Central Coast Quarter Stage 2

Section J Assessment – Deemed to Satisfy

UPG Waterfront Pty Ltd

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Prepared by:

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SLR Project No.: 610.033109.00000.00001

15 December 2025

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Revision Record

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01	15 December 2025	PM, XL	AM	NAK
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Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with UPG Waterfront Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

Executive Summary

SLR Consulting Pty Ltd (SLR) has been engaged by UPG Waterfront Pty Ltd to assess the proposed mixed-use development known as Central Coast Quarter Stage 2 at 26-30 Mann Street, Gosford, for compliance with the National Construction Code (NCC) 2022 provisions for Energy Efficiency under Section J. The objective of the NCC Section J is to reduce greenhouse gas emissions by efficiently using energy in buildings. The assessments contained within this report relate to the DA stage of the development to Central Coast Council.

From the plans provided, the proposed development comprises two towers (36 and 42 storeys in height) above a retail podium (including pavilion building) with the following features:

- 4 Levels of basement car parking and building services
- Ground floor with car parking, restaurants, and building services
- For East Tower
    - Level 1 with retails and hotel services
    - Level 2 Lower with hotel lobby and services
    - Level 2 Upper with hotel lobby and residential communal spaces
    - Levels 3 and 4 with hotel meeting, bar and restaurants
    - Level 5 to Level 15 with hotel rooms
    - Level 16 with hotel pool and gym/amenities
    - Level 17 to Level 42 with residential apartments
- For South Tower
    - Level 1 with residential communal spaces, restaurants and café
    - Level 2 to Level 36 with residential apartments
- For Pavillion, Level 1 to Level 3 with hospitality retail

This report addresses the following sub-classifications for the proposed building:

- Carparks– Class 7a
- Residential Building – Class 2
- Hotel– Class 3
- Retail Areas, Restaurants and Cafes– Class 6
- Assembly areas – Class 9b

This requirement has been defined in Volume 1 of the 2022 NCC under Section J and is titled Energy Efficiency. Several Deemed-to-Satisfy subsections focus on separate aspects of energy efficiency.

- J4 - Building fabric
- J5 - Building sealing
- J6 - Air-conditioning and ventilation
- J7 - Artificial light and power

- J8 - Heated water supply and swimming pool and spa pool plant
- J9 - Energy monitoring and on-site distributed energy resources

The NCC currently defines the development area as climate zone 5. This report covers the NCC Section J requirements of the non-residential components and residential common areas.

SLR recommends the following to the building fabrics to comply with NCC 2022 Section J:

- Roof and ceiling insulation requirements have been specified within Table 1. The total R-value of the roof system is required to be R3.7 where specified in Appendix A.
- Floor insulation requirements have been specified within Table 6. The total R-value of the floor system is required to be R2.0 where specified in Appendix B.
- Wall-glazing requirements and wall requirements have been specified within Table 4 and Table 5.
    - The total R-value of the external wall system is required to be R2.0 for external walls where specified in Appendix C.
    - The total R-value of the internal wall system is required to be R2.0 for internal walls where specified in Appendix C

This report contains requirements for building sealing, air conditioning, artificial lighting, hot water supply, and the Facilities for Energy Monitoring.

This report has provided advice about each subsection under Section J and identified how compliance with the NCC can be achieved regarding the proposed building. The architect and services designers must specify and document compliant constructions showing NCC Section J requirements are met.

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1.0 Introduction

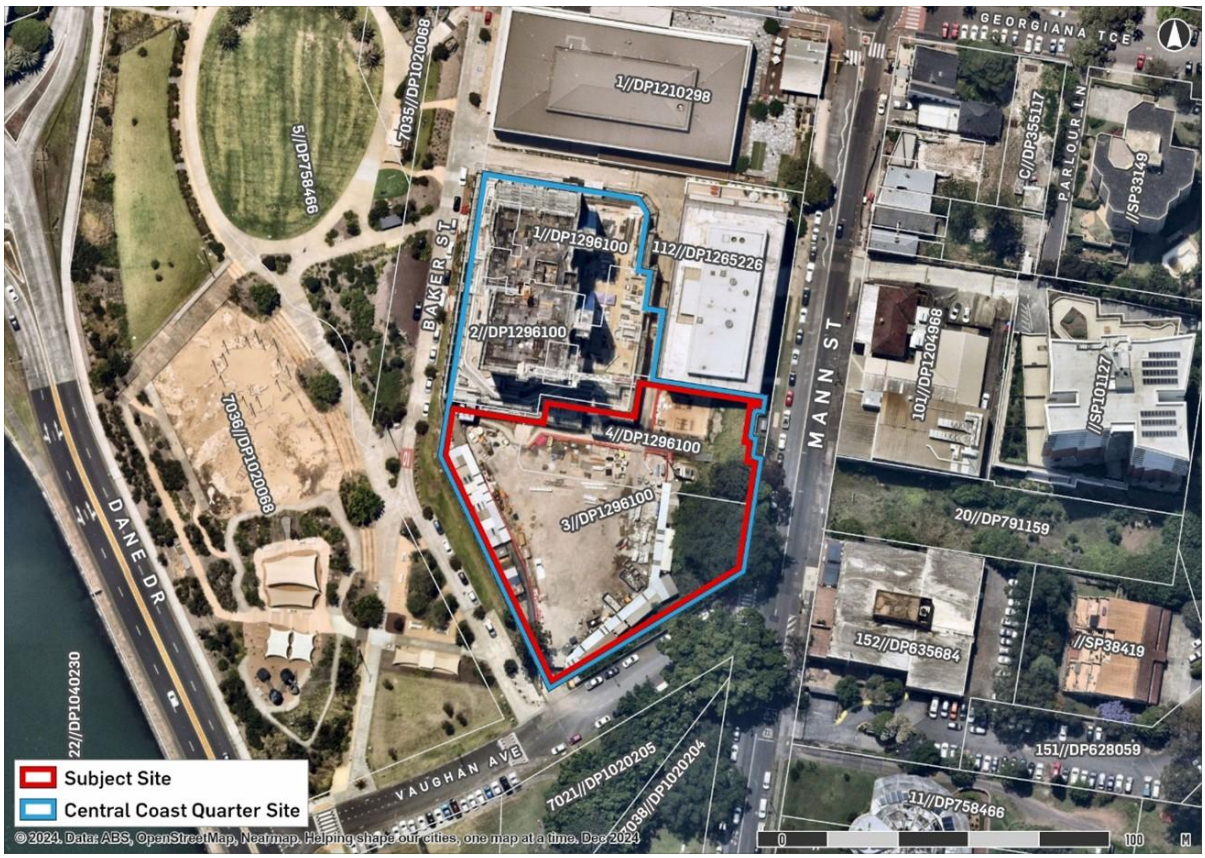
SLR Consulting Pty Ltd (SLR) has been engaged by UPG Waterfront Pty Ltd to assess the proposed mixed-use development known as Central Coast Quarter Stage 2 at 26-30 Mann Street, Gosford, for compliance with the National Construction Code (NCC) 2022 provisions for Energy Efficiency under Section J. The objective of the NCC Section J is to

- reduce energy consumption and energy peak demand.
- and reduce greenhouse gas emissions; and
- and improve occupant health and amenity.

The proposed development is located on the Stage 2 component of the Central Coast Quarter site in Gosford City Centre, within the Central Coast Local Government Area (LGA). The Stage 2 site is legally described as Lots 3 and 4 in Deposited Plan 1319239.

This report is based on the most recent architectural plans, prepared by DKO Architecture and received in December 2025.

Figure 1 Site Location



Source: Urbis

1.1 Basis and Limitation of Report

This report considers the required performance of the proposed hotel, retail and residential common area components building design solutions for their deemed-to-satisfy compliance with NCC Section J requirements.

The intent of Section J is to promote efficient use of energy within a building and the intent of the Section is outlined in part of Clause JP1.

This report is not intended to cover the compliance requirements of the building services engineering designs, nor NatHERS certification of the apartments.

Compliance with other regulations, performance modelling, and statutory requirements, are not included in the scope of this report and are not assessed, including but not limited to:

- Fire rating (Architect / Façade Engineer)
- Combustibility (Architect / Façade Engineer)
- Façade engineering (Façade Engineer)
- Wind engineering (Wind Engineer / Façade engineer)
- Seismic loading and / or restraint (Structural Engineer / Façade Engineer)
- Structural integrity (Structural Engineer / Façade engineer)
- Architectural buildability (Architect / Façade engineer)
- Corrosion (Architect / Façade engineer)
- Condensation (Architect / Façade engineer)
- Waterproofing (Architect / Façade engineer)
- Water absorption, etc (Architect / Façade engineer)

The assessment is based on the architectural documentation provided prior to time of writing of this report. Any changes to the building envelope and layout will require additional review to verify energy efficiency compliance.

1.2 Proposed Development Description

From the plans provided, the proposed development comprises two towers (36 and 42 storeys in height) above a retail podium (including pavilion building) with the following features:

- 4 Levels of basement car parking and building services
- Ground floor with car parking, restaurants, and building services
- For East Tower
    - Level 1 with retails and hotel services
    - Level 2 Lower with hotel lobby and services
    - Level 2 Upper with hotel lobby and residential communal spaces
    - Levels 3 and 4 with hotel meeting, bar and restaurants
    - Level 5 to Level 15 with hotel rooms
    - Level 16 with hotel pool and gym/amenities
    - Level 17 to Level 42 with residential apartments
- For South Tower

- Level 1 with residential communal spaces, restaurants and café
- Level 2 to Level 36 with residential apartments

