

NCC2022 SECTION J COMPLIANCE ASSESSMENT **DRAFT** REPORT

Proposed Co-Living Development
19-21 Banks Street, Padstow NSW 2211

Prepared by:

LC Consulting Engineers

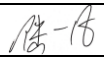
p: PO. Box 1201, Chatswood NSW 2057

a: Suite 906, Tower B, Citadel Towers, 799 Pacific Hwy

Chatswood NSW 2067

m: 0449 172 148

e: info@lcconsulting.com.au

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Prepared By:	DL	
Checked By:	LC	
Prepared for:	CD Architects	
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The following drawings and/or specifications (Dated April 2025, Project No. J24638D) have been referenced as the basis for this assessment:

DRAWING LIST

	DRAWING No.	DRAWING NAME	REVISION
DA	1001	DRAWING LIST	
DA	1002	COMPLIANCE TABLE	
DA	1005	SITE PLAN	
DA	1006	DEMOLITION PLAN	
DA	1101	BASEMENT FLOOR PLAN	
DA	1102	GROUND FLOOR PLAN	
DA	1103	LEVEL 1	
DA	1104	LEVEL 2	
DA	1105	LEVEL 3	
DA	1106	ROOF FLOOR PLAN	
DA	2001	ELEVATION 1	
DA	2002	ELEVATION 2	
DA	3001	SECTION A	
DA	3002	SECTION B	
DA	3003	DRIVEWAY SECTION	
DA	5001	PRE + POST ADAPTABLE UNIT LAYOUT	
DA	6001	SHADOW DIAGRAMS	
DA	6021	SUN ANGLE VIEWS 9AM - 21 JUNE	
DA	6022	SUN ANGLE VIEWS 10AM - 21 JUNE	
DA	6023	SUN ANGLE VIEWS 11AM - 21 JUNE	
DA	6024	SUN ANGLE VIEWS 12PM - 21 JUNE	
DA	6025	SUN ANGLE VIEWS 1PM - 21 JUNE	
DA	6026	SUN ANGLE VIEWS 2PM - 21 JUNE	
DA	6027	SUN ANGLE VIEWS 3PM - 21 JUNE	
DA	7001	GFA CALCULATION	
DA	7002	ROOM AREA CALCULATION	
DA	7031	3D VIEWS	
DA	7041	FINISHES SCHEDULE	
DA	7051	DEEP SOIL ZONE	
DA	7091	LEP HEIGHT BLANKET	

Designed and documented by:
CD Architects

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Executive Summary

LC Consulting Engineers have been engaged by HL Investments Australia Pty Ltd to assess the proposed co-living development at 19-21 Banks Street, Padstow NSW 2211 for NCC 2022 Section J energy efficiency compliance via the deemed-to-satisfy pathway.

It should be noted that according to the Australian Building Code Board (ABCB), the review and amendment cycle of the National Construction Code (NCC) has been changed from 1-yearly cycle to 3-yearly since 2016. The current Part J of NCC 2022 came into full effect in New South Wales from 1 October 2023.

The NCC 2022 Section J provisions comprise the following parts and each part is examined for compliance details or for allocation of responsibilities in this report –

- Part J1 Energy efficiency performance requirements
- Part J2 Energy efficiency
- Part J3 Elemental provisions of a sole-occupancy unit of a Class 2 building or a Class 4 part of a building
- Part J4 Building fabric
- Part J5 Building sealing
- Part J6 Air conditioning & ventilation
- Part J7 Artificial lighting and power
- Part J8 Heated water supply and swimming pool and spa pool plant
- Part J9 Energy monitoring and on-site distributed energy resources

The proposed building is to comply with Section J by meeting each relevant requirement based on the provisions in each part above, outlined in this report.

The table below provides a summary of the minimum deemed-to-satisfy (DTS) requirements for building opaque fabric and glazing, and services to achieve the NCC Section J compliance for the proposed development above. Note this summary table shall be read in conjunction with the relevant sections and appendices in this report.

Section J DTS Results Summary – 19-21 Banks Street, Padstow NSW 2211

Part	Item	Minimum Section J DTS Compliance Requirements
J4 – Building Fabric	Roof / Ceiling System	The minimum total R value for the all the exposed concrete roof systems and internal ceiling systems forming part of the envelope is R3.7. (Note thermal bridging effects shall be taken into consideration in determining additional insulation required unless continuous insulation is used) The solar absorptance of the upper surface of all roofing components must be not more than 0.45. Illustration of the conditioned spaces and the walls and roofs forming part of the building envelope has been provided in Appendices 1 & 2 respectively.
	Wall & Glazing	The wall-glazing system shall achieve the total system maximum U value of U2.0; and the wall components (including brick veneer external walls, and internal concrete envelope walls) are required to achieve R1.4 via Method 2. (Note thermal bridging effects shall be taken into consideration in determining additional insulation required unless continuous insulation is used). The proposed aluminium frame windows and glazed doors shall achieve the total U value of not more than 4.20 and SHGC value of not more than 0.31 under Method 2. (Façade calculator attached in Appendix 4)
	Floor	The total system R value of R2.0 is required for all suspended slabs that are – - Immediately above the basement carpark, where conditioned spaces present above on the ground floor; - For the cantilevered part of the suspended slab on Level 1, that is exposed to outdoor air. Illustration of the floors forming part of the envelope has been provided in Appendix 3.
J5 – Building sealing	-	A seal to restrict air infiltration must be fitted to each edge of a window or a door forming part of the envelope of a conditioned space and maybe a foam or rubber compression strip, fibrous seal or the like; The entry door to the proposed co-living building shall have self-closing mechanism. Exhaust fans to serve conditioned spaces must be fitted with a sealing device such as a self-closing damper or the like.

Section J DTS Results Summary – 19-21 Banks Street, Padstow NSW 2211		
Part	Item	Minimum Section J DTS Compliance Requirements
J6 - Air conditioning & ventilation systems	-	Refer to Mechanical Design Certificate to ensure full compliance of all relevant DTS requirements in this part.
J7 – Artificial lighting and power	-	Refer to the Lighting / Electrical / Lift Design Certificates to ensure full compliance of all relevant DTS requirements in this part.
J8 - Heated water supply & swimming pool plant	-	Refer to the Hydraulic Design Certificate to ensure full compliance of all relevant DTS requirements in this part.
J9 - Energy monitoring & on-site distributed energy resources	-	Refer to the Electrical Design Certificate to ensure full compliance of all relevant DTS requirements in this part.

1. Introduction

The proposed development, located in NCC climate zone 5, comprises a 4-storey co-living accommodation, plus a basement carparking level.

The BCA classifications involved in this project are provided below:

Buildings / Spaces	Level	BCA Classification
Co-Living Accommodation	Ground Floor – Level 3	Class 3
Car park	Basement	Class 7a

The building envelope of the proposed development is outlined in Appendix 1.

2. Section J DTS Compliance Requirements

The proposed development shall comply with the Section J requirements provided below.

