTHOUSE	

**SERVICES RISER**

MECHANICAL	ELECTRICAL	HYDRAULIC	OTHER UTILITY
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**BUILDING 1 - Corridor Riser Key:**

M1 Refrigerant Riser	M2 Car Park Exhaust Riser	H1 Hydraulic Water Cupboard Riser	E1, E2 Combined Electricals and Communications Cupboard Riser
M3 Refrigerant Riser	M4 Kitchen Exhaust Riser	H2 Hydraulic Water Cupboard Riser	E3 Combined Electricals and Communications Cupboard Riser and House DB
M5 Amenity Exhaust Riser	M6 Kitchen Exhaust Riser		
M7 Storage Exhaust Riser	M8 Lobby Supply Riser		
M9 Storage Exhaust Riser	M10 Garage Exhaust Fan		

**BUILDING 2 - Corridor Riser Key:**

M1 Refrigerant Riser	M2 Pump Room Supply Riser	H1 Hydraulic Water Cupboard Riser	E1 Combined Electricals and Communications Cupboard Riser
M3 Refrigerant Riser	M4 Exhaust Riser for Acc.	H2 Hydraulic Water Cupboard Riser	E2 Combined Electricals and Communications Cupboard Riser
M5 Storage Supply Riser	M6 Garage Exhaust Fan		
M7 Lobby Supply Riser	M8 Car Park Supply Riser		

**TOWNHOUSE - Riser Key:**

M1 Air Cooled Condenser	H1 Heat Pump	E1 Electrical Riser
M2 Mech Riser	H2 Reservoir Tank	E2 Cable Riser
M3 Electrical Riser	H3 Drainage Riser	

**CAFE - Riser Key:**

M1 Air Cooled Condenser	H1 Heat Pump	E1 DB Cupboard
M2 Mech Riser	H2 Reservoir Tank	
M3 Electrical Riser	H3 Drainage Riser	

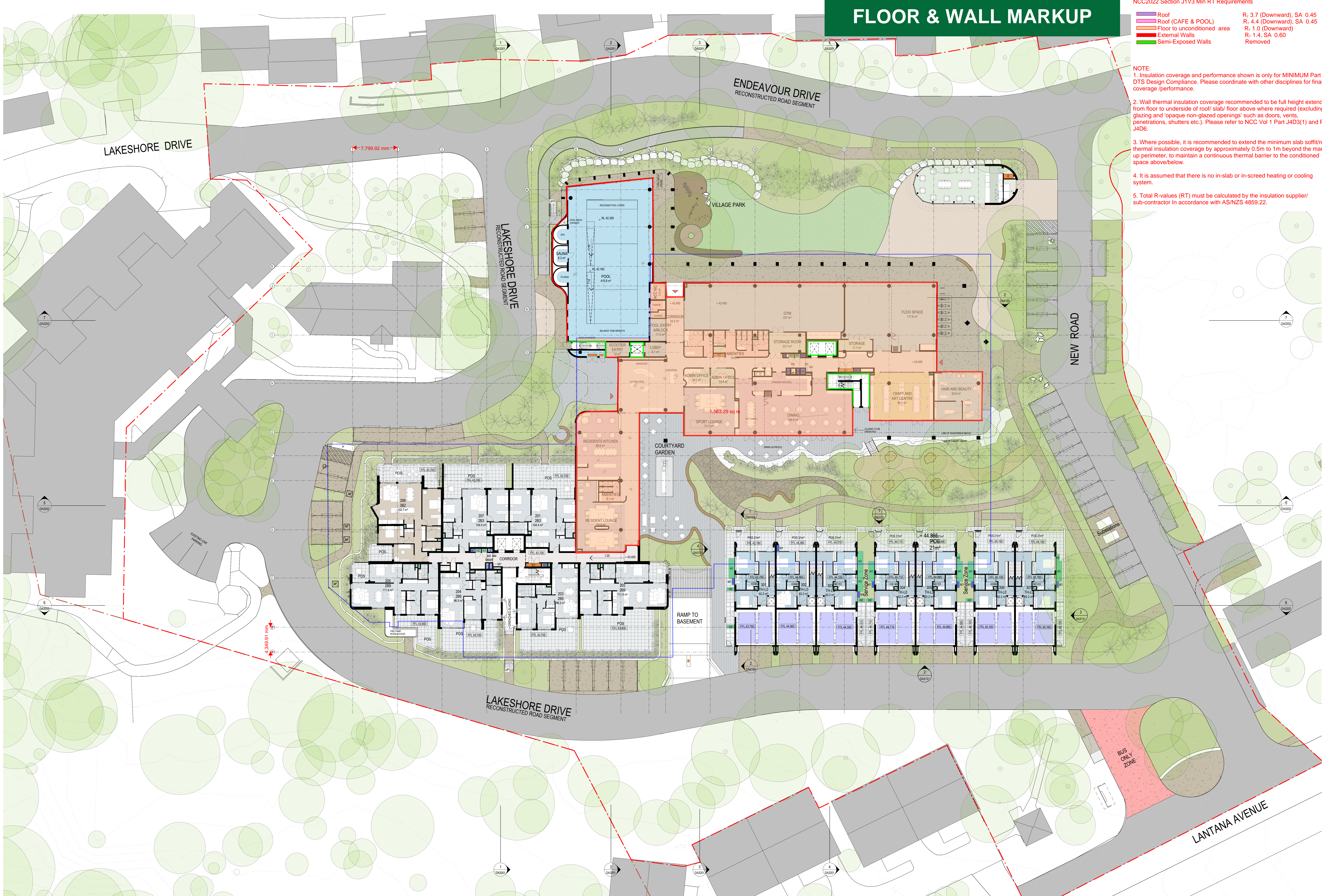
REV DATE	DESCRIPTION	DN AP	SHEET TITLE	SCALE	SHEET NUMBER	REVISION
15/10/21	DA SUBMISSION		GENERAL ARRANGEMENT PLAN	1:1000 @ AO	DA2010	15
14/28/21	DRAFT DA		LEVEL 00			
SHEET STATUS: NOT FOR CONSTRUCTION						

# FLOOR & WALL MARKUP

NCC2022 Section J1V3 Min RT Requirements

- Roof R: 3.7 (Downward), SA 0.45
- Roof (CAFE & POOL) R: 4.4 (Downward), SA 0.45
- Floor to unconditioned area R: 1.0 (Downward)
- External Walls R: 1.4, SA 0.60
- Semi-Exposed Walls Removed

- NOTE:**
- Insulation coverage and performance shown is only for MINIMUM Part J4 DTS Design Compliance. Please coordinate with other disciplines for final coverage/performance.
  - Wall thermal insulation coverage recommended to be full height extending from floor to underside of roof slab/floor above where required (excluding glazing and 'opaque non-glazed openings' such as doors, vents, penetrations, shutters etc.). Please refer to NCC Vol 1 Part J4D3(1) and Part J4D6.
  - Where possible, it is recommended to extend the minimum slab soffit/roof thermal insulation coverage by approximately 0.5m to 1m beyond the marked up perimeter, to maintain a continuous thermal barrier to the conditioned space above/below.
  - It is assumed that there is no in-slab or in-screed heating or cooling system.
  - Total R-values (RT) must be calculated by the insulation supplier/sub-contractor in accordance with AS/NZS 4859.22.



# NORTHROP