- For Pavilion, Level 1 to Level 3 with hospitality retail

Figure 2 Basement 04

Figure 3 Ground Level

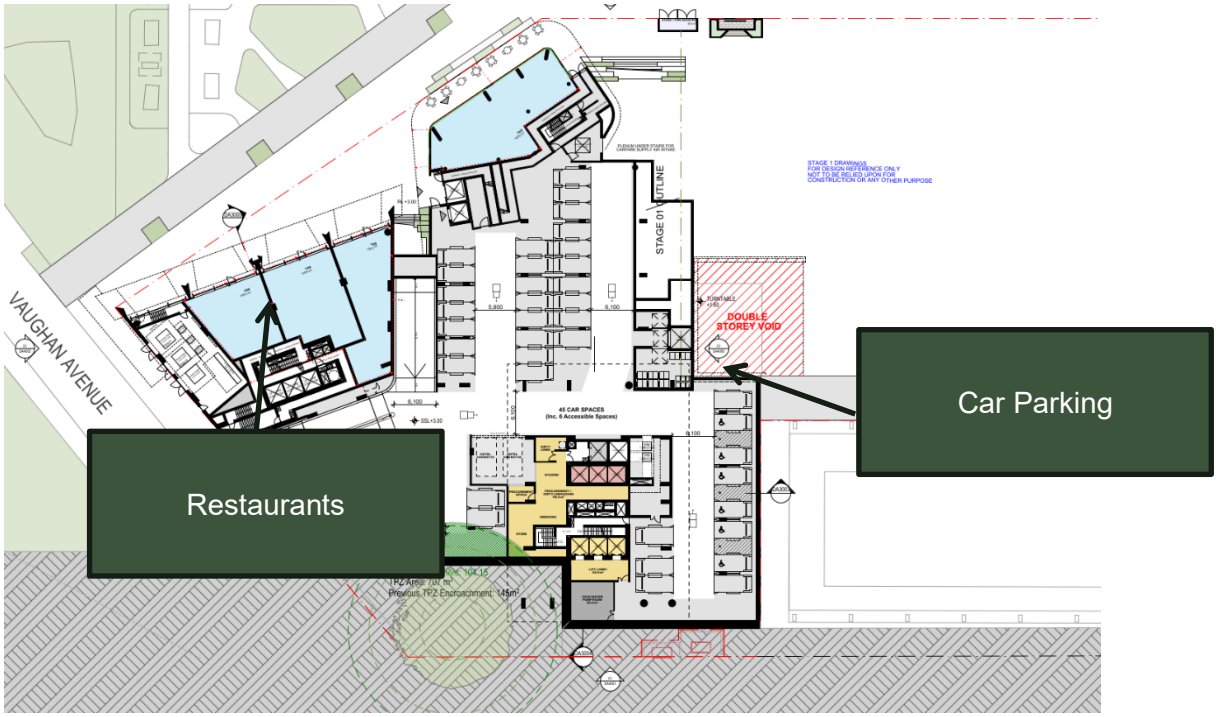


Figure 4 Level 01

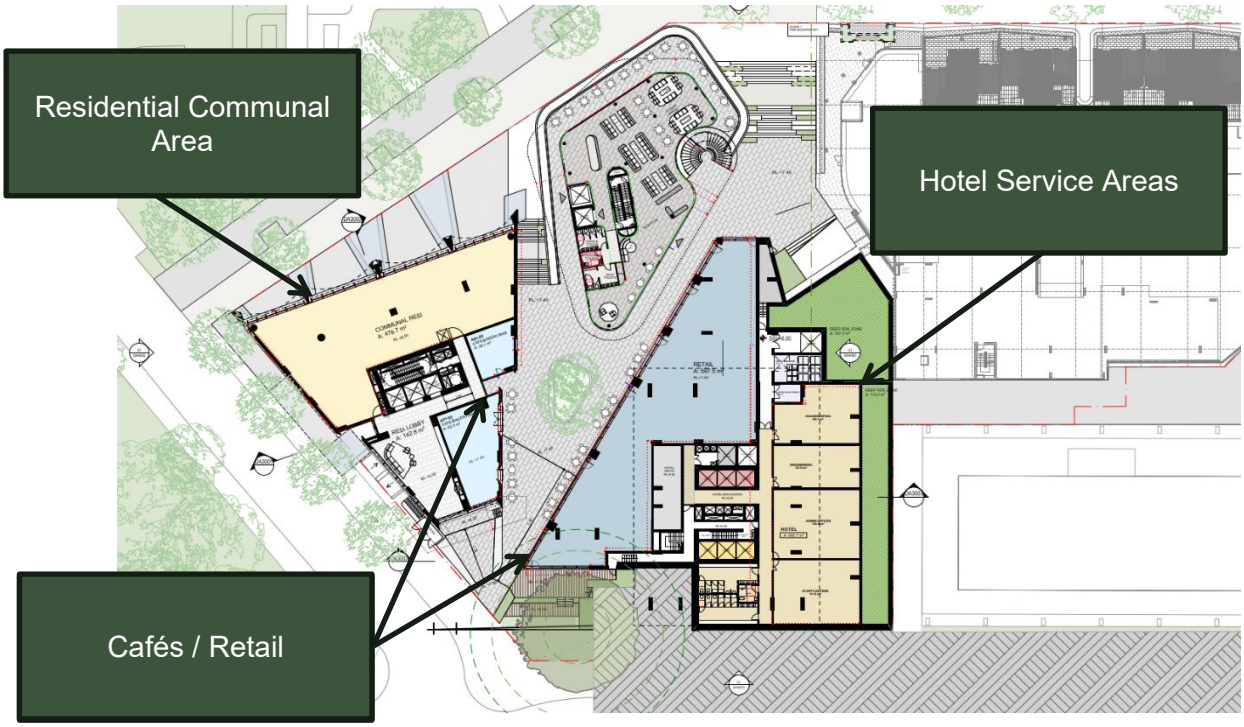


Figure 5 Level 02 Lower

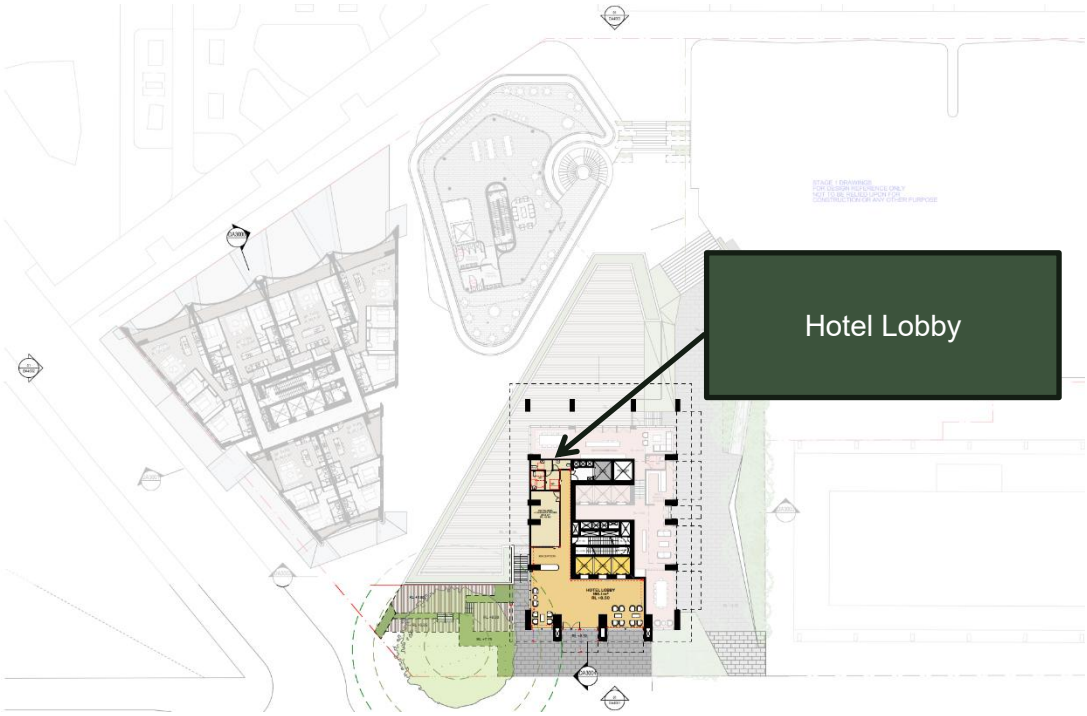


Figure 6 Level 02 Upper

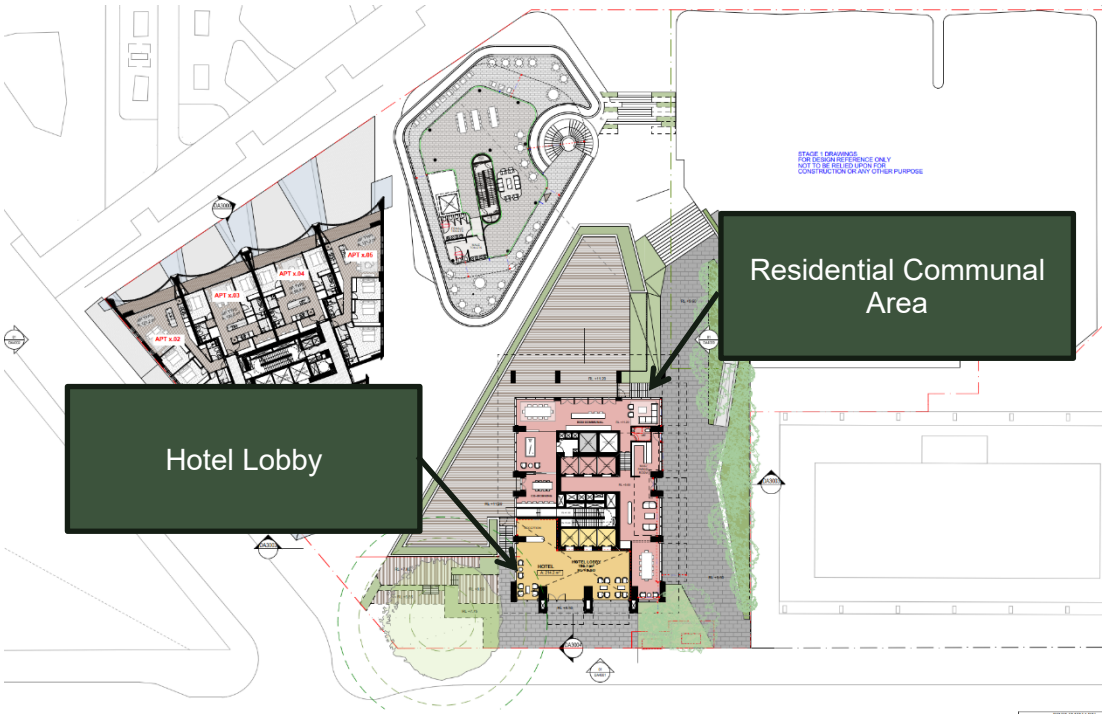


Figure 7 Level 05

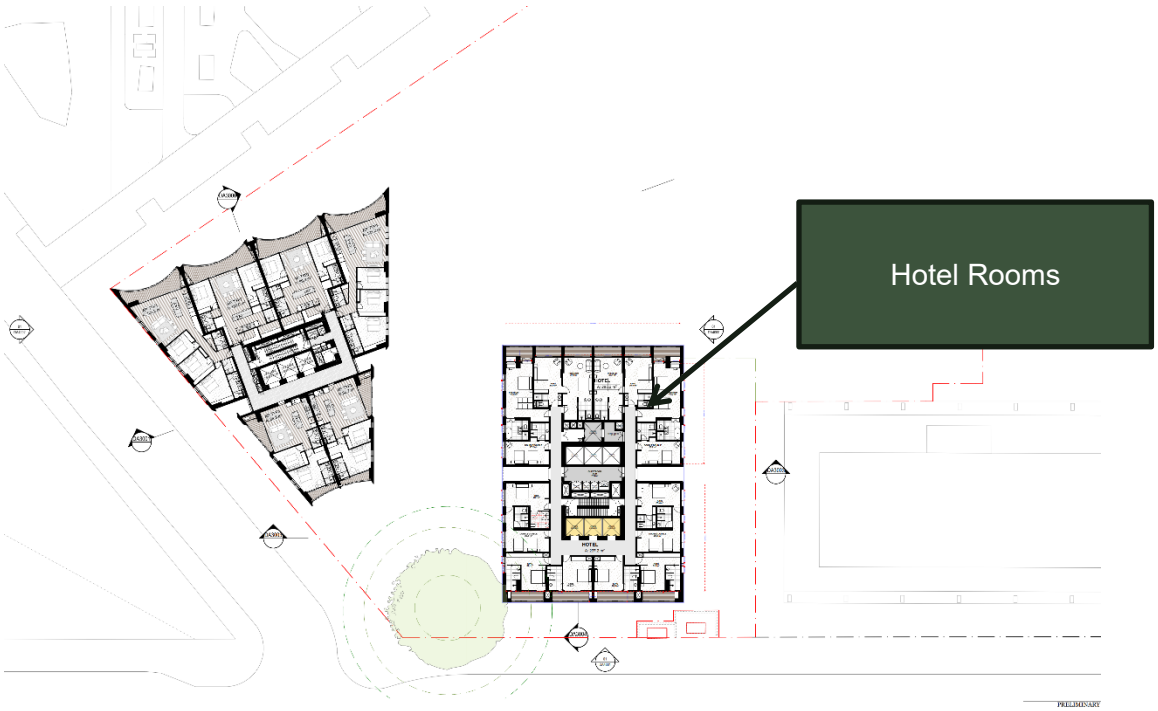


Figure 8 Level 16

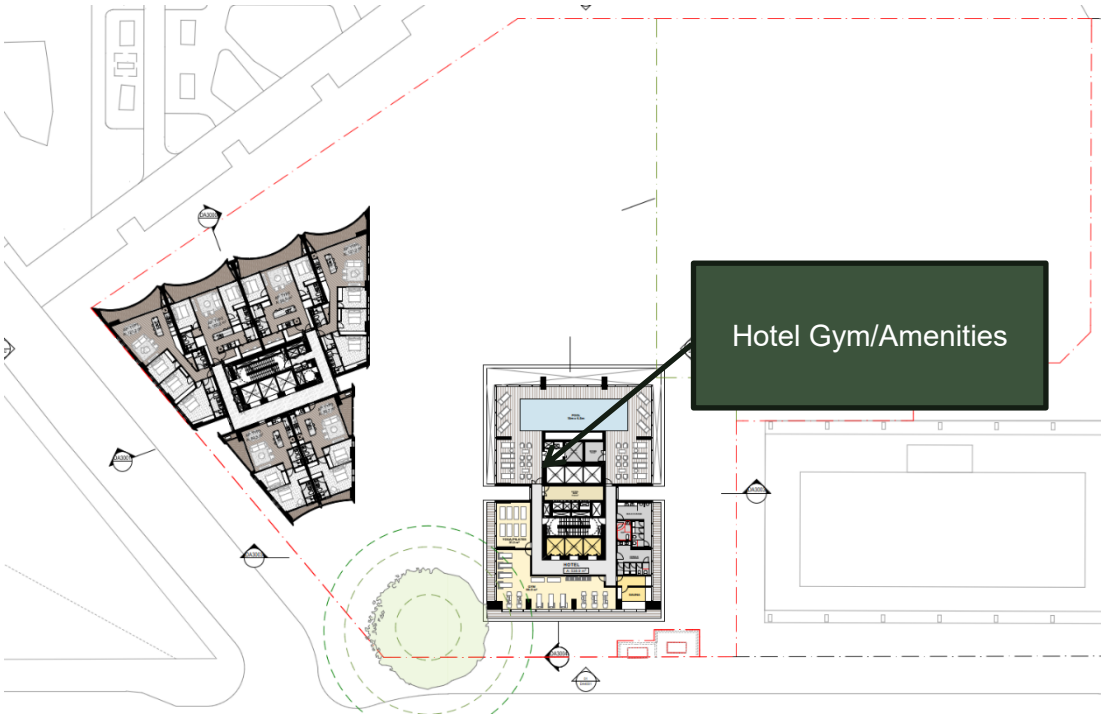
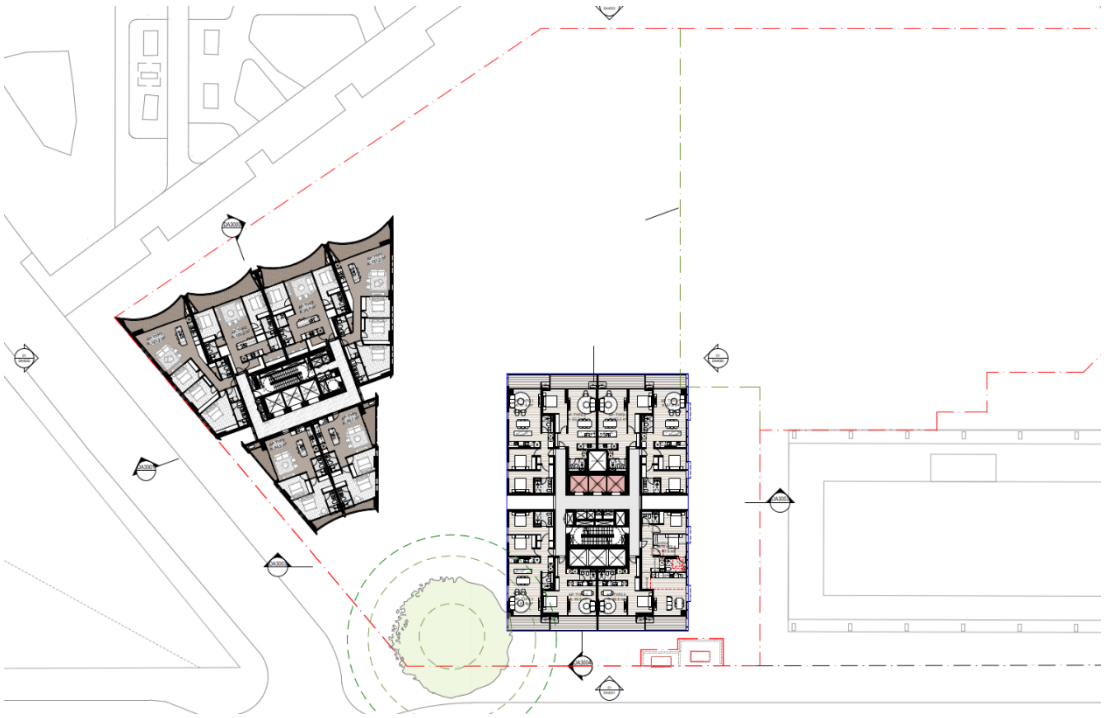


Figure 9 Level 17



2.0 Building Code of Australia Energy Efficiency Requirements

Since the 2006 release of the Building Code of Australia (BCA) it is a mandatory requirement for all BCA class buildings, except Class 4 and Class 10 buildings, to achieve efficient use of energy.

This requirement has been defined in Volume 1 of the 2022 NCC under Section J and is titled *Energy Efficiency*. Several Deemed-to-Satisfy subsections, J4 to J9, focus on separate aspects of energy efficiency.

- . J4 - Building fabric
- . J5 - Building sealing
- . J6 - Air-conditioning and ventilation
- . J7 - Artificial light and power
- . J8 - Heated water supply and swimming pool and spa pool plant
- . J9 - Energy monitoring and on-site distributed energy resources.

This report will provide advice about each subsection and identify how compliance with the NCC can be achieved for these new requirements regarding the proposed development.

The architect and services designers must specify and document compliant constructions showing NCC Section J requirements are met.