Part J	Energy Efficiency
Part J1	Energy efficiency performance requirements
	<i>This part sets the thermal performance properties of building fabric, the energy efficiency of key energy using equipment and the features a building must have to facilitate the future installation of distributed energy resources.</i>
Part J2	Energy efficiency
	<i>J2D1 Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements NSW J1P1 to NSW J1P7 are satisfied by complying with—</i> <i>(a) NSW J2D2; and</i> <i>(b) NSW J3D2 to J3D10; and</i> <i>(c) NSW J4D2 to J4D7; and</i> <i>(d) NSW J5D2 to J5D8; and</i> <i>(e) NSW J6D2 to J6D13; and</i> <i>(f) NSW J7D2 to J7D9; and</i> <i>(g) J8D2 to NSW J8D4; and</i> <i>(h) J9D2 to J9D5.</i> The proposed building shall comply with the performance requirements of Part J. It is noted that the NCC Deemed-to-Satisfy Provisions list the minimum requirements that are acceptable as meeting the Performance Requirements.
Part J3	Elemental provisions for a sole-occupancy unit of a Class 2 building or a Class 4 part of a building
	This part is NOT applicable to the proposed development.

Part J4	Building Fabric
J4D2	Application of Part
	The <i>Deemed-to-Satisfy Provisions</i> of this Part apply to building elements forming the <i>envelope</i> of the proposed development.
J4D3	Thermal construction — general
	(1) Where <i>required</i>, insulation must comply with AS/NZS 4859.1 and be installed so that it— (a) abuts or overlaps adjoining insulation other than at supporting members such as studs, noggings, joists, furring channels and the like where the insulation must be against the member; and (b) forms a continuous barrier with ceilings, walls, bulkheads, floors or the like that inherently contribute to the thermal barrier; and (c) does not affect the safe or effective operation of a <i>service</i> or fitting. (2) Where <i>required</i>, <i>reflective insulation</i> must be installed with— (a) the necessary airspace to achieve the required R-Value between a reflective side of the reflective insulation and a building lining or cladding; and (b) the reflective insulation closely fitted against any penetration, door or window opening; and (c) the reflective insulation adequately supported by framing members; and (d) each adjoining sheet of roll membrane being— (i) overlapped not less than 50 mm; or (ii) taped together. (3) Where <i>required</i>, bulk insulation must be installed so that— (a) it maintains its position and thickness, other than where it is compressed between the cladding and supporting members, water pipes, electrical cabling or the like; and (b) in a ceiling, where there is no bulk insulation or reflective insulation in the wall beneath, it overlaps the wall by not less than 50 mm. (4) Roof, ceiling, wall and floor materials, and associated surfaces are deemed to have the thermal properties listed in Specification 36. (5) The required Total R-Value and Total System U-Value, including allowance for thermal bridging, must be – (a) calculated in accordance with AS/NZS 4859.2 for a roof or floor; or (b) determined in accordance with Specification 37 for wall-glazing construction; or (c) determined in accordance with Specification 39 or Section 3.5 of CIBSE Guide A for soil or sub-floor spaces. 1. Insulation - general Insulation, where required for the proposed development, must comply with AS/NZS 4859.1 and be installed in compliance with Part J4D3.
J4D4	Roof and ceiling construction
	The roof / ceiling system that forms part of the building envelope must achieve the total R-Value specified in J4D4.

For the internal envelope concrete slabs over the conditioned spaces, illustrated in Appendix 2, it is required that minimum R3.7 of the total R-value of the roof / ceiling element shall be achieved. The requirement above applies to part of the concrete slab / internal ceiling system over the ground floor communal room, which is right below the fire staircase on Level 1.

Internal envelope concrete slab		
Item	Item Description	R-Value
1	Indoor air film (still air)	0.16
2	Waterproof membrane	0.03
3	Concrete slab (min. 200mm thick)	0.14
5	Plasterboard, gypsum (10 mm, 880 kg/m ³)	0.06
6	Indoor air film (still air)	0.16
Total material R value (for construction)		0.55
Total minimum system R value required		3.7
Additional insulation required		3.15

The R calculation above indicates that minimum R value of **R3.15** additional insulation is therefore required for the internal envelope concrete slab / flat ceiling systems over the conditioned spaces.

For all the exposed concrete roof slabs (including balcony / terrace slabs being the roofs over the conditioned spaces below) forming the conditioned spaces, illustrated in Appendix 2, it is required that minimum R3.05 of the total R-value of the roof element shall be achieved.

Concrete roof slab over the conditioned spaces		
Item	Item Description	R-Value
1	Outdoor air film (7 m/s)	0.04
2	Waterproof membrane	0.03
3	Concrete slab (min. 200mm thick)	0.14
4	Air Space (non-reflective unventilated)	0.22
5	Plasterboard, gypsum (10 mm, 880 kg/m ³)	0.06
6	Indoor air film (still air)	0.16
Total material R value (for construction)		0.65
Total minimum system R value required		3.7
Additional insulation required		3.05

The R calculation above indicates that minimum R value of **R3.05** additional insulation is therefore required for the concrete roof system.

2. Roof / Ceiling System - general

To achieve the total system R value of R3.7 for the roof / ceiling system forming part of envelope (see Appendix 2 for details), additional R value of minimum R3.15 is required to be installed into the concrete slab system over the ground floor communal

	<i>room, which is right below the fire staircase on Level 1, and additional R value of minimum R3.05 is required to be installed into all exposed concrete roof slab system (including the balcony / terrace slabs being the roofs over the conditioned spaces below).</i> <i>Note thermal bridging effects shall be taken into consideration in determining additional insulation required unless continuous insulation is used.</i>
J4D5	Roof lights
	No roof light is planned in the proposed development.
J4D6	Walls and glazing
	External Walls & Internal Envelope Walls The envelope wall system comprises the external brick veneer walls and the internal envelope walls that separate the conditioned spaces from the fire stairs and lift. The building envelope has been highlighted in Appendix 1. The wall-glazing system shall achieve the total system minimum R value of U2.0; and the wall components (including both external walls and internal envelope walls) are required to achieve R1.4 via Method 2. It should be noted that under Section J NCC 2022 thermal bridging within the facade has been taken into consideration in line with AS/NZS 4859.2. Thermal bridging through the framing components has a large negative impact on the actual total wall system R value. If continuous insulation of R1.0 is installed to the external brick veneer walls, internal envelope walls (including concrete walls and plasterboard stud walls) it shall exceed or achieve the total R1.4 required for all the relevant wall components (highlighted in Appendix 2). Nevertheless, if a framed system is used in conjunction with insulation batt, thermal bridging calculation is required to account for not only the R value of the bulk insulation installed, but also the configuration and materials of the frames, and whether thermal breaks and what R value of the thermal breaks are installed. It follows that bulk insulation of significantly larger value (e.g. R2.5 or greater) as well as thermal break of at least R0.2 may be required to compensate for the thermal bridging gap. Therefore the insulation supplier / installer or façade engineer shall ensure that the insulation installed in conjunction with the wall construction achieve at least the total system R value of R1.4. Glazing The proposed external windows and glazed doors shall achieve the following thermal properties under Method 2:

	<table><tr><th>Level</th><th>Orientation</th><th>The total U Value</th><th>SHGC Value</th><th>Indicative Configuration (based on generic glazing properties only)</th></tr><tr><td>All</td><td>All</td><td>4.20 or less</td><td>0.31 or less</td><td>Double low-e tinted glass in standard aluminium frames or better</td></tr></table> The NCC 2022 Section J façade (wall-glazing) calculator is attached in Appendix 4 for reference. 3. Walls & Glazing <i>The wall-glazing system shall achieve the total system minimum R value of U2.0; and the wall components (including both external brick veneer walls, and the internal envelope walls) are required to achieve minimum R1.4 via Method 2.</i> <i>If continuous insulation of R1.0 is installed to the external brick veneer walls, and the internal envelope walls (including the concrete walls and plasterboard stud walls), it shall achieve total R1.4 required for the relevant wall components (highlighted in Appendix 2).</i> <i>If a framed system is used in conjunction with insulation batt, the insulation supplier or the façade engineer for the project shall provide thermal bridging calculation and ensure that the insulation installed in conjunction with the wall construction achieve at least the total system R value of R1.4.</i> <i>The proposed aluminium frame windows and glazed doors throughout shall achieve the total U value of not more than 4.20 and SHGC value of not more than 0.31 under Method 2. (Façade calculator attached in Appendix 2)</i>	Level	Orientation	The total U Value	SHGC Value	Indicative Configuration (based on generic glazing properties only)	All	All	4.20 or less	0.31 or less	Double low-e tinted glass in standard aluminium frames or better
Level	Orientation	The total U Value	SHGC Value	Indicative Configuration (based on generic glazing properties only)							
All	All	4.20 or less	0.31 or less	Double low-e tinted glass in standard aluminium frames or better							
J4D7	Floors The total system R value of R2.0 is required to be installed into the floor system, forming part of the envelope under the deemed-to-satisfy requirements. This requirement above applies to the suspended slabs immediately above the basement carpark, and the cantilevered parts of the concrete slab on Level 1 forming parts of the thermal envelope. (See Appendix 3 for illustration).										

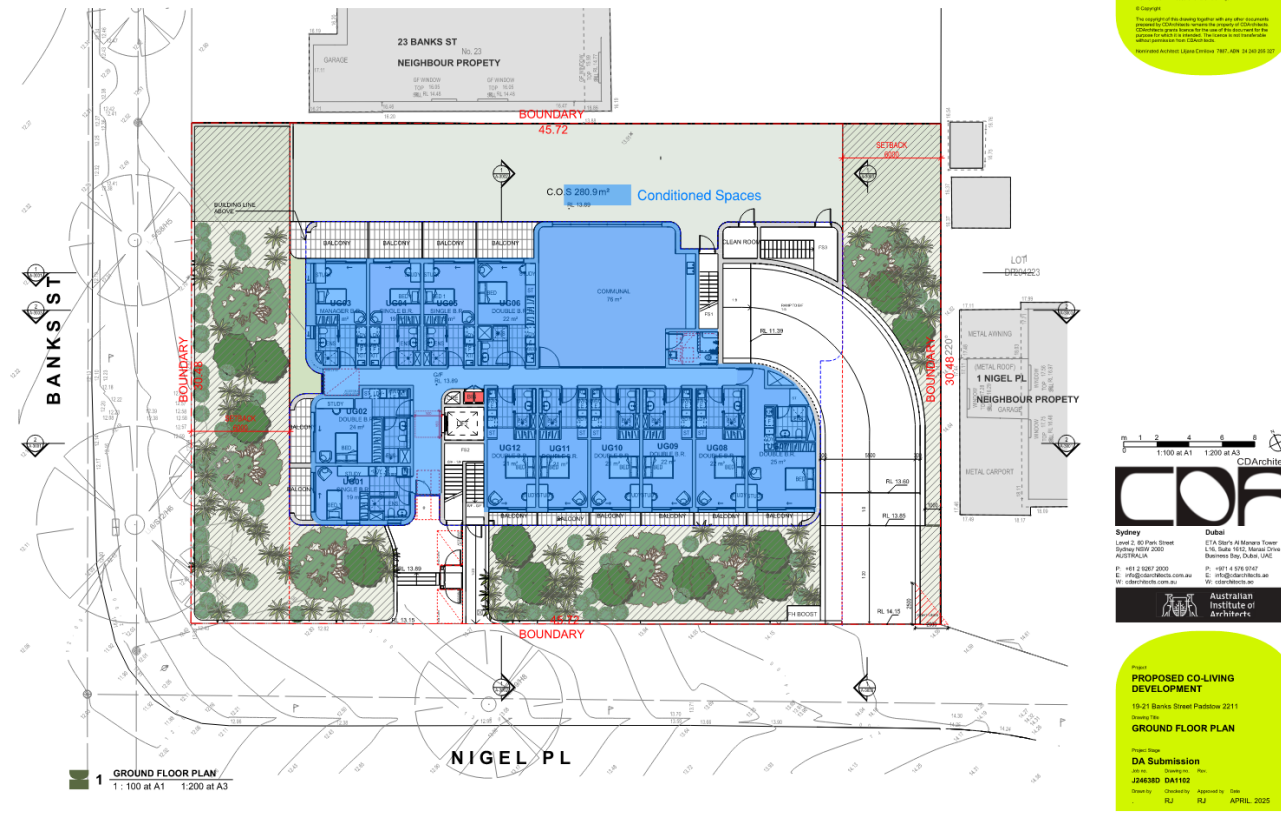
	Suspended Concrete floors (exposed to basement carpark and outdoor air)		
	Item	Item Description	R-Value
	1	Indoor air film (still air)	0.16
	2	Solid concrete, (min. 200 mm, 2400 kg/m ³)	0.13
	3	Outdoor air film (7 m/s)	0.04
	Total material R value (for construction)		0.33
	Total minimum system R value required		2.0
	Additional insulation required		1.67
4. Floors forming part of the envelope			
<i>The total system R value of R2.0 is required for all suspended slabs forming part of the envelope, including the suspended ground floor slab immediately above the basement carpark, and the cantilevered slab on Level 1, which is exposed to outdoor air.</i> <i>To achieve total system R value of R2.0 for the floors forming part of the building envelope (see Appendix 3 for illustration), additional R value of minimum R1.67 is required to be installed in the suspended concrete slabs forming part of the envelope as mentioned above.</i>			
Part J5	Building Sealing		
J5D2	Application of Part		
	The <i>Deemed-to-Satisfy Provisions</i> of this Part apply to elements forming the <i>envelope</i> of Class 2 to 9 building, other than— (a) a building in <i>climate zones</i> 1, 2, 3 and 5 where the only means of <i>air-conditioning</i> is by using an evaporative cooler; or (b) 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 (c) a building or space where the mechanical ventilation <i>required</i> by Part F6 provides sufficient pressurisation to prevent infiltration. The <i>Deemed-to-Satisfy Provisions</i> of this Part apply to building elements forming the envelope of this proposed development.		
J5D3	Chimneys and flues		
	Not applicable as no chimneys and flues are to be planned.		
J5D4	Roof lights		
	No skylight is planned as part of the development.		