2.1 Defining the Building Class

The sub-classification for the proposed building is:

- Carparks– Class 7a
- Residential Building– Class 2
- Hotel– Class 3
- Retail Areas, Restaurants and Cafes– Class 6
- Assembly areas – Class 9b

2.2 Defining the Energy Efficiency Requirements

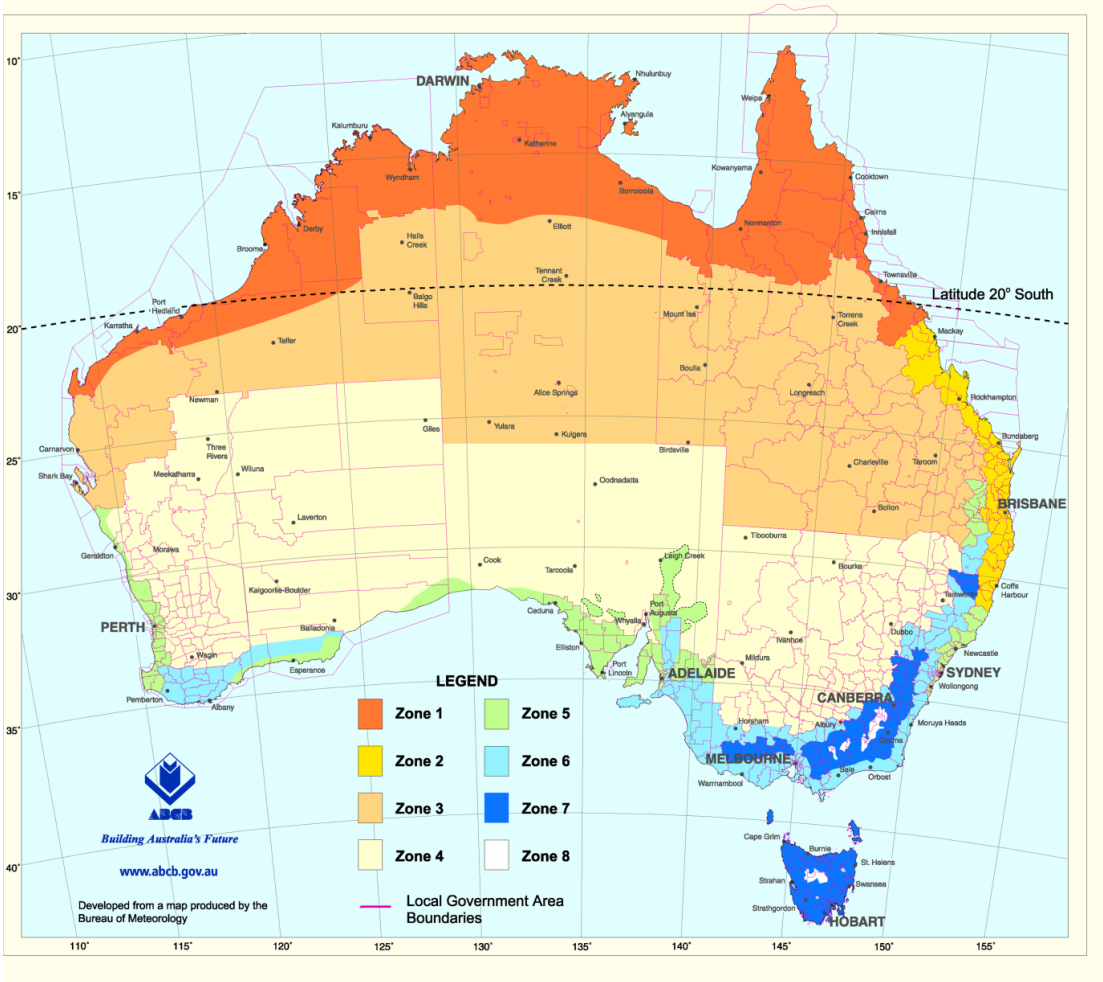
The objective of Section J from Volume 1 of the NCC defines this section as being applicable to Class 2 to 9 buildings, other than Class 7, 8 or 9b buildings that do not have conditioned space. In this instance of the proposed development, there are requirements for compliance with Section J.

This report assumes the 2022 NCC Section J compliance for this development will be achieved through the Deemed-to-Satisfy method. To achieve compliance with Section J of the 2022 NCC, the proposed development must satisfy and achieve all requirements of every Deemed-to-Satisfy subsection.

2.3 Defining the BCA Climate

As the proposed development is situated within Central Coast Council, parts of the NCC requirements will be based on these climate characteristics. The NCC currently defines the development area as climate zone 5 (shown in the below figure).

Figure 10 : Building Code of Australia Climate Zone Map



2.4 Design Documents

The report is prepared based on the architectural drawing set provided 28 November 2025. The mark-up drawings used in this report are attached in Appendices.

3.0 Part J4 – Building Fabric

Part J4 of the 2022 NCC contains the requirements of the Deemed-to-Satisfy compliance of the building fabric. The purpose of this subsection is to ensure that the building fabric will provide sufficient thermal insulation to minimise heating and cooling loads placed on the building and the commensurate energy consumption HVAC systems servicing internal building spaces.

3.1 J4D2 – Application

As stated by the 2022 NCC, Part J1 applies to the Class 2 common, Class 3, Class 6 and Class 9b building areas.

3.2 J4D3 – General Thermal Construction

Where thermal insulation is installed in exterior envelope walls or roof of the proposed development, the insulation must comply with AS/NZS 4859.1 and be installed so that it:

- 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;
- forms a continuous barrier with ceilings, walls, bulkheads, floors or the like that inherently contribute to the thermal barrier; and
- does not affect the safe or effective operation of a service or fitting.

Where reflective insulation is installed in exterior envelope walls or roof of the proposed development, it must be installed with:

- the necessary airspace to achieve the required R-Value between a reflective side of the reflective insulation and a building lining or cladding;
- the reflective insulation closely fitted against any penetration, door or window opening;
- the reflective insulation adequately supported by framing members; and
- each adjoining sheet of roll membrane being:
  - overlapped not less than 50 mm; or
  - taped together.

Where bulk insulation is installed in exterior envelope walls or roof of the proposed development, it must be installed so that:

- it maintains its position and thickness, other than where it is compressed between cladding and supporting members, water pipes, electrical cabling or the like; and
- in ceilings where there is no bulk insulation or *reflective insulation* in the wall, it overlaps the wall member by not less than 50 mm.

The required Total R-Value and Total System U-Value, including allowance for thermal bridging, must be

- calculated in accordance with AS/NZS 4859.2 for a roof or floor; or
- determined in accordance with Specification 37 for wall-glazing construction; or

- determined in accordance with Specification 39 or Section 3.5 of CIBSE Guide A for soil or sub-floor spaces.

3.3 J4D4 – Roof and Ceiling Insulation

The proposed development is located in climate zone 5, the roof and ceiling system that is part of the envelope must achieve the minimum Total R-value of:

- in climate zones 1, 2, 3, 4 and 5, R3.7 for a downward direction of heat flow; and
- in climate zones 6, R3.2 for a downward direction of heat flow; and
- In climate zones 1, 2, 3, 4, 5, 6 and 7, the solar absorptance of the upper surface of a roof must be not more than 0.45.

The roof/ceiling system for the roof exposed to unconditioned areas of the development is:

- Concrete slab + Insulation + PB

Table 1 Roof R-value

Proposed Roofing System	R-Value	R-Value Requirement	Compliance	Recommendations
Concrete slab + Plasterboard	0.3	3.7 (with a roof upper surface solar absorptance value not more than 0.45)	Compliance Readily Achievable	Additional insulation is required to meet the prescribed average total R value of R3.7.

Detailed markups of required roof insulation are shown in **Appendix A**.

3.4 J4D5 – Roof Lights

No roof lights have been provided to the proposed building areas, therefore this section is not applicable.

3.5 J4D6 – Walls and Glazing

The Total System U-Value of wall-glazing construction must not be greater than—

- for a Class 2 common area, a Class 5, 6, 7, 8 or 9b building or a Class 9a building other than a ward area, U2.0; and
- for a Class 3 or 9c building or a Class 9a ward area—
  - In climate zones 1, 3, 4, 6 or 7, U1.1; or
  - In climate zones 2 or 5, U2.0; or
  - in climate zone 8, U0.9.

The Total System U-Value of display glazing must not be greater than U5.8.

The Total System U-Value of wall-glazing construction must be calculated in accordance with Specification 37.

Wall components of a wall-glazing construction must achieve a minimum Total R-Value of—

- where the wall is less than 80% of the area of the wall-glazing construction, R1.0; or
- where the wall is 80% or more of the area of the wall-glazing construction, the value specified in Table J4D6a.

Table 2 Copy of J4D6a Minimum wall Total R-Value - Wall area 80% or more of wall-glazing construction area

Table J4D6a Minimum wall Total R-Value - Wall area 80% or more of wall-glazing construction area

Climate zone	Class 2 common area, Class 5, 6, 7, 8 or 9b building or a Class 9a building other than a ward area	Class 3 or 9c building or Class 9a ward area
1	2.4	3.3
2	1.4	1.4
3	1.4	3.3
4	1.4	2.8
5	1.4	1.4
6	1.4	2.8
7	1.4	2.8
8	1.4	3.8

The solar admittance of externally facing wall-glazing construction must not be greater than—

- for a Class 2 common area, a Class 5, 6, 7, 8 or 9b building or a Class 9a building other than a ward area, the values specified in Table J4D6b; and
- for a Class 3 or 9c building or a Class 9a ward area, the values specified in Table J4D6c.

The solar admittance of a wall-glazing construction must be calculated in accordance with Specification 37.

The Total system SHGC of display glazing must not be greater than 0.81 divided by the applicable shading factor specified in Clause 7 of Specification 37c7.

Table 3 Copy of J4D6b Maximum wall-glazing construction solar admittance - Class 2 common area, Class 5, 6, 7, 8 or 9b building or Class 9a building other than a ward area

Table J4D6b Maximum wall-glazing construction solar admittance - Class 2 common area, Class 5, 6, 7, 8 or 9b building or Class 9a building other than a ward area

Climate zone	Eastern aspect solar admittance	Northern aspect solar admittance	Southern aspect solar admittance	Western aspect solar admittance
1	0.12	0.12	0.12	0.12
2	0.13	0.13	0.13	0.13
3	0.16	0.16	0.16	0.16
4	0.13	0.13	0.13	0.13
5	0.13	0.13	0.13	0.13
6	0.13	0.13	0.13	0.13
7	0.13	0.13	0.13	0.13
8	0.2	0.2	0.42	0.36

Table 4 Wall-Glazing Calculation Results and Recommended average U-value and SHGC

Description	Facade	Wall-Glazing U-Value[1]	Solar Admittance	Compliance[2]		Recommended Average[3] – Glazing System	
				Method 1	Method 2 (Combined)	U-Value	SHGC
East Tower Level 3 & 4 Hotel Bar and all day dining	North	1.12	0.15	No	Yes	3.0	0.17
	East	1.03	0.12	Yes	Yes	3.0	0.17
	South	1.02	0.16	No	Yes	3.0	0.17
	West	1.46	0.11	Yes	Yes	3.0	0.20
East Tower Level 1, 2, 3 & 16 Hotel Admin, Retail and Communal Areas	North	2.65	0.09	Yes	Yes	4.0	0.22
	East	1.57	0.13	No	Yes	4.0	0.22
	South	2.07	0.16	No	Yes	4.0	0.22
	West	1.39	0.15	No	Yes	4.0	0.22
East Tower Hotel Rooms	North	0.81	0.15	Yes	Yes	3.0	0.18
	East	1.37	0.10	Yes	Yes	3.0	0.18
	South	0.81	0.16	No	Yes	3.0	0.18
	West	1.57	0.10	Yes	Yes	3.0	0.18
South Tower Ground Level & Level 1	North	0.60	0.01	Yes	Yes	3.0	0.25
	East	0.77	0.04	Yes	Yes	3.0	0.25
	South	0.50	-	Yes	Yes	3.0	0.25
	West	2.95	0.13	No	Yes	3.0	0.25
Pavilion	North	2.10	0.10	No	Yes	3.0	0.25
	East	1.31	-	No	Yes	3.0	0.25
	South	1.26	0.16	Yes	Yes	3.0	0.25
	West	2.63	0.10	Yes	Yes	3.0	0.25

Table 5 R-value of Proposed Wall System

Proposed Wall System	Proposed Average Wall R-Value[4]	Solar Adsorption	Compliance	Recommendations
Hebel Power Panel External Wall	R0.83	0.50	Compliance Readily Achievable	Additional insulation is required to meet the prescribed average total R value of R2.0.

Proposed Wall System	Proposed Average Wall R-Value[4]	Solar Adsorption	Compliance	Recommendations
Concrete Internal Wall	R0.07	0.50	Compliance Readily Achievable	Additional insulation is required to meet the prescribed average total R value of R2.0.
Masonry Internal Wall	R0.30	0.50	Compliance Readily Achievable	Additional insulation is required to meet the prescribed average total R value of R2.0.

Wall-glazing calculations summary reports are shown in **Appendix C**.

Note:

[1] U-value for the wall glazing system including Aluminium frame.

[2] Nominated compliance pathway: Either method can achieve compliance

[3] A JV3 Alternative Solution offers opportunities to reduce/remove higher glazing options finish.

3.6 J4D7 – Floors

A floor must achieve the total R-value specified in Table J4D7.

Table 6 Copy of J4D7 Floors – Minimum Total R-Value

Table J4D7 Floors – Minimum Total R-Value

Location	Climate zone 1— upwards heat flow	Climate zones 2 and 3 — upwards and downwards heat flow	Climate zones 4, 5, 6 and 7 — downwards heat flow	Climate zone 8 — downwards heat flow
A floor without an in-slab heating or cooling system	2.0	2.0	2.0	3.5
A floor with an in-slab heating or cooling system	3.25	3.25	3.25	4.75

Note to Table J1.6: For the purpose of calculating the Total R-Value of a floor, the sub-floor and soil R-Value must be calculated in accordance with Specification 39 or Section 3.5 of CIBSE Guide A.

The proposed floor system is as described below:

- Suspended concrete floor

Table 4 Summarises the R-values of the proposed floor systems, and the recommendations to achieve compliance.

Table 7 Floor Systems Summary and Recommendations

Proposed System	R-Value	R-Value Requirement	Compliance	Recommendations
Suspended Concrete Slab	0.3	2.0	Compliance Readily Achievable	Additional insulation is required to meet the prescribed average total R value of R2.0

Detailed mark ups of required floor insulation are shown in **Appendix B**.

4.0 Part J5 – Building Sealing

Part J5 of the 2022 NCC contains the requirements of the Deemed-to-Satisfy compliance for building sealing. The purpose of this subsection is to ensure that additional heating and cooling loads will not be introduced through building leakage.

4.1 J5D2 – Application

Building sealing is applicable to the conditioned spaces within the building.

4.2 J5D3 – Chimneys and Flues

The chimney or flue of an open solid fuel burning appliance must be provided with a damper or flap that can be closed to seal the chimney or flue.

4.3 J5D4 – Roof Lights

No roof lights have been provided to the proposed commercial building areas, therefore this section is not applicable.

4.4 J5D5 – External Windows and Doors

The Part J5D5 of the NCC Section J requirements will apply to the development.

Part J5D5 of the 2022 NCC requires that a seal to restrict air infiltration must be fitted to each edge of an external door, openable external window or the like when serving a conditioned space. This requirement does not apply to:

- a window complying with AS 2047; or
- a fire door or smoke door; or
- a roller shutter door, roller shutter grille or other security door or device installed only for out-of-hours security.

The seal may be a foam or rubber compressible strip, fibrous seal or the like.

A seal to restrict air infiltration—

- for the bottom edge of a door, must be a draft protection device; and
- for the other edges of a 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.

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—

- where the conditioned space has a floor area of not more than 50 m2; or
- where a café, restaurant, open front shop or the like has—
  - a 3 m deep un-conditioned zone between the main entrance, including an open front, and the conditioned space; and
  - at all other entrances to the café, restaurant, open front shop or the like, self-closing doors.

A loading dock entrance, if leading to a conditioned space, must be fitted with a rapid roller door or the like.

4.5 J5D6 – Exhaust fans

An exhaust fan must be fitted with a sealing device such as a self-closing damper or the like when serving—

- a conditioned space; or
- a habitable room in climate zones 4, 5, 6, 7 or 8.

4.6 J5D7 – Construction of ceilings, walls and floors

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 (2)—

- when forming part of the envelope; or
- in climate zones 4, 5, 6, 7 or 8.

Construction required by the above statement must be—

- enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions; or
- sealed at junctions and penetrations with—
  - close fitting architrave, skirting or cornice; or
  - expanding foam, rubber compressible strip, caulking or the like.

4.7 J5D8 – Evaporative coolers

An evaporative cooler must be fitted with a self-closing damper or the like—

- when serving a heated space; or
- in climate zones 4, 5, 6, 7 or 8.

5.0 Part J6 – Air Conditioning and Ventilation Systems

Part J6 of the 2022 NCC contains the requirements of the Deemed-to-Satisfy compliance of a building's air conditioning and ventilation systems. The purpose of this subsection is to ensure that conditioned air (when required) is generated, controlled and supplied to the building in an energy efficient manner. This subsection also ensures that ventilation and exhaust systems are efficient, while also keeping the wasted conditioned air to a minimum.

The mechanical services engineer should ensure that the proposed air-conditioning systems for the development comply with the following sections.

5.1 J6D2 – Application

The Deemed-to-Satisfy Provisions of this Part do not apply to a Class 8 electricity network substation. Part J6 therefore applies to the proposed development.

5.2 J6D3 – Air Conditioning System Control

The air-conditioning unit or system serving the conditioned spaces is to comply with the following performance requirements.

An air-conditioning unit or system must:

- Be capable of being deactivated when the building served is not occupied; and
    - Thermostatically control the temperature of each zone or area when serving more than one zone
    - not control the temperature by mixing actively heated air and actively cooled air; and
    - limit reheating to not more than—
        - for a fixed supply air rate, a 7.5 K rise in temperature; and
        - for a variable supply air rate, a 7.5 K rise in temperature at the nominal supply air rate but increased or decreased at the same rate that the supply air rate is respectively decreased or increased; and
- Provides the required mechanical ventilation, other than in climate zone 1 or where dehumidification control is needed, must have an outdoor air economy cycle if the total air flow rate of any airside component of an air-conditioning system is greater than or equal to the figures in Table 8.
- When two or more air-conditioning systems serve the same space, they must use control sequences that prevent the systems from operating in opposing heating and cooling modes.
- Contains more than one water heater, chiller or coil, must be capable of stopping the flow of water to those not operating; and with an airflow of more than 1000 L/s, must have a variable speed fan when its supply air quantity is capable of being varied;
- must have the ability to use direct signals from the control components responsible for the delivery of comfort conditions in the building to regulate the operation of central plant; and
- must have a control dead band of not less than 2°C, except where a smaller range is required for specialised applications; and
- must be provided with balancing dampers and balancing valves, as required to meet the needs of the system at its maximum operating condition, that ensure the maximum design air or fluid flow is achieved but not exceeded by more than 15% above design at each—
    - component; or

- group of components operating under a common control in a system containing multiple components; and

- must ensure that each independently operating space of more than 1 000 m2 and every separate floor of the building has provision to terminate airflow independently of the remainder of the system sufficient to allow for different operating times; and
- must have automatic variable temperature operation of heated water and chilled water circuits; and
- when deactivated, must close any motorised outdoor air or return air damper that is not otherwise being actively controlled.

Time switches — the following applies:

- A time switch must be provided to control—
  - an air-conditioning system of more than 2 kWr; and
  - a heater of more than 1 kW heating used for air-conditioning.
- The time switch must be capable of switching electric power on and off at variable pre-programmed times and on variable pre-programmed days.

Table 8 Copy of Table J6D3 - Requirement for an outdoor air economy cycle

Table J6D3 Requirement for an outdoor air economy cycle

Climate zone	Total air flow rate requiring an economy cycle (L/s)
2	9000
3	7500
4	3500
5	3000
6	2000
7	2500
8	4000

5.3 J6D4 – Mechanical Ventilation System Control

This subsection of J6D4 applies to all components of the proposed development as all spaces are to be mechanically ventilated. The mechanical ventilation systems are to comply with the following performance requirements.

A mechanical ventilation system must:

- Be capable of being deactivated when the building or part of the building served by that system is not occupied; and
- When serving a conditioned space-
  - where specified in Table J6D4, have—
    - an energy reclaiming system that preconditions *outdoor air* at a minimum sensible heat transfer effectiveness of 60%; or
    - demand control ventilation in accordance with AS 1668.2 if appropriate to the application; and
  - not exceed the minimum outdoor air quantity required by Part F6 by more than 20%, except where—
    - additional unconditioned outdoor air is supplied for free cooling; or

- additional mechanical ventilation is needed to balance the required exhaust or process exhaust; or
- an energy reclaiming system preconditions all the outdoor air; and

- for an airflow of more than 1000 L/s, have a variable speed fan unless the downstream airflow is required by Part F6 to be constant.

Table 9 Copy of Table J6D4 Required outdoor air treatment

Table J6D4 Required outdoor air treatment

Climate zone	Outdoor air flow (L/s)	Required measure
1	>500	Modulating control
2	Not applicable	No required measure
3	>1000	Modulating control
4 and 6	>500	Modulating control or energy reclaiming system
5	>1000	Modulating control or energy reclaiming system
7 and 8	>250	Modulating control or energy reclaiming system

5.4 J6D4 – Time Switch

Part J6D4 applies to the proposed development where applicable.

- A time switch must be provided to a mechanical ventilation system with an air flow rate of more than 1000 L/s.
- The time switch must be capable of switching electric power on and off at variable pre-programmed times and on variable pre-programmed days.
- The above requirements do not apply to—
  - a mechanical ventilation system that serves—
    - only one sole-occupancy unit in a Class 2, 3 or 9c building; or
    - a Class 4 part of a building; or
  - a building where mechanical ventilation is needed for 24-hour occupancy.

5.5 J6D5 – Fan and Duct Systems

There are two options to demonstrate that a fan system that forms part of an air-conditioning system is compliant with J6D5.

Fans:

- The first option is to demonstrate that each of the individual components of a fan system are individually more efficient than the values specified in J6D5.
- The second option is to demonstrate that the fan system as a whole is more efficient than a system that is designed meeting the individual component requirements.

Ductwork:

- The pressure drop in the index run across all straight sections of rigid ductwork and all sections of flexible ductwork must not exceed 1 Pa/m when averaged over the entire length of straight rigid duct and flexible duct. The pressure drop of flexible ductwork sections may be calculated as if the flexible ductwork is laid straight.

- Flexible ductwork must not account for more than 6 m in length in any duct run.
- The upstream connection to ductwork bends, elbows and tees in the index run must have an equivalent diameter to the connected duct.
- Turning vanes must be included in all rigid ductwork elbows of 90° or more acute than 90° in the index run except where—
    - the inclusion of turning vanes presents a fouling risk; or
    - a long radius bend in accordance with AS 4254.2 is used.

Ductwork components in the index run:

- the ductwork components need to be more efficient than the values specified in J6D5.

5.6 J6D6 – Ductwork Insulation

Ductwork and fittings in an air-conditioning system must be provided with insulation—

- complying with AS/NZS 4859.1; and
- having an insulation R-Value greater than or equal to—
    - for flexible ductwork, 1.0; or
    - for cushion boxes, that of the connecting ductwork; or
    - that specified in Table J6D6.

Insulation must—

- be protected against the effects of weather and sunlight; and
- be installed so that it abuts adjoining insulation to form a continuous barrier; and maintains its position and thickness, other than at flanges and supports.
- when conveying cooled air—
    - be protected by a vapour barrier on the outside of the insulation; and
    - where the vapour barrier is a membrane, be installed so that adjoining sheets of the membrane—
        - overlap by at least 50 mm; and
        - are bonded or taped together.
- The requirements of above statements do not apply to—
    - ductwork and fittings located within the only or last room served by the system; or

- fittings that form part of the interface with the conditioned space; or
- return air ductwork in, or passing through, a conditioned space; or
- ductwork for outdoor air and exhaust air associated with an air-conditioning system; or
- the floor of an in-situ air-handling unit; or
- packaged air conditioners, split systems, and variable refrigerant flow air-conditioning equipment complying with MEPS; or
- flexible fan connections.

- For the purposes of the above statements, fittings—
  - include non-active components of a ductwork system such as cushion boxes; and
  - exclude active components such as air-handling unit components.

Table 10 Copy of Table J6D6 Ductwork and fittings – Minimum insulation R-Value

Table J6D6 Ductwork and fittings – Minimum insulation R-Value

Location of ductwork and fittings	Climate zone 1, 2, 3, 4, 5, 6 or 7	Climate zone 8
Within a conditioned space	1.2	2.0
Where exposed to direct sunlight	3.0	3.0
All other locations	2.0	3.0

5.7 J6D7 – Ductwork sealing

Ductwork in an air-conditioning system with a capacity of 3000 L/s or greater, not located within the only or last room served by the system, must be sealed against air loss in accordance with the duct sealing requirements of AS 4254.1 and AS 4254.2 for the static pressure in the system.

5.8 J6D8 – Pump Systems

Pumps and pipework that form part of an air-conditioning system must either—

- separately comply with the below statements; or
- achieve a pump motor power per unit of flowrate lower than the pump motor power per unit of flowrate achieved when applying the below statements together.

Circulator pumps — A glandless impeller pump, with a rated hydraulic power output of less than 2.5 kW and that is used in closed loop systems must have an energy efficiency index (EEI) not more than 0.27 calculated in accordance with European Union Commission Regulation No. 622/2012.

Other pumps — Pumps that are in accordance with Articles 1 and 2 of European Union Commission Regulation No. 547/2012 must have a minimum efficiency index (MEI) of 0.4 or more when calculated in accordance with European Union Commission Regulation No. 547/2012.

Pipework — Straight segments of pipework along the index run, forming part of an air-conditioning system—

- in pipework systems that do not have branches and have the same flow rate throughout the entire pipe network, must achieve an average pressure drop of not more than—
    - for constant speed systems, the values nominated in Table J6D8a; or
    - for variable speed systems, the values nominated in Table J6D8b; or
- in any other pipework system, must achieve an average pressure drop of not more than—
    - for constant speed systems, the values nominated in Table J6D8c; or
    - for variable speed systems, the values nominated in Table J6D8d.

The requirements of the pipework section do not apply—

- to valves and fittings; or
- where the smallest pipe size compliant with the pipework section results in a velocity of 0.7 m/s or less at design flow.

Table 11 Copy of J6D8a Maximum pipework pressure drop – Non-distributive constant speed systems

Table J6D8a Maximum pipework pressure drop – Non-distributive constant speed systems

Nominal pipe diameter (mm)	Maximum pressure drop in systems operating 5000 hours/annum or less (Pa/m)	Maximum pressure drop in systems operating more than 5000 hours/annum (Pa/m)
Not more than 20	400	400
25	400	400
32	400	400
40	400	400
50	400	350
65	400	350
80	400	350
100	400	200
125	400	200
150 or more	400	200

Table 12 Copy of J6D8b Maximum pipework pressure drop – Non-distributive variable speed systems

Table J6D8b Maximum pipework pressure drop – Non-distributive variable speed systems

Nominal pipe diameter (mm)	Maximum pressure drop in systems operating 5000 hours/annum or less (Pa/m)	Maximum pressure drop in systems operating more than 5000 hours/annum (Pa/m)
Not more than 20	400	400
25	400	400
32	400	400
40	400	400
50	400	400
65	400	400
80	400	400
100	400	300
125	400	300
150 or more	400	300

Table 13 Copy of J6D8c Maximum pipework pressure drop – Distributive constant speed systems

Table J6D8c Maximum pipework pressure drop – Distributive constant speed systems

Nominal pipe diameter (mm)	Maximum pressure drop in systems operating 2000 hours/annum or less (Pa/m)	Maximum pressure drop in systems operating between 2000 hours/annum and 5000 hrs/yr (Pa/m)	Maximum pressure drop in systems operating more than 5000 hours/annum (Pa/m)
Not more than 20	400	300	150
25	400	220	100
32	400	220	100
40	400	220	100
50	400	220	100
65	400	400	170
80	400	400	170
100	400	400	170
125	400	400	170
150 or more	400	400	170

Table 14 Copy of J6D8d Maximum pipework pressure drop – Distributive variable speed systems

Table J6D8d Maximum pipework pressure drop – Distributive variable speed systems

Nominal pipe diameter (mm)	Maximum pressure drop in systems operating 5000 hours/annum or less (Pa/m)	Maximum pressure drop in systems operating more than 5000 hours/annum (Pa/m)
Not more than 20	400	250
25	400	180
32	400	180
40	400	180
50	400	180
65	400	300
80	400	300
100	400	300
125	400	300
150 or more	400	300

5.9 J6D9 – Pipework insulation

Piping, vessels, heat exchangers and tanks containing heating or cooling fluid, where the fluid is held at a heated or cooled temperature, that are part of an air-conditioning system, other than in appliances covered by MEPS, must be provided with insulation—

- complying with AS/NZS 4859.1
- for piping of heating and cooling fluids, having an insulation R-Value in accordance with Table J6D9a; and
- for vessels, heat exchangers or tanks, having an insulation R-Value in accordance with Table J6D9b; and
- for refill or pressure relief piping, having an insulation R-Value equal to the required insulation R-Value of the connected pipe, vessel or tank within 500 mm of the connection.

Insulation must—

- be protected against the effects of weather and sunlight; and
- be able to withstand the temperatures within the piping, vessel, heat exchanger or tank.

Insulation provided to piping, vessels, heat exchangers or tanks containing cooling fluid must be protected by a vapour barrier on the outside of the insulation.

The requirements of the above statements do not apply to piping, vessels or heat exchangers—

- located within the only or last room served by the system and downstream of the control device for the regulation of heating or cooling service to that room; or
- encased within a concrete slab or panel which is part of a heating or cooling system; or
- supplied as an integral part of a chiller, boiler or unitary air-conditioner complying with the requirements of J6D10, J6D11 and J6D12; or
- inside an air-handling unit, fan-coil unit, or the like.