J5D5	Windows and doors
	(1) A door, openable window or the like must be sealed— (a) when forming part of the envelope; or (b) in climate zones 4, 5, 6, 7 or 8. (2) The requirements of (a) do not apply to— (a) a window complying with AS 2047; or (b) a fire door or smoke door; or (c) a roller shutter door, roller shutter grille or other security door or device installed only for out-of-hours security. (3) A seal required by (a)— (a) for the bottom edge of an external swing door, must be a draft protection device; and (b) for the other edges of an external door or the edges of an openable window or other such opening, may be a foam or rubber compression strip, fibrous seal or the like. (4) An entrance to a building, if leading to a conditioned space must have an airlock, self-closing door, rapid roller door, revolving door or the like, other than— (a) where the conditioned space has a floor area of not more than 50 m²; or (b) where a café, restaurant, open front shop or the like has— (i) a 3 m deep un-conditioned zone between the main entrance, including an open front, and the conditioned space; and (ii) at all other entrances to the café, restaurant, open front shop or the like, self-closing doors. 5. Provision of window and door seals in line with the requirements below, and <i>A seal to restrict air infiltration must be fitted to each edge of a window or a door forming part of the envelope of a conditioned space and maybe a foam or rubber compression strip, fibrous seal or the like; For the bottom edge of an external swing door a draft protection device must be installed.</i> <i>The entry door leading to the proposed co-living building shall have a self-closing mechanism.</i>
J5D6	Exhaust fans
	An exhaust fan, such as a bathroom or domestic kitchen exhaust fan, must be fitted with a sealing device such as a self-closing damper or the like when serving— (a) a conditioned space; or (b) a habitable room in climate zones 4, 5, 6, 7 or 8. 6. Exhaust Fans (if planned to serve conditioned spaces) <i>Exhaust fans to serve conditioned spaces must be fitted with a sealing device such as a self-closing damper or the like.</i>

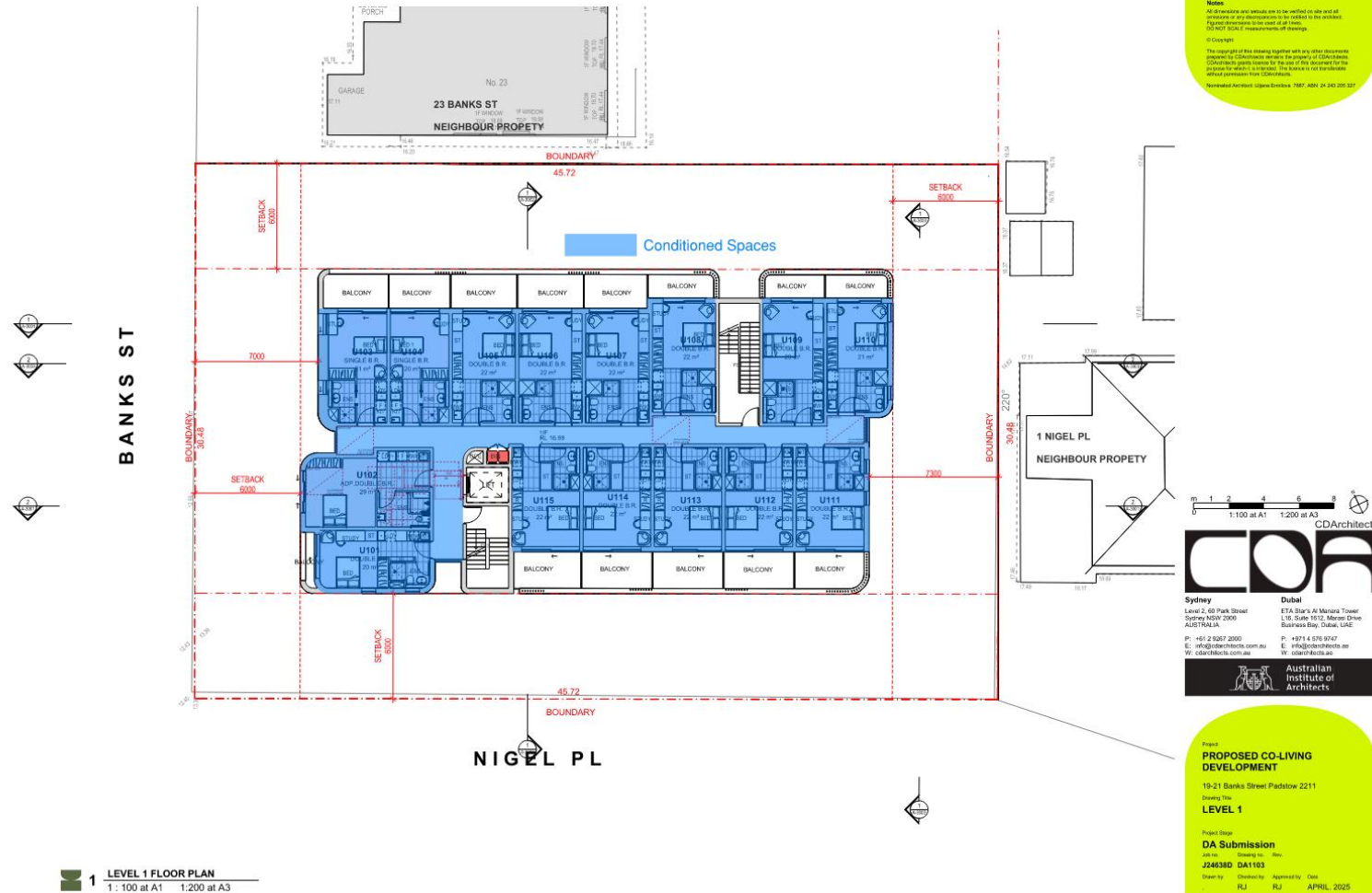
J5D7	Construction of roofs, walls and floors (1) Ceilings, walls, floors and any opening such as a window frame, door frame, roof light frame or the like must be constructed to minimise air leakage in accordance with (a) when forming part of the envelope; or (b) in climate zones 4, 5, 6, 7 or 8. (2) Construction required by (1) must be— (a) enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions; or (b) sealed at junctions and penetrations with— (i) close fitting architraves, skirting or cornice; or (ii) expanding foam, rubber compressible strip, caulking or the like. (3) The requirements of (1) do not apply to openings, grilles or the like required for smoke hazard management. 7. Construction of roofs, ceiling, walls and floors Ceilings, walls, floors and any opening such as a window frame, door frame, roof light frame or the like which form part of the building envelope must be constructed to minimise air leakage by providing internal lining systems that are close fitting at ceiling, wall and floor junctions; or proper sealing such as caulking, skirting, architraves, cornices or the like.
J5D8	Evaporate coolers Not Applicable to the proposed development.
J6	Air-Conditioning and Ventilation Systems Part J6 outlines the energy efficiency compliance requirements in relation to air conditioning and mechanical ventilation systems. Compliance shall be sought from the mechanical design certificate / report.
J7	Artificial Lighting And Power Part J7 outlines the energy efficiency compliance requirements in relation to artificial lighting and power systems. Compliance shall be sought from the electrical / lighting / lift design certificate / report.
J8	Heated Water Supply And Swimming Pool And Spa Pool Plant
J8D2	Heated water supply A heated water supply system for food preparation and sanitary purposes must be designed and installed in accordance with Part B2 of NCC Volume Three — Plumbing Code of Australia. Compliance shall be sought from the hydraulic design certificate / report. 8. Heated water supply (if planned) Any heated water supply system for food preparation and sanitary purposes must be designed and installed in accordance with Part B2 of NCC Vol.3 - Plumbing Code of Australia.