Table 15 Copy of Table J6D9a Piping – Minimum Insulation R value

Table J6D9a Piping — Minimum insulation R-Value

Fluid temperature	Minimum insulation R-Value nominal pipe diameter ≤ 40 mm	Minimum insulation R-Value — nominal pipe diameter > 40 mm and ≤ 80 mm	Minimum insulation R-Value — nominal pipe diameter between > 80 mm and ≤ 150 mm	Minimum insulation R-Value — nominal pipe diameter > 150 mm
Low temperature chilled — ≤ 2°C	1.3	1.7	2.0	2.7
Chilled — > 2°C but ≤ 20°C	1.0	1.5	2.0	2.0
Heated — > 30°C but ≤ 85°C	1.7	1.7	1.7	1.7
High Temperature heated — > 85°C	2.7	2.7	2.7	2.7

Table 16 Copy of Table J6D9b Vessels, Heat Exchangers and Tanks — Minimum Insulation R-Value

Table J6D9b Vessels, heat exchangers and tanks — Minimum insulation R-Value

Fluid temperature range	Minimum insulation R-Value
Low temperature chilled — ≤ 2°C	2.7
Chilled — > 2°C but ≤ 20°C	1.8
Heated — > 30°C but ≤ 85°C	3.0
High temperature heated — > 85°C	3.0

5.10 J6D10 – Space Heating

A heater used for air-conditioning or as part of an air-conditioning system must be a solar heater; or a gas heater; or a heat pump; or a heater using reclaimed heat from another process such as reject heat from a refrigeration plant; or an electric heater if —

- the heating capacity is not more than—
    - 10 W/m2 of the floor area of the conditioned space in climate zone 1; or
    - 40 W/m2 of the floor area of the conditioned space in climate zone 2; or
    - the value specified in Table J6D10 where reticulated gas is not available at the allotment boundary; or
- the annual energy consumption for heating is not more than 15 kWh/m2 of the floor area of the conditioned space in climate zones 1, 2, 3, 4 and 5; or

any combination of a solar heater to an electric heater.

- An electric heater may be used for heating a bathroom in a Class 2, 3, 9a or 9c building if the heating capacity is not more than 1.2 kW and the heater has a timer.
- A fixed heating or cooling appliance that moderates the temperature of an outdoor space must be configured to automatically shut down when—
    - there are no occupants in the space served; or
    - a period of one hour has elapsed since the last activation of the heater; or
    - the space served has reached the design temperature.
- A gas water heater, that is used as part of an air-conditioning system, must—
    - if rated to consume 500 MJ/hour of gas or less, achieve a minimum gross thermal efficiency of 86%; or
    - if rated to consume more than 500 MJ/hour of gas, achieve a minimum gross thermal efficiency of 90%.

Table 17 Copy of Table J6D10 Maximum electric heating capacity

Table J6D10 Maximum electric heating capacity

Floor area of the conditioned space	W/m^2 of floor area in climate zone 3	W/m^2 of floor area in climate zone 4	W/m^2 of floor area in climate zone 5	W/m^2 of floor area in climate zone 6	W/m^2 of floor area in climate zone 7
≤ 500 m^2	50	60	55	65	70
> 500 m^2	40	50	45	55	60

5.11 J6D11 – Refrigerant chillers

An air-conditioning system refrigerant chiller must comply with MEPS and the full load operation energy efficiency ratio and integrated part load energy efficiency ratio in Table J6D11a or Table J6D11b when determined in accordance with AHRI 551/591.

Table 18 Copy of Table J6D11a Minimum energy efficiency ratio for refrigerant chillers – Option 1

Table J6D11a Minimum energy efficiency ratio for refrigerant chillers – Option 1

Chiller type	Full load operation ($W_r/W_{input\ power}$)	Integrated part load ($W_r/W_{input\ power}$)
Air-cooled chiller with a capacity ≤ 528 kWr	2.985	4.048
Air-cooled chiller with a capacity > 528 kWr	2.985	4.137
Water-cooled positive displacement chiller with a capacity ≤ 264 kWr	4.694	5.867
Water-cooled positive displacement chiller with a capacity > 264 kWr but ≤ 528 kWr	4.889	6.286
Water-cooled positive displacement chiller with a capacity > 528 kWr but ≤ 1055 kWr	5.334	6.519
Water-cooled positive displacement chiller with a capacity > 1055 kWr but ≤ 2110 kWr	5.800	6.770
Water-cooled positive displacement chiller with a capacity > 2110 kWr	6.286	7.041
Water-cooled centrifugal chiller with a capacity ≤ 528 kWr	5.771	6.401
Water-cooled centrifugal chiller with a capacity > 528 kWr but ≤ 1055 kWr	5.771	6.519
Water-cooled centrifugal chiller with a capacity > 1055 kWr but ≤ 1407 kWr	6.286	6.770
Water-cooled centrifugal chiller with a capacity > 1407 kWr	6.286	7.041

Table 19 Copy of Table J6D11b Minimum energy efficiency ratio for refrigerant chillers – Option 2

Table J6D11b Minimum energy efficiency ratio for refrigerant chillers – Option 2

Chiller type	Full load operation ($W_r/W_{input\ power}$)	Integrated part load ($W_r/W_{input\ power}$)
Air-cooled chiller with a capacity ≤ 528 kWr	2.866	4.669
Air-cooled chiller with a capacity > 528 kWr	2.866	4.758
Water-cooled positive displacement chiller with a capacity ≤ 264 kWr	4.513	7.041
Water-cooled positive displacement chiller with a capacity > 264 kWr but ≤ 528 kWr	4.694	7.184
Water-cooled positive displacement chiller with a capacity > 528 kWr but ≤ 1055 kWr	5.177	8.001
Water-cooled positive displacement chiller with a capacity > 1055 kWr but ≤ 2110 kWr	5.633	8.586
Water-cooled positive displacement chiller with a capacity > 2110 kWr	6.018	9.264
Water-cooled centrifugal chiller with a capacity ≤ 528 kWr	5.065	8.001
Water-cooled centrifugal chiller with a capacity > 528 kWr but ≤ 1055 kWr	5.544	8.001
Water-cooled centrifugal chiller with a capacity > 1055 kWr but ≤ 1407 kWr	5.917	9.027
Water-cooled centrifugal chiller with a capacity > 1407 kWr	6.018	9.264

5.12 J6D12 – Unitary air-conditioning equipment

Unitary air-conditioning equipment including packaged air-conditioners, split systems, and variable refrigerant flow systems must comply with MEPS and for a capacity greater than or equal to 65 kWr—

- where water cooled, have a minimum energy efficiency ratio of 4.0 Wr/Winput power for cooling when tested in accordance with AS/NZS 3823.1.2 at test condition T1, where input power includes both compressor and fan input power; or

- where air cooled, have a minimum energy efficiency ratio of 2.9 Wr/Winput power for cooling when tested in accordance with AS/NZS 3823.1.2 at test condition T1, where input power includes both compressor and fan input power.

5.13 J6D13– Heat rejection equipment

The motor rated power of a fan in a cooling tower, closed circuit cooler or evaporative condenser must not exceed the allowances in Table J6D13.

The fan in an air-cooled condenser must have a motor rated power of not more than 42 W for each kW of heat rejected from the refrigerant, when determined in accordance with AHRI 460 except for—

- a refrigerant chiller in an air-conditioning system that complies with the energy efficiency ratios in J6D11;

- packaged air-conditioners, split systems, and variable refrigerant flow air-conditioning equipment that complies with the energy efficiency ratios in J6D12.

Table 20 Copy of Table J6D13 Maximum Fan Motor Power — Cooling Towers, Closed Circuit Coolers and Evaporative Condensers

Table J6D13 Maximum fan motor power – Cooling towers, closed circuit coolers and evaporative condensers

Type	Cooling tower maximum fan motor input power (W/kW_{rej})	Closed circuit cooler maximum fan motor input power (W/kW_{rej})	Evaporative condenser maximum fan motor input power (W/kW_{rej})
Induced draft	10.4	16.9	11.0
Forced draft	19.5	Note	11.0

6.0 Part J7 – Artificial Lighting and Power

Part J7 of the 2022 NCC contains the requirements of the Deemed-to-Satisfy compliance of a building's artificial lighting and power. The purpose of this subsection is to ensure that efficient lighting systems are installed to maintain required lighting levels while keeping energy consumption to a minimum. This subsection also ensures that effective lighting control is utilised to reduce wasted energy consumption.

6.1 J7D2 – Application

As stated by the 2022 NCC, Part J7 applies to all classes of buildings with the exception of Class 8 electricity network substation. Part J7 therefore applies to the proposed development.

6.2 J7D3 – Artificial Lighting

In a building other than a sole-occupancy unit of a Class 2 building or a Class 4 part of a building—

- for artificial lighting, the aggregate design illumination power load must not exceed the sum of the allowances obtained by multiplying the area of each space by the maximum illumination power density in Table J7D3a; and

- the aggregate design illumination power load in the above statement is the sum of the design illumination power loads in each of the spaces served; and

Table 21 Copy of Table J7D3a Maximum illumination power density

Space	Maximum illumination power density (W/m^2)
Auditorium, church and public hall	8
Board room and conference room	5
Carpark - general	2
Carpark - entry zone (first 15 m of travel) during the daytime	11.5
Carpark - entry zone (next 4 m of travel) during the day	2.5
Carpark - entry zone (first 20 m of travel) during night time	2.5
Common rooms, spaces and corridors in a Class 2 building	4.5
Control room, switch room and the like - intermittent monitoring	3
Control room, switch room and the like - constant monitoring	4.5
Corridors	5
Courtroom	4.5
Dormitory of a Class 3 building used for sleeping only	3
Dormitory of a Class 3 building used for sleeping and study	4
Entry lobby from outside the building	9
Health-care - infants' and children's wards and emergency department	4
Health-care - examination room	4.5
Health-care - examination room in intensive care and high dependency ward	6
Health-care - all other patient care areas including wards and corridors	2.5
Kitchen and food preparation area	4
Laboratory - artificially lit to an ambient level of 400 lx or more	6
Library - stack and shelving area	2.5
Library - reading room and general areas	4.5
Lounge area for communal use in a Class 3 or 9c building	4.5
Museum and gallery - circulation, cleaning and service lighting	2.5
Office - artificially lit to an ambient level of 200 lx or more	4.5
Office - artificially lit to an ambient level of less than 200 lx	2.5
Plant room where an average of 160 lx vertical illuminance is required on a vertical panel such as in switch rooms	4
Plant rooms with a horizontal illuminance target of 80 lx	2
Restaurant, café, bar, hotel lounge and a space for the serving and consumption of food or drinks	14
Retail space including a museum and gallery whose purpose is the sale of objects	14
School - general purpose learning areas and tutorial rooms	4.5
Sole-occupancy unit of a Class 3 or 9c building	5
Storage	1.5
Service area, cleaner's room and the like	1.5
Toilet, locker room, staff room, rest room and the like	3
Wholesale storage area with a vertical illuminance target of 160 lx	4
Stairways, including fire-isolated stairways	2
Lift cars	3

The maximum illuminance power density may be increased by multiplying by any adjustment factor provided in NCC Table J7D3b which provides adjustment factors based on methods of controlling the lighting systems, such as motion detectors, dimming systems and room properties.

Table 22 Copy of Table J7D3b Illumination power density adjustment factor for a control device

Table J7D3b Illumination power density adjustment factor for a control device

Item Notes 1 and 2	Description	illumination power density adjustment factor
Motion detector	In a toilet or change room, other than a public toilet, in a Class 6 building	0.4
Motion detector	Where a group of light fittings serving less than 100 m^2 is controlled by one or more detectors	0.6
Motion detector	Where a group of light fittings serving 100 m^2 or more is controlled by one or more detectors	0.7
Programmable dimming system Note 3	Where not less than 75% of the area of a space is controlled by programmable dimmers	0.85
Fixed dimming Notes 3 and 4	All fittings with fixed dimming	Whichever is greater of (a) 0.5; or (b) 0.2+0.8L where L = the illuminance turndown for the fixed dimming.
Lumen depreciation dimming Note 3	All fittings with lumen depreciation dimming	0.85
Two stage sensor - equipped lights with minimum power of 30 % of peak power or less	Fire stairs and other spaces not used for regular transit	0.4
Two stage sensor - equipped lights with minimum power of 30% of peak power or less	Transitory spaces in regular use or in a carpark	0.7
Daylight sensor and dynamic lighting control device - dimmed or stepped switching of lights adjacent windows Notes 3 and 5	In a Class 5, 6, 7, 8 or 9b building or a Class 9a building, other than a ward area, where the lights are adjacent windows, other than roof lights, for a distance from the window equal to the depth of the floor to window head height	0.5 Note 3
Daylight sensor and dynamic lighting control device - dimmed or stepped switching of lights adjacent windows Notes 3 and 5	Serving a Class 3 or 9c building, or a Class 9a ward area, where the lights are adjacent windows, other than roof lights, for a distance from the window equal to the depth of the floor to window head height	0.75 Note 3
Daylight sensor and dynamic lighting control device - dimmed or stepped switching of lights adjacent windows Notes 3 and 5	In a Class 5, 6, 7, 8 or 9b building or a Class 9a building, other than a ward area, where the lights are adjacent roof lights	0.6 Note 3
Daylight sensor and dynamic lighting control device - dimmed or stepped switching of lights adjacent windows Notes 3 and 5	In a Class 3 or 9c building, or a Class 9a ward area, where the lights are adjacent roof lights	0.8 Note 3

The above requirements do not apply to the following:

- Emergency lighting provided in accordance with Part E4.
- Signage, display lighting within cabinets and display cases that are fixed in place.
- Lighting for accommodation within the residential part of a detention centre.
- A heater where the heater also emits light, such as in bathrooms.
- Lighting of a specialist process nature such as in a surgical operating theatre, fume cupboard or clean workstation.
- Lighting of performances such as theatrical or sporting.
- Lighting for the permanent display and preservation of works of art or objects in a museum or gallery other than for retail sale, purchase or auction.
- Lighting installed solely to provide photosynthetically active radiation for indoor plant growth on green walls and the like.

6.3 J7D4 – Interior Artificial Lighting and Power Control

All artificial lighting of a room or space must be individually operated by–

- a switch; or
- other control device.

An artificial lighting switch or other control device in the above requirement must—

- if an artificial lighting switch, be located in a visible and easily accessed position—
    - in the room or space being switched; or
    - in an adjacent room or space from where 90% of the lighting being switched is visible; and
- for other than a single functional space such as an auditorium, theatre, swimming pool, sporting stadium or warehouse—
    - if in a Class 5 building or a Class 8 laboratory, not operate lighting for an area of more than 250 m^2; or
    - if in a Class 3, 6, 7, 8 (other than a laboratory) or 9 building, not operate lighting for an area of more than—
        - 250 m^2 for a space of not more than 2000 m^2; or
        - 1000 m^2 for a space of more than 2000 m^2.

95% of the light fittings in a building or storey of a building, other than a Class 2 or 3 building or a Class 4 part of a building of more than 250 m^2 must be controlled by—

- a time switch in accordance with Specification 40; or
- an occupant sensing device such as—
    - a security key card reader that registers a person entering and leaving the building; or
    - a motion detector in accordance with Specification 40.

In a Class 5, 6 or 8 building of more than 250 m^2, artificial lighting in a natural lighting zone adjacent to windows must be separately controlled from artificial lighting not in a natural lighting zone in the same storey except where—

- the room containing the natural lighting zone is less than 20 m2; or
- the room’s natural lighting zone contains less than 4 luminaires; or
- 70% or more of the luminaires in the room are in the natural lighting zone.

Artificial lighting in a fire-isolated stairway, fire-isolated passageway or fire-isolated ramp, must be controlled by a motion detector in accordance with Specification 40.

Artificial lighting in a foyer, corridor and other circulation spaces—

- of more than 250 W within a single zone; and
- adjacent to windows, must be controlled by a daylight sensor and dynamic lighting control device in accordance with Specification 40.

Artificial lighting for daytime travel in the first 19 m of travel in a carpark entry zone must be controlled by a daylight sensor in accordance with Specification 40.

J7D5 – Interior Decorative and Display Lighting

Any interior/ lighting for display or decorative purposes, such as the illumination of foyer murals,

- must be separately controlled from other artificial lighting.
- by a time switch in accordance with Specification 40 where the display lighting exceeds 1 kW.

Window display lighting must be controlled separately from other display lighting.

6.4 J7D6 – Exterior Artificial lighting

Artificial lighting around the perimeter of a building will be controlled by a time switch or daylight sensor complying with Section J6 lighting controls requirements.

A time switch needs to abide by the specification set out in the 2022 NCC. Switching on and off electric power to systems at variable pre-programmed times and on variable pre-programmed days.

When the total perimeter lighting load exceeds 100W, LED luminaires must be used for 90% of the total lighting load or be controlled by a motion detector in accordance with Specification 40 or when used for decorative purposes, such as façade lighting or signage lighting, have a separate time switch in accordance with Specification 40.

6.5 J7D7 – Boiling Water and Chilled Water Storage Units

Power supply to a boiling water or chilled water storage unit must be controlled by a time switch in accordance with Specification 40.

6.6 J7D8 – Lifts

Lifts must—

- be configured to ensure artificial lighting and ventilation in the car are turned off when it is unused for 15 minutes; and
- achieve the idle and standby energy performance level in Table J7D8a; and

- achieve—
    - the energy efficiency class in Table J7D8b; or
    - if a dedicated goods lift, energy efficiency class D in accordance with ISO 25745-2.

Table 23 Copy of Table J7D8a Lift idle and standby energy performance level

Table J7D8a Lift idle and standby energy performance level

Rated load	Idle and standby energy performance level in accordance with ISO 25745-2 Note
Less than or equal to 800 kg	2
801 kg to less than or equal to 2000 kg	3
2001 kg to less than or equal to 4000 kg	4
Greater than 4000 kg	5

Table 24 Copy of Table J7D8b Lift energy efficiency class

Table J7D8b Lift energy efficiency class

Usage category in accordance with ISO 25745-2	Energy efficiency class in accordance with ISO 25745-2
1-4	C
> 5	D

6.7 J7D9 – Escalators and moving walkways

No escalators or moving walkways have been provided to the proposed commercial building areas, therefore this section is not applicable.

7.0 Part J8 – Heated Water Supply and Swimming Pool and Spa Pool Plant

Part J8 of the 2022 NCC contains the requirements of the Deemed-to-Satisfy compliance of a building's hot water supply system. The purpose of this subsection is to ensure that efficient hot water units and systems are installed.

7.1 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.'

7.2 J8D3 Swimming pool heating and pumping

Heating for a swimming pool must be by—

- a solar heater; or
- a heater using reclaimed heat from another process such as reject heat from a refrigeration plant; or
- a geothermal heater; or

- a gas heater that—
    - if rated to consume 500 MJ/hour or less, achieves a minimum gross thermal efficiency of 86%; or
    - if rated to consume more than 500 MJ/hour, achieves a minimum gross thermal efficiency of 90%; or
- a heat pump; or

Where some or all of the heating required by the above requirement is by a gas heater or a heat pump, the swimming pool must have—

- a cover with a minimum R-Value of 0.05; and
- a time switch to control the operation of the heater.

A time switch must be provided to control the operation of a circulation pump for a swimming pool.

Where required, a time switch must be capable of switching electric power on and off at variable pre-programmed times and on variable pre-programmed days.

Pipework carrying heated or chilled water for a swimming pool must comply with the insulation requirements of J6D9.

For the purpose of J8D3, a swimming pool does not include a spa pool.

7.3 J8D4 Spa pool heating and pumping

Heating for a spa pool that shares a water recirculation system with a swimming pool must be by—

- a solar heater; or
- a heater using reclaimed heat from another process such as reject heat from a refrigeration plant; or
- a geothermal heater; or
- a gas heater that—
    - if rated to consume 500 MJ/hour or less, achieves a minimum gross thermal efficiency of 86%; or
    - if rated to consume more than 500 MJ/hour, achieves a minimum gross thermal efficiency of 90%; or
- a heat pump; or

Where some or all of the heating required by the above statement is by a gas heater or a heat pump, the spa pool must have—

- a cover with a minimum R-Value of 0.05; and

- a push button and a time switch to control the operation of the heater.

A time switch must be provided to control the operation of a circulation pump for a spa pool having a capacity of 680 L or more.

Where required, a time switch must be capable of switching electric power on and off at variable pre-programmed times and on variable pre-programmed days.

Pipework carrying heated or chilled water for a spa pool must comply with the insulation requirements of J6D9.

8.0 Part J9 – Energy Monitoring and on-site distributed energy resources

Part J9 of the 2022 NCC contains the requirements of the Deemed-to-Satisfy compliance of a building's Facilities for energy monitoring. The purpose of this subsection is to ensure that access can be gained to all services and must be interlinked by a communication system that collates the time-of-use energy consumption data to a single interface monitoring system where it can be stored, analysed and reviewed.

8.1 J9D2 - Application

As stated by the 2022 NCC, Part J9 does not apply to within a sole-occupancy unit of a Class 2 building or a Class 4 part of a building; or to a Class 8 electricity network substation. Part J9 therefore applies to the proposed development.

8.2 J9D3 Facilities for energy monitoring

A building or sole-occupancy unit with a floor area of more than 500 m2 must have the facility to record the consumption of gas and electricity.

A building with a floor area of more than 2 500 m2 must have energy meters configured to enable individual time-of-use energy data recording, in accordance with the below, of—

- air-conditioning plant including, where appropriate, heating plant, cooling plant and air handling fans; and
- artificial lighting; and
- appliance power; and
- central hot water supply; and
- internal transport devices including lifts, escalators and moving walkways where there is more than one serving the building; and
- on-site renewable energy equipment; and
- on-site electric vehicle charging equipment; and
- on-site battery systems; and

- other ancillary plant.

Energy meters required by the above statement must be interlinked by a communication system that collates the time-of-use energy data to a single interface monitoring system where it can be stored, analysed and reviewed.

8.3 J9D4 Facilities for Electric Vehicle Charging Equipment

- A carpark associated with a Class 2, 3, 5, 6, 7b, 8 or 9 building must be provided with electrical distribution boards dedicated to electric vehicle charging—
    a. in accordance with Table J9D4 in each storey of the carpark; and
    b. labelled to indicate use for electric vehicle charging equipment.

- Electrical distribution boards dedicated to serving electric vehicle charging in a carpark must—
    a. be fitted with a charging control system with the ability to manage and schedule charging of electric vehicles in response to total building demand; and
    b. have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 11:00 pm to 7:00 am daily when associated with a Class 2 building; and
    c. have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 9:00 am to 5:00 pm daily when associated with a Class 5 to 9 building; and
    d. be sized to support the future installation of a 7 kW (32 A) type 2 electric vehicle charger in—
        (i) 100% of the car parking spaces associated with a Class 2 building; or
        (ii) 10% of car parking spaces associated with a Class 5 or 6 building; or
        (iii) 20% of car parking spaces associated with a Class 3, 7b, 8 or 9 building; and
    e. contain space of at least 36 mm width of DIN rail per outgoing circuit for individual sub-circuit electricity metering to record electricity use of electric vehicle charging equipment; and
    f. be labelled to indicate the use of the space required by (f) is for the future installation of metering equipment.

Table 25 Copy of Table J9D4 Electric vehicle distribution board requirement for each storey of a carpark

Table J9D4 Electric vehicle distribution board requirement for each storey of a carpark

Carpark spaces per storey for electric vehicles	Electrical distribution boards for electric vehicle charging per storey
0 - 9	0
10 - 24	1
25 - 48	2
49 - 72	3
73 - 96	4
97 - 120	5
121 - 144	6
145 - 168	7

8.4 J9D5 Facilities for Solar Photovoltaic and Battery Systems

- The main electrical switchboard of a building must contain at least two empty three-phase circuit breaker slots and four DIN rail spaces labelled to indicate the use of each space for a solar photovoltaic system and a battery system; and be sized to accommodate the installation of solar photovoltaic panels producing their maximum electrical output on at least 20% of the building roof area.

- At least 20% of the roof area of a building must be left clear for the installation of solar photovoltaic panels, except for buildings—

    a. with installed solar photovoltaic panels on at least 20% of the roof area; or an equivalent generation capacity elsewhere on-site; or

    a. where 100% of the roof area is shaded for more than 70% of daylight hours; or

    b. with a roof area of not more than 55 m2; or

    c. where more than 50% of the roof area is used as a terrace, carpark, roof garden, roof light or the like.

9.0 Conclusion

SLR Consulting Pty Ltd (SLR) has been engaged by UPG Waterfront Pty Ltd to assess the proposed mixed-use development know as Central Coast Quarter Stage 2 at 26-30 Mann Street, Gosford, for compliance with the National Construction Code (NCC) 2022 provisions for Energy Efficiency under Section J. The objective of the NCC Section J is to reduce greenhouse gas emissions by efficiently using energy in buildings. The assessments contained within this report relate to the DA stage of the development to Central Coast Council.

From the plans provided, the proposed development comprises two towers (36 and 42 storeys in height) above a retail podium (including pavilion building) with the following features:

- 4 Levels of basement car parking and building services
- Ground floor with car parking, restaurants, and building services
- For East Tower
    - Level 1 with retails and hotel services
    - Level 2 Lower with hotel lobby and services
    - Level 2 Upper with hotel lobby and residential communal spaces
    - Levels 3 and 4 with hotel meeting, bar and restaurants
    - Level 5 to Level 15 with hotel rooms
    - Level 16 with hotel pool and gym/amenities
    - Level 17 to Level 42 with residential apartments
- For South Tower
    - Level 1 with residential communal spaces, restaurants and café
    - Level 2 to Level 36 with residential apartments
- For Pavilion, Level 1 to Level 3 with hospitality retail

This report addresses the following sub-classifications for the proposed building:

- Carparks– Class 7a
- Residential Building– Class 2
- Hotel– Class 3
- Retail Areas, Restaurants and Cafes– Class 6
- Assembly areas – Class 9b

This requirement has been defined in Volume 1 of the 2022 NCC under Section J and is titled Energy Efficiency. Several Deemed-to-Satisfy subsections focus on separate aspects of energy efficiency.

- J4 - Building fabric
- J5 - Building sealing
- J6 - Air-conditioning and ventilation
- J7 - Artificial light and power
- J8 - Heated water supply and swimming pool and spa pool plant

- J9 - Energy monitoring and on-site distributed energy resources

The NCC currently defines the development area as climate zone 5. This report covers the NCC Section J requirements of the hotel and other non-residential components.

SLR recommends the following to the building fabrics to comply with NCC 2022 Section J:

- Roof and ceiling insulation requirements have been specified within Table 1. The total R-value of the roof system is required to be R3.7 where specified in Appendix A.
- Floor insulation requirements have been specified within Table 6. The total R-value of the floor system is required to be R2.0 where specified in Appendix B.
- Wall-glazing requirements and wall requirements have been specified within Table 4 and Table 5.
    - The total R-value of the external wall system is required to be R2.0 for external walls where specified in Appendix C.
    - The total R-value of the internal wall system is required to be R2.0 for internal walls where specified in Appendix C

This report contains requirements for building sealing, air conditioning, artificial lighting, hot water supply, and the Facilities for Energy Monitoring.

This report has provided advice about each subsection under Section J and identified how compliance with the NCC can be achieved regarding the proposed building. The architect and services designers must specify and document compliant constructions showing NCC Section J requirements are met.

10.0 Feedback

At SLR, we are committed to delivering professional quality service to our clients. We are constantly looking for ways to improve the quality of our deliverables and our service to our clients. Client feedback is a valuable tool in helping us prioritise services and resources according to our client needs.

To achieve this, your feedback on the team's performance, deliverables and service are valuable and SLR welcome all feedback via https://www.slrconsulting.com/en/feedback. We recognise the value of your time and we will make a $10 donation to our Charity Partner - Lifeline, for every completed form.