J8D3	Swimming pool heating and pumping
	No swimming pool is planned as part of the proposed development; therefore, all clauses in this sub-part are not applicable.
J8D4	Spa pool heating and pumping
	No spa pool is planned as part of the proposed development; therefore, all clauses in this sub-part are not applicable.
J9	Energy monitoring and on-site distributed energy resources
	Part J9 outlines the energy efficiency compliance requirements in relation to energy monitoring and on-site distributed energy resources. Compliance shall be sought from the electrical design certificate / report.

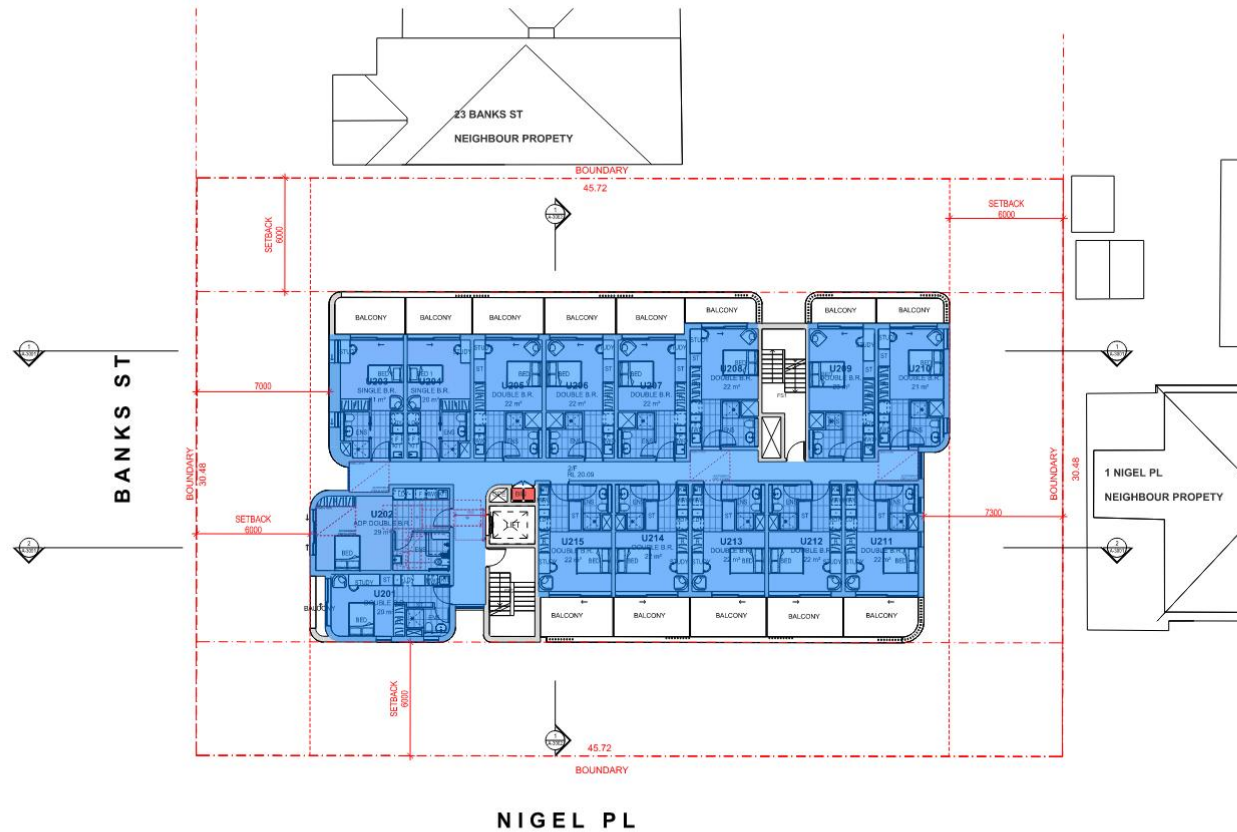
Appendix 1 - Building Envelope Ground Floor



Level 1



Level 2



1 LEVEL 2 FLOOR PLAN
1:100 at A1 1:200 at A3

References
Any variation to the building from approved construction drawings must be reviewed and approved by PCA or nominated certifying authority.

Drawings to be used in conjunction with, but not limited to, all structural engineering, architectural, mechanical, electrical and plumbing drawings, and other associated plans & reports.

Notes
All dimensions and setbacks are to be verified on site and all measurements are to be taken to the finished floor level. Refer to current Basic report for additional requirements to note sheet or plans.

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Registered Architect: Liana Stenhouse 1987, 4091, 24, 243, 250, 267

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1:100 at A1 1:200 at A3

CD Architects

Sydney
Level 2, 65 Park Street
Sydney NSW 2000
AUSTRALIA
P: +61 2 9207 2000
E: info@cdarchitects.com.au
W: cdarchitects.com.au

Dubai
ETA Star's Al Mansara Tower
L1, Suite 1012, Mezzanine
Business Bay, Dubai, UAE
P: +971 4 526 9747
E: info@cdarchitects.ae
W: cdarchitects.ae