Appendix A NCC 2022 roof/ceiling insulation requirements

Central Coast Quarter Stage 2

Section J Assessment – Deemed to Satisfy

UPG Waterfront Pty Ltd

SLR Project No.: 610.033109.00000.00001

15 December 2025

A.1 NCC 2022 Roof/Ceiling Insulation Requirements

Figure 11: Representative Architectural Plan Views of the Development

Figure 12 Ground Level

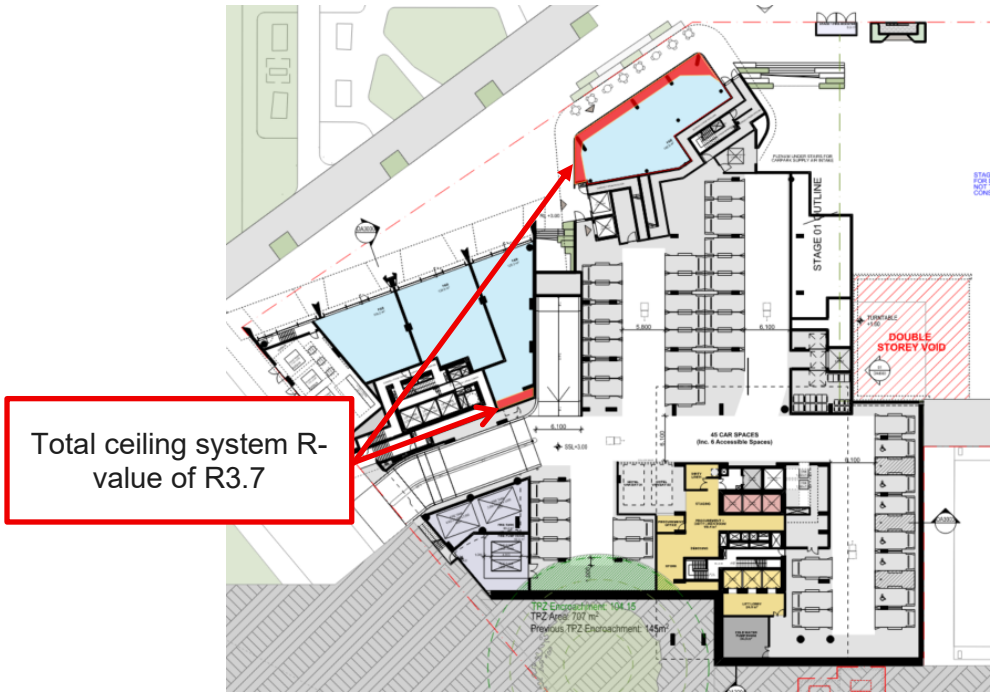


Figure 13 Level 1

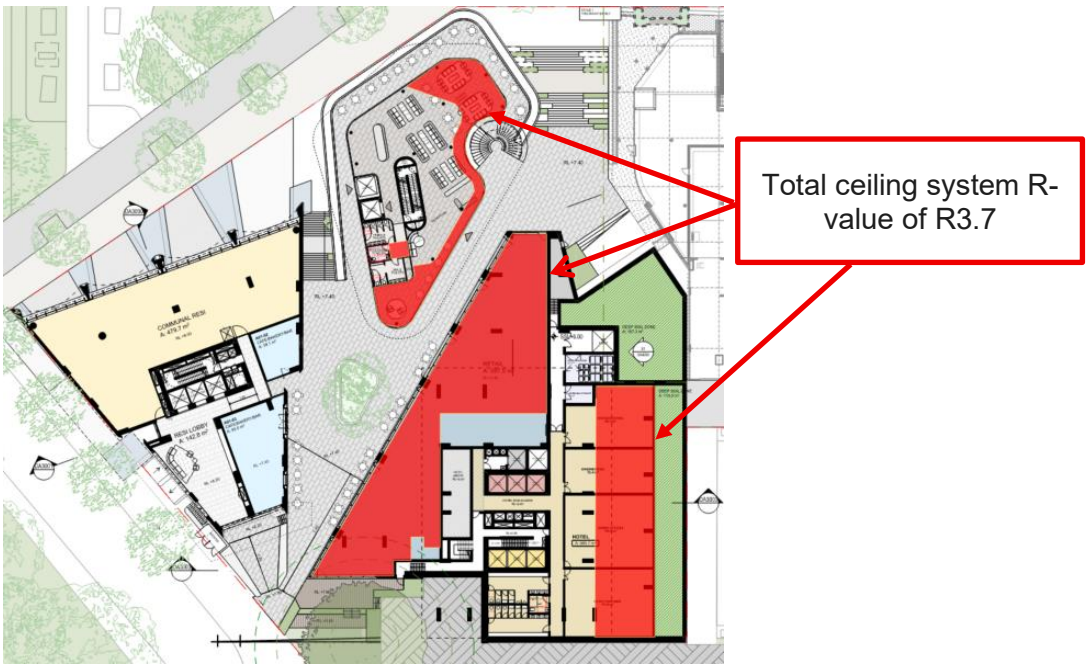


Figure 14 Pavilion Level 02 Upper

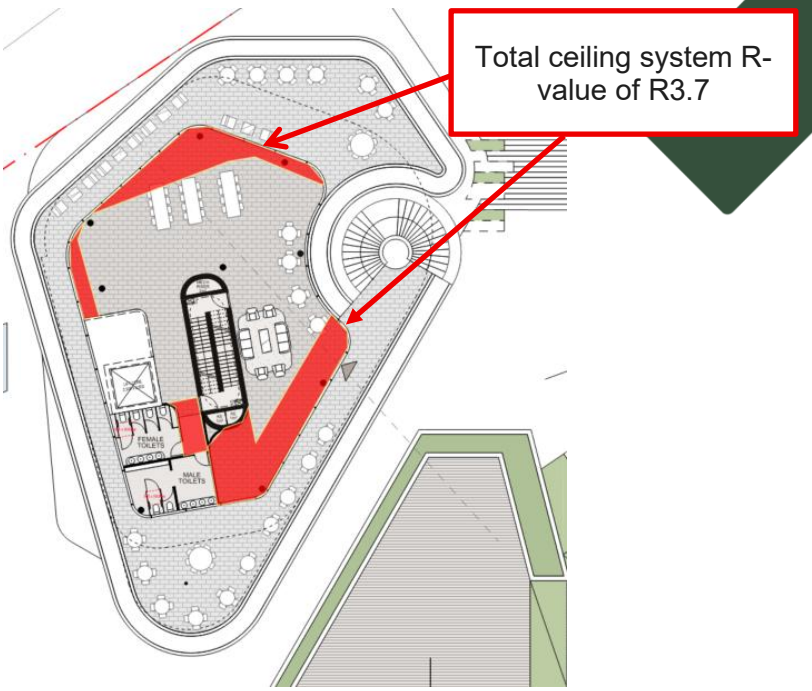


Figure 15 Pavilion Level 02 Upper

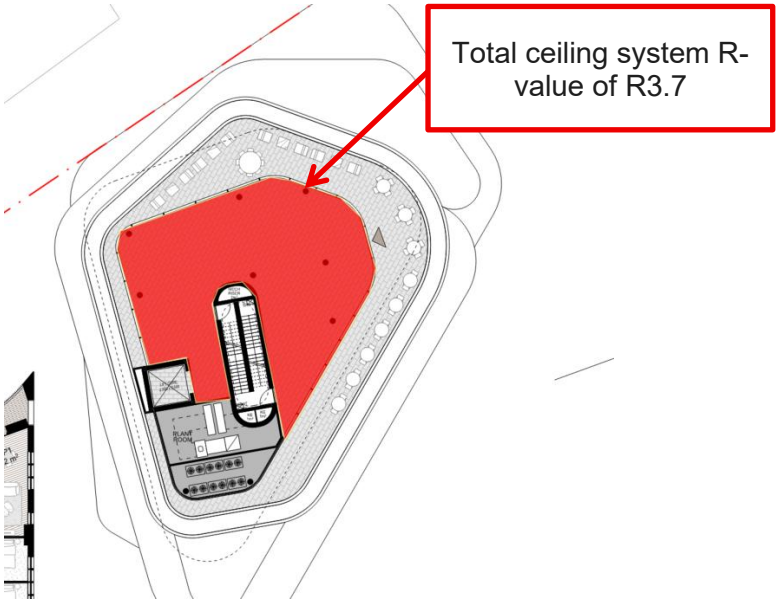


Figure 16 East Tower Level 04

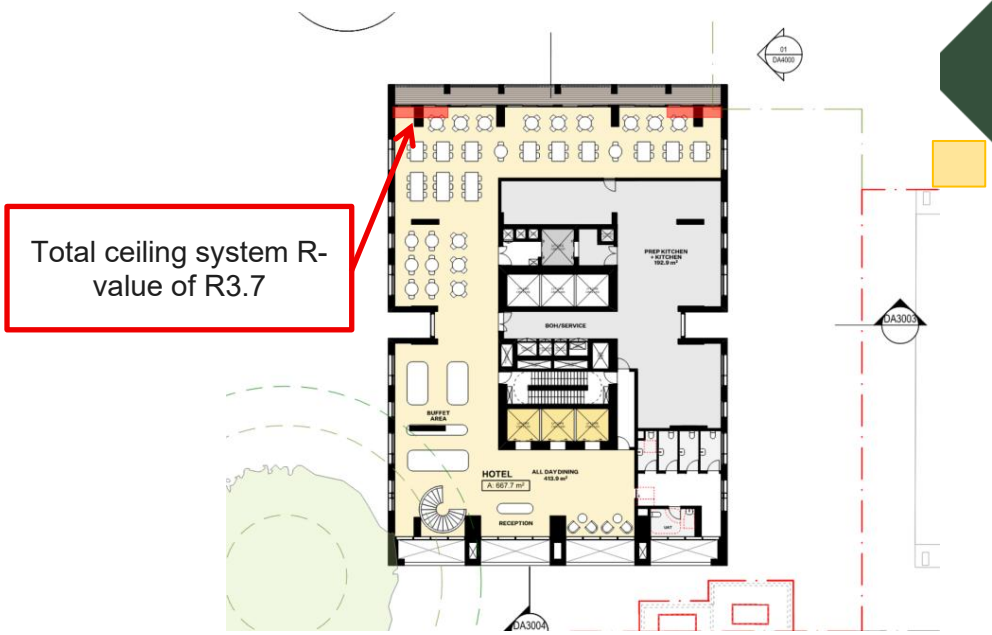


Figure 17 East Tower Level 14

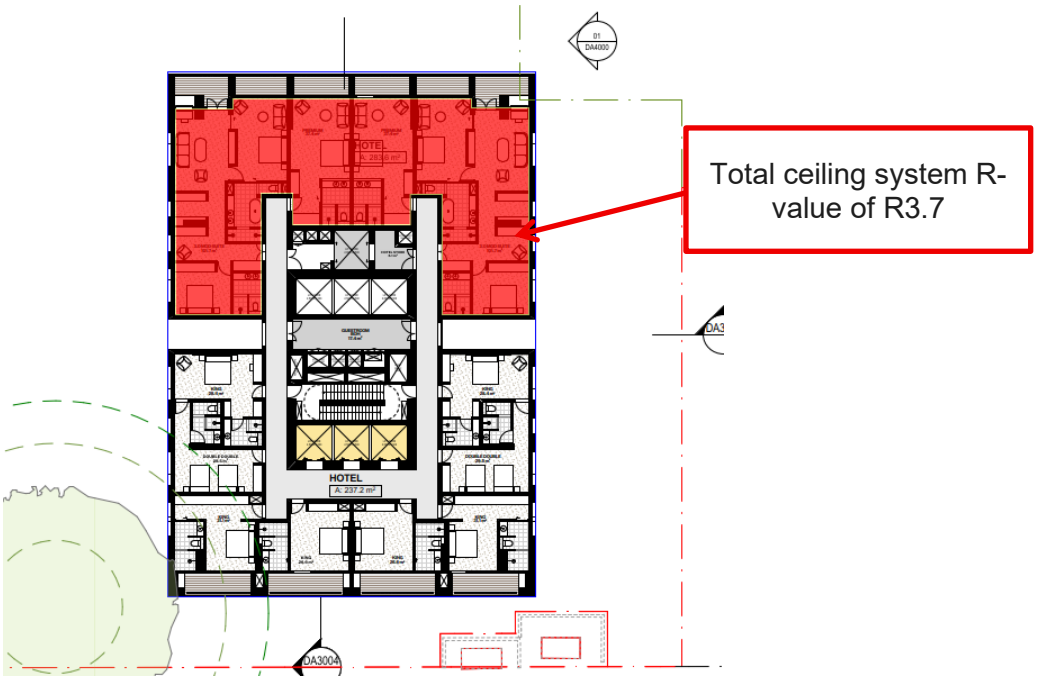
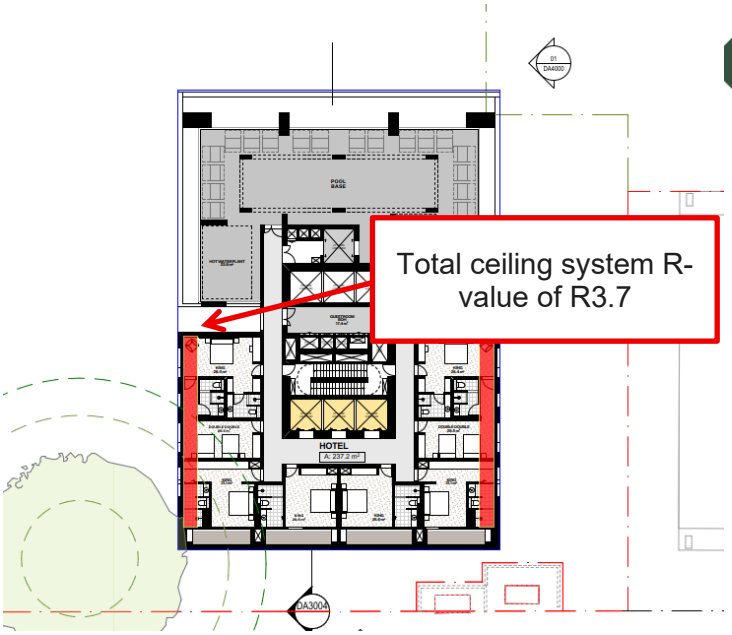