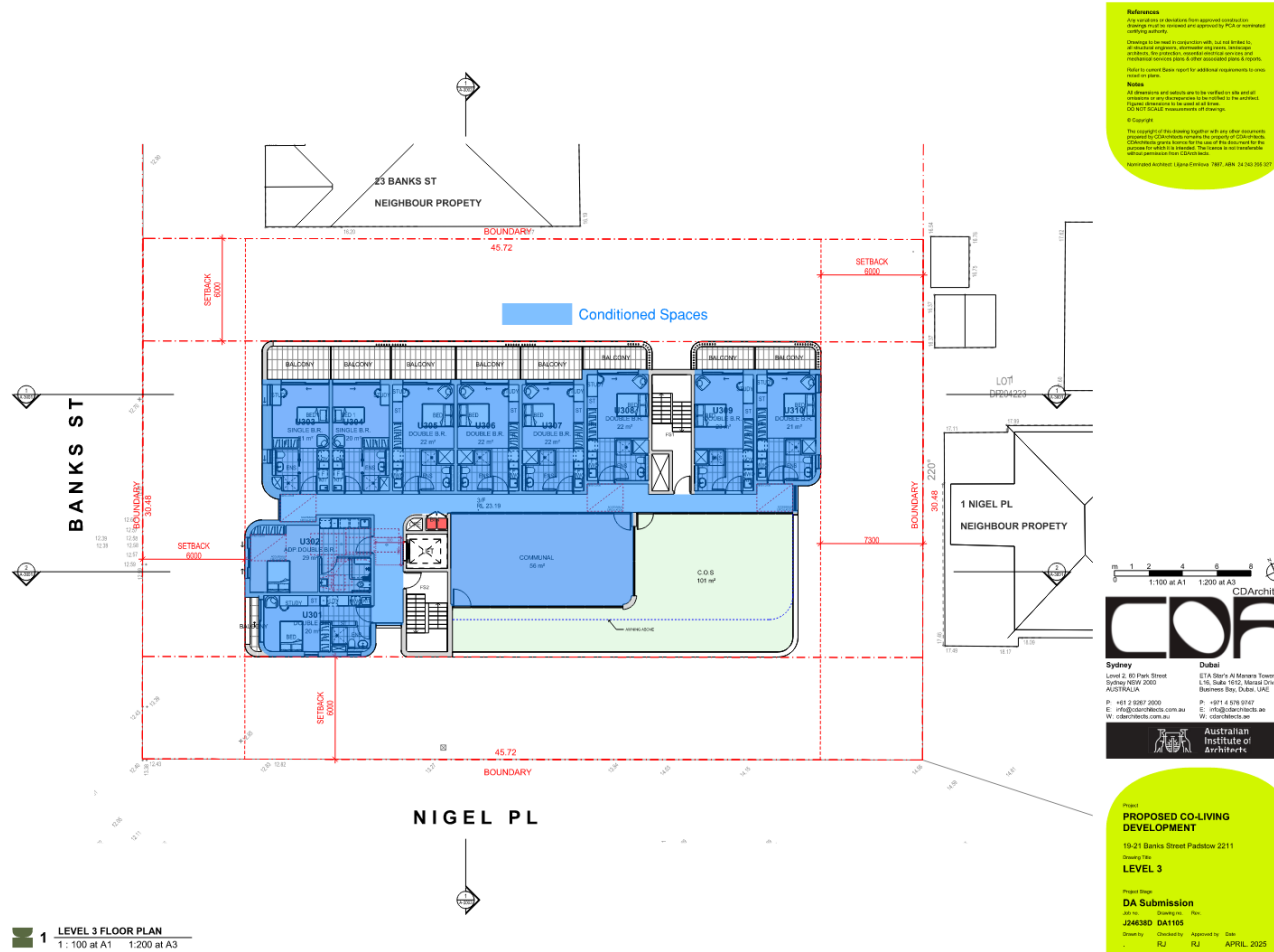
Australian Institute of Architects

PROPOSED CO-LIVING DEVELOPMENT
19-21 Banks Street Padstow NSW 2211

LEVEL 2

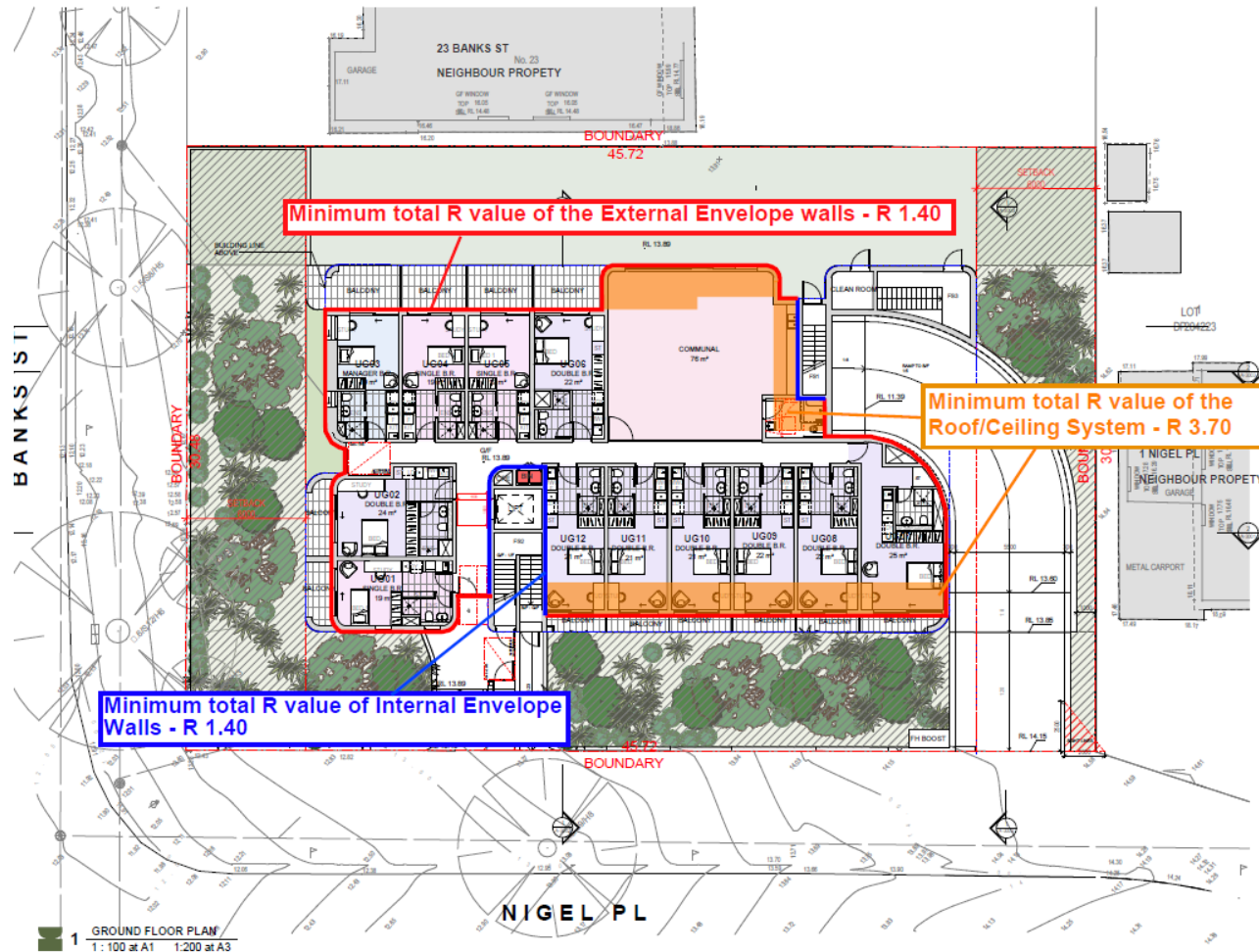
DA Submission
Job: J246380 DAY184
Drawn by: RJ
Checked by: RJ
Approved by: RJ
Date: APRIL 2025

Level 3

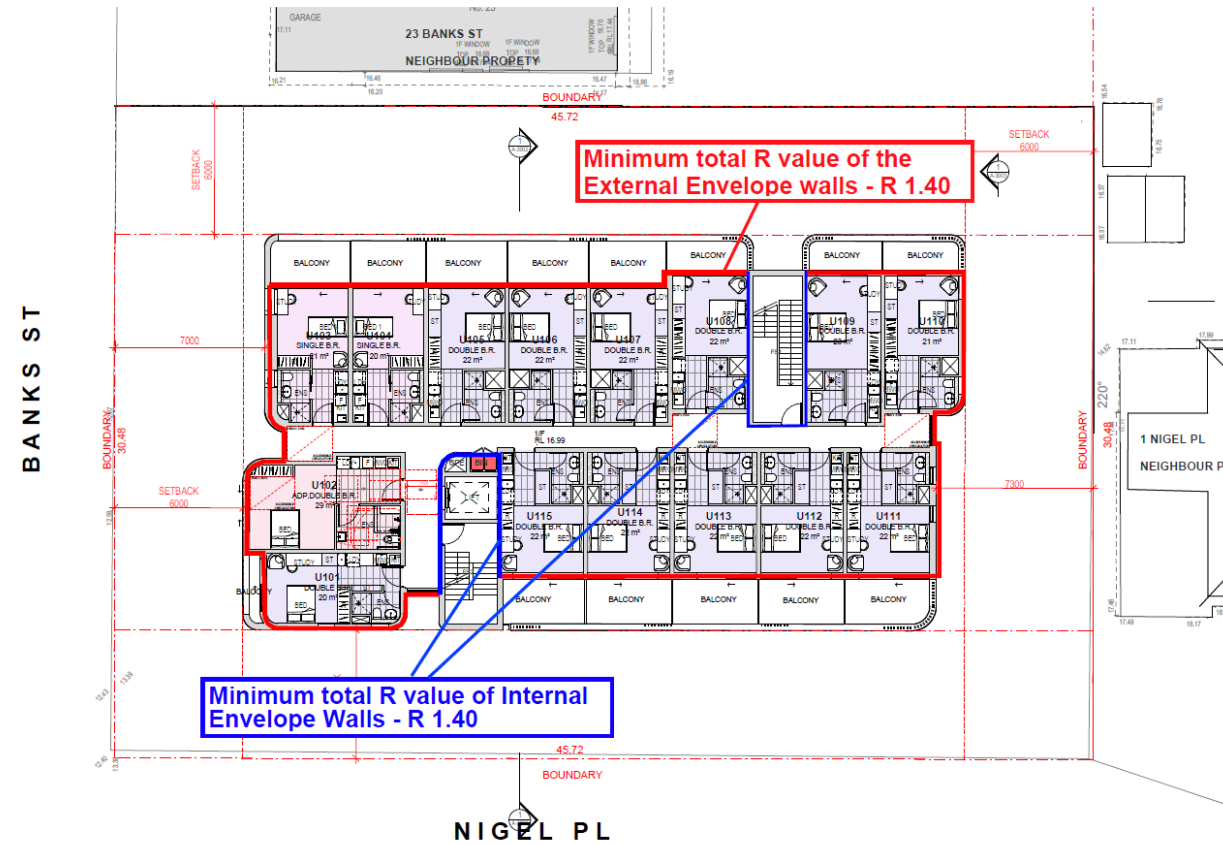


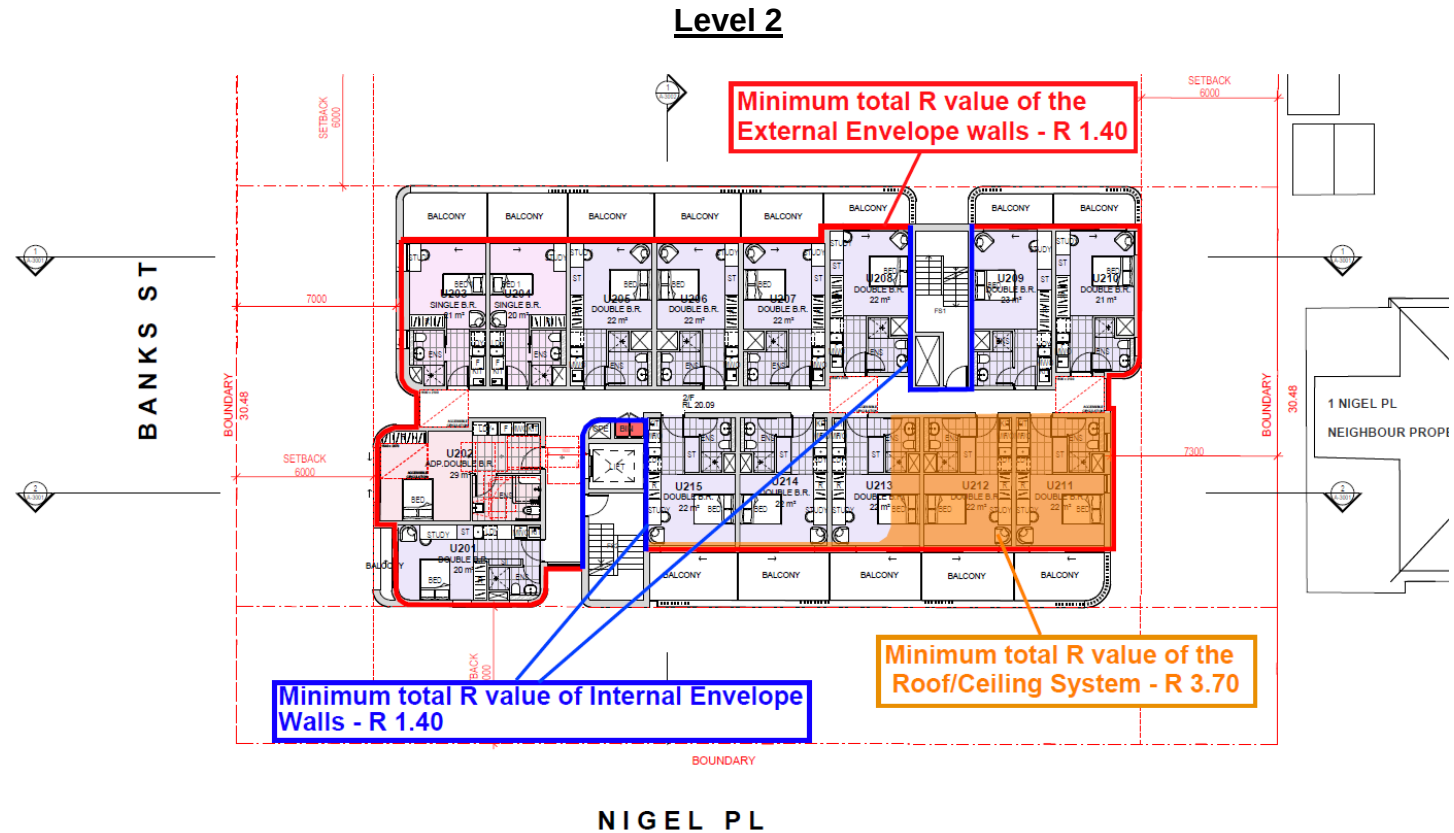
Appendix 2 – Roofs & Walls Markup

Ground Floor



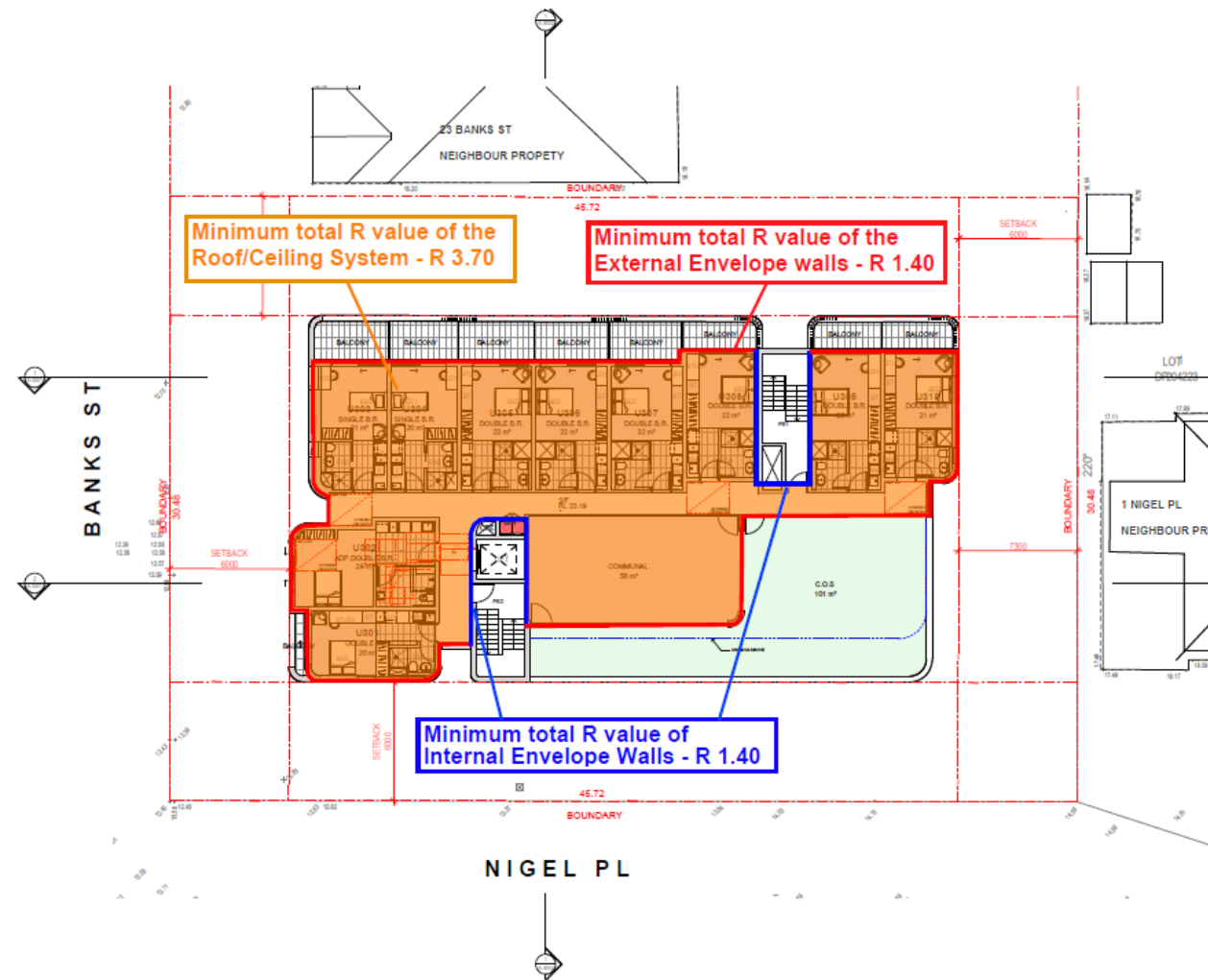
Level 1





1 LEVEL 2 FLOOR PLAN
1: 100 at A1 1:200 at A3

Level 3



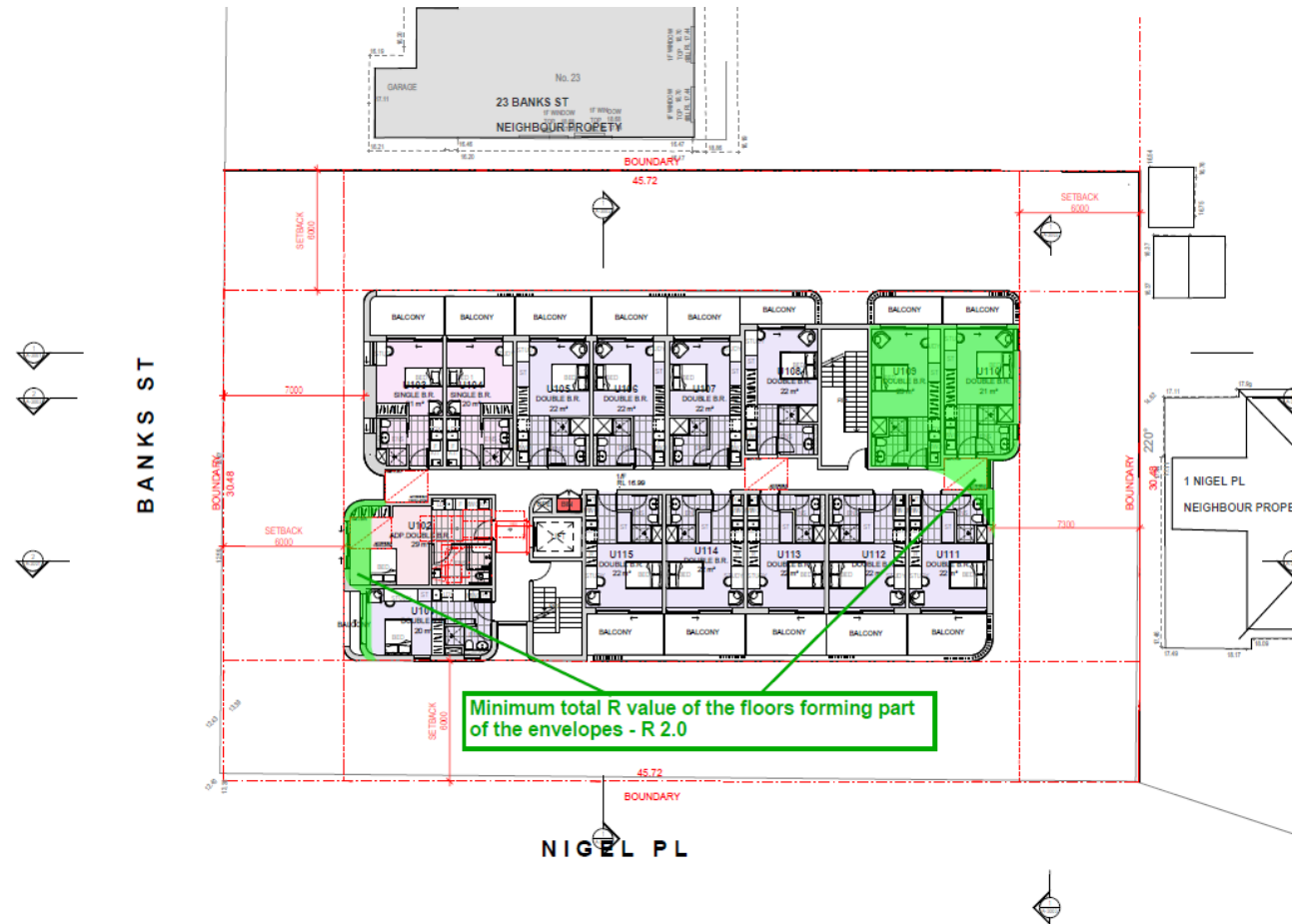
 1 LEVEL 3 FLOOR PLAN
1 : 100 at A1 1:200 at A3

Appendix 3 – Floor Markup

Ground Floor



Level 1



1 LEVEL 1 FLOOR PLAN
1:100 at A1 1:200 at A3

Appendix 4 – J1 Facade Calculator