Figure 18 East Tower Level 15



Appendix B NCC 2022 envelope floor DTS requirements

Central Coast Quarter Stage 2

Section J Assessment – Deemed to Satisfy

UPG Waterfront Pty Ltd

SLR Project No.: 610.033109.00000.00001

15 December 2025

B.1 NCC 2022 Envelope Floor DTS Requirements

Figure 19 Ground Level

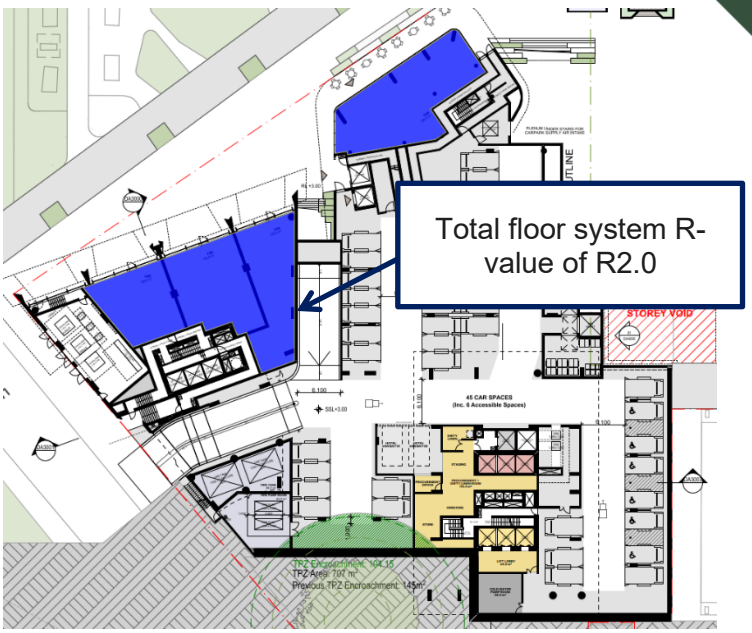


Figure 20 Level 01

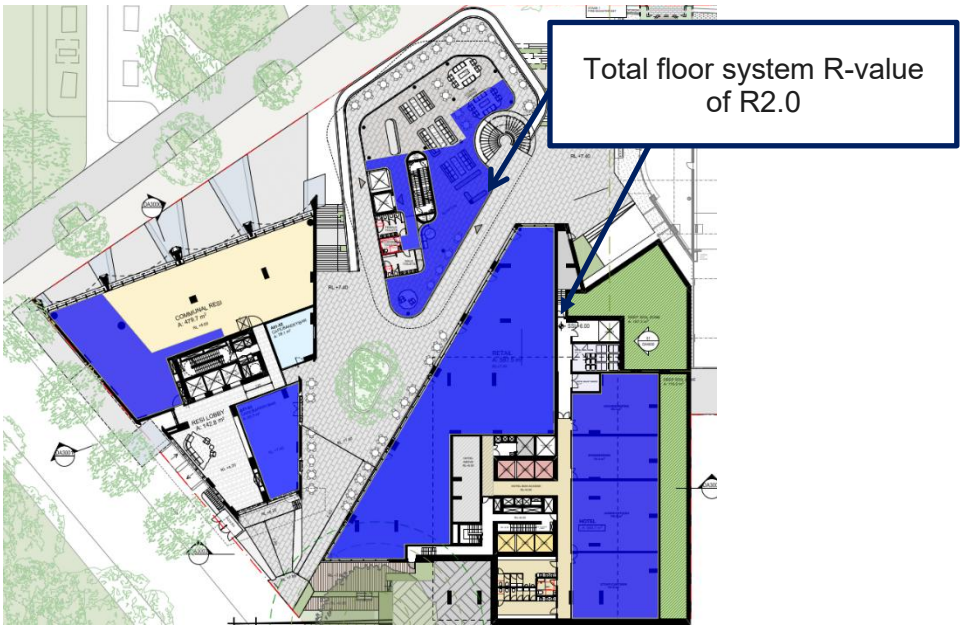


Figure 21 East Tower Level 02 Lower

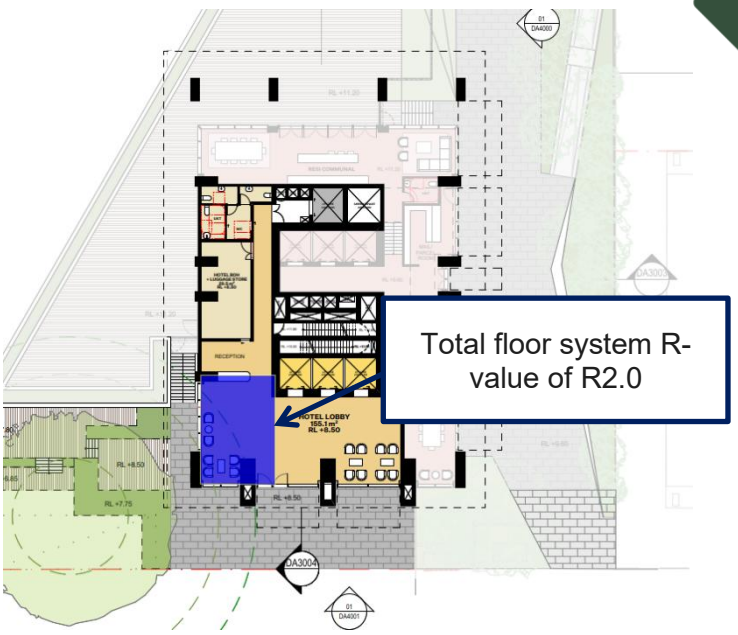


Figure 22 Pavilion Level 02 Upper

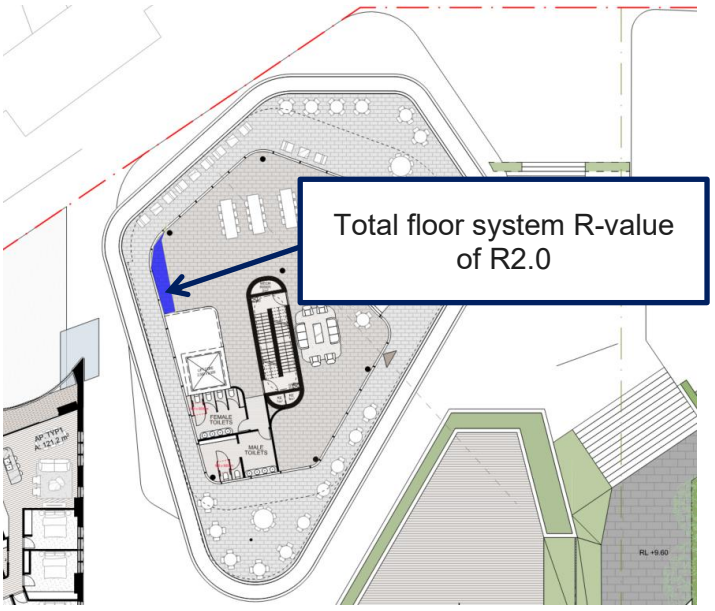


Figure 23 Level 03

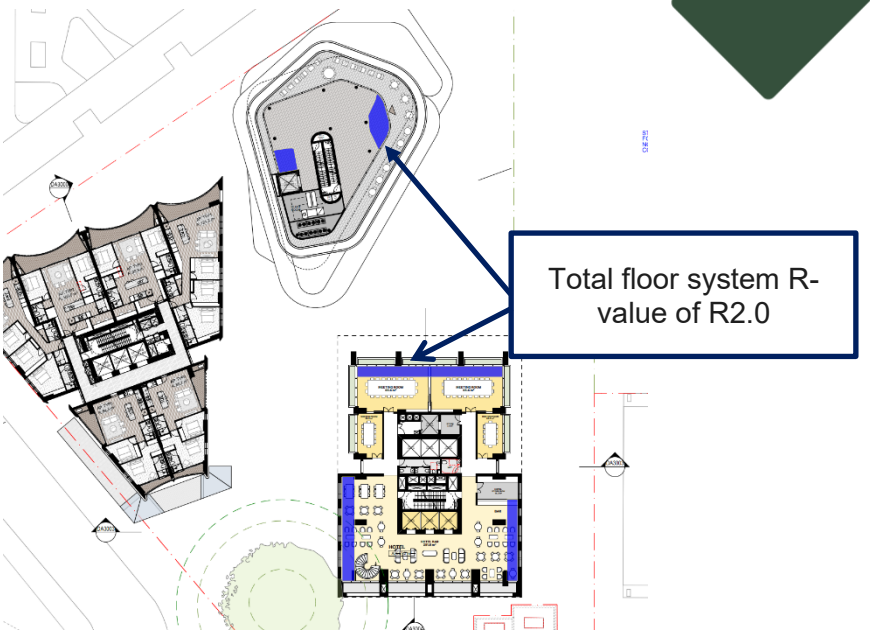


Figure 24 Level 04

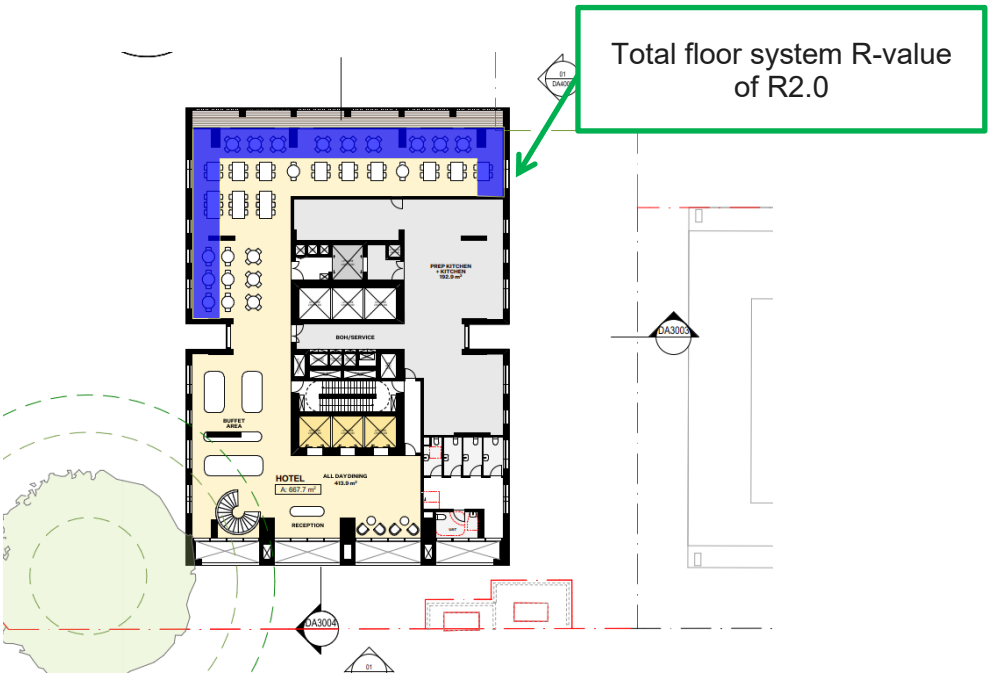
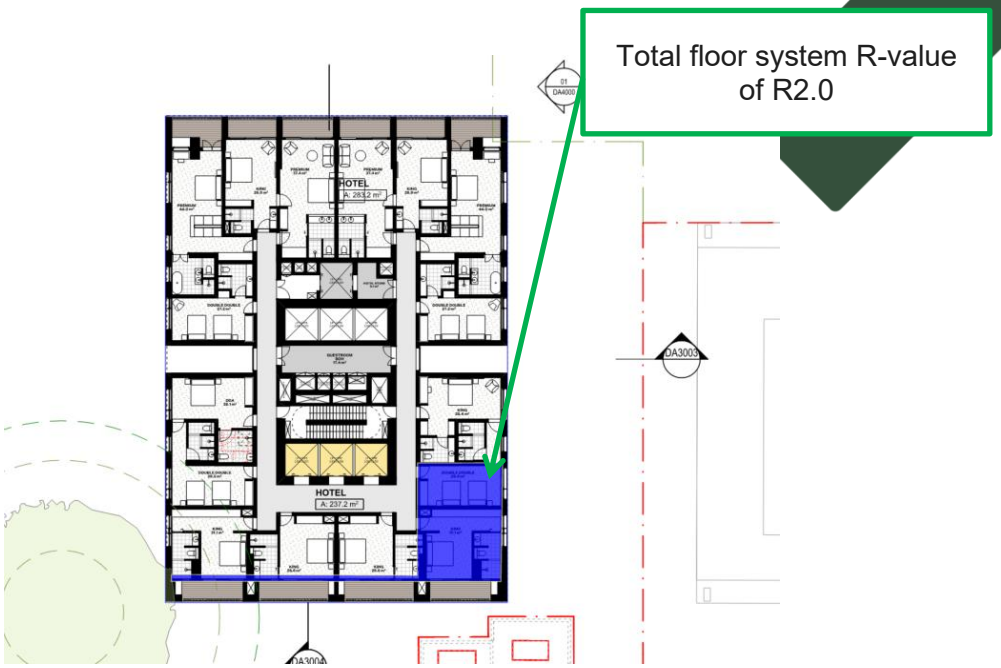


Figure 25 Level 05



Appendix C Marked-up drawing for and NCC 2022 wall-glazing calculator DTS requirements external wall

Central Coast Quarter Stage 2

Section J Assessment – Deemed to Satisfy

UPG Waterfront Pty Ltd

SLR Project No.: 610.033109.00000.00001

15 December 2025

C.1 Marked-up drawing for external wall and NCC 2022 wall-glazing calculator DTS requirements

Figure 26: Representative Architectural Plan Views of the development

Figure 27 Ground Level

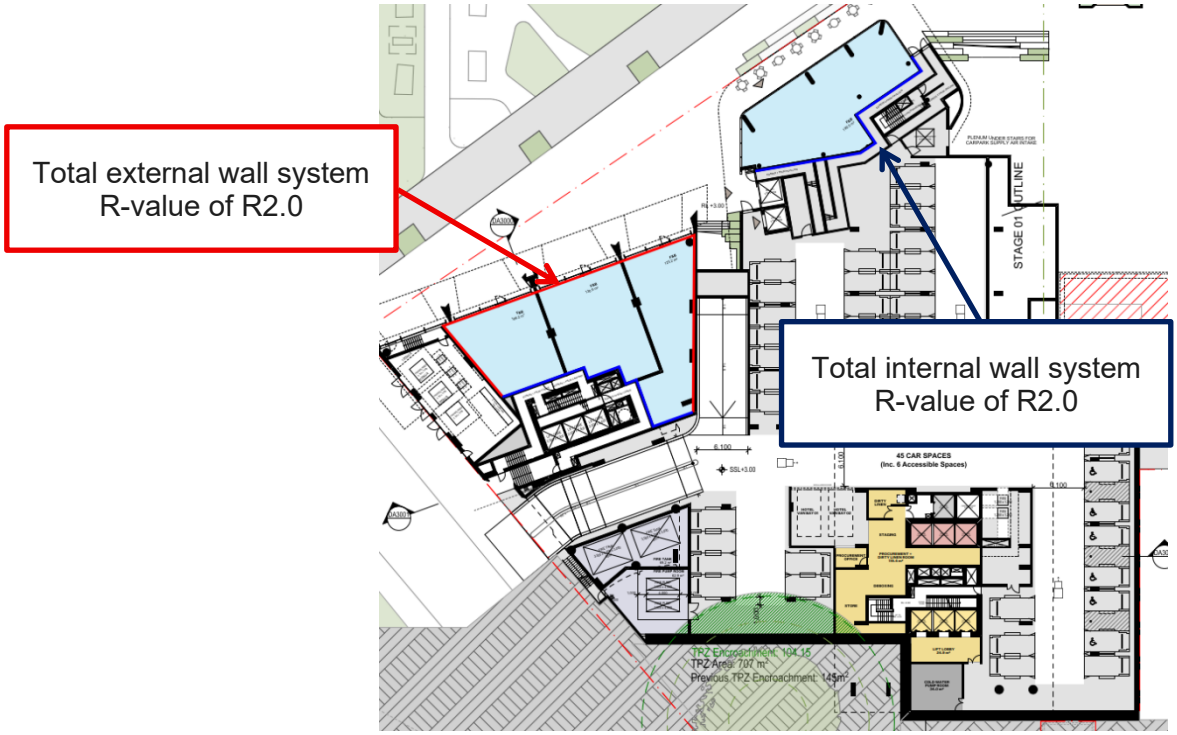


Figure 28 Level 01

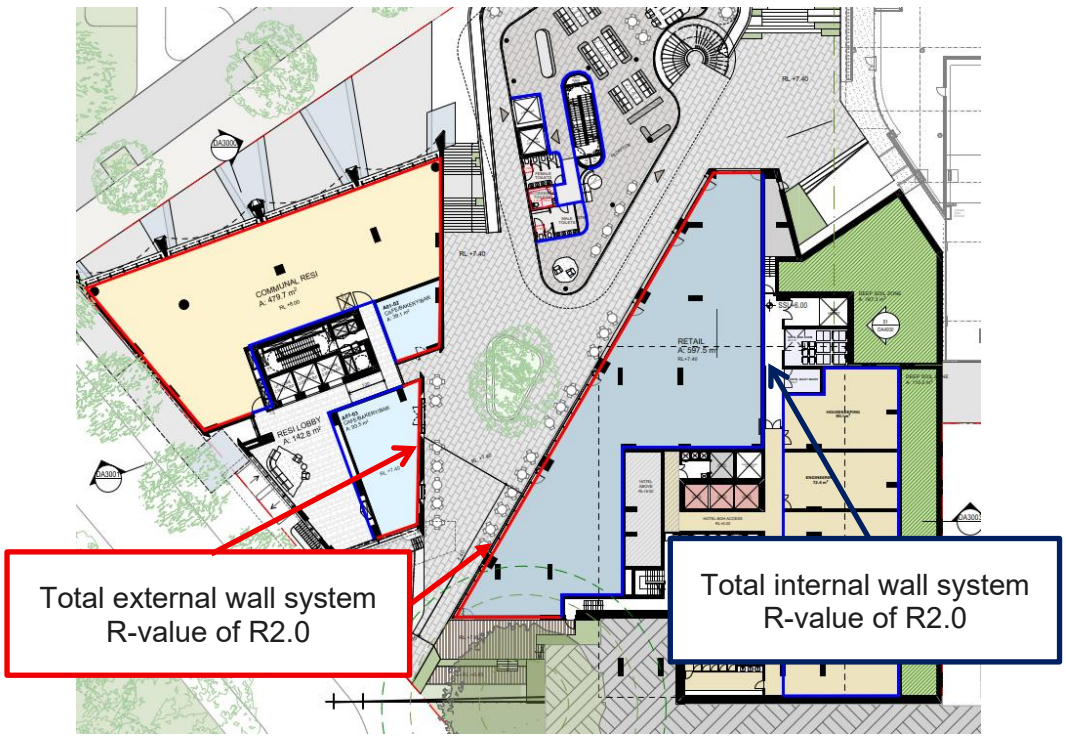


Figure 29 East Tower Level 02 Lower

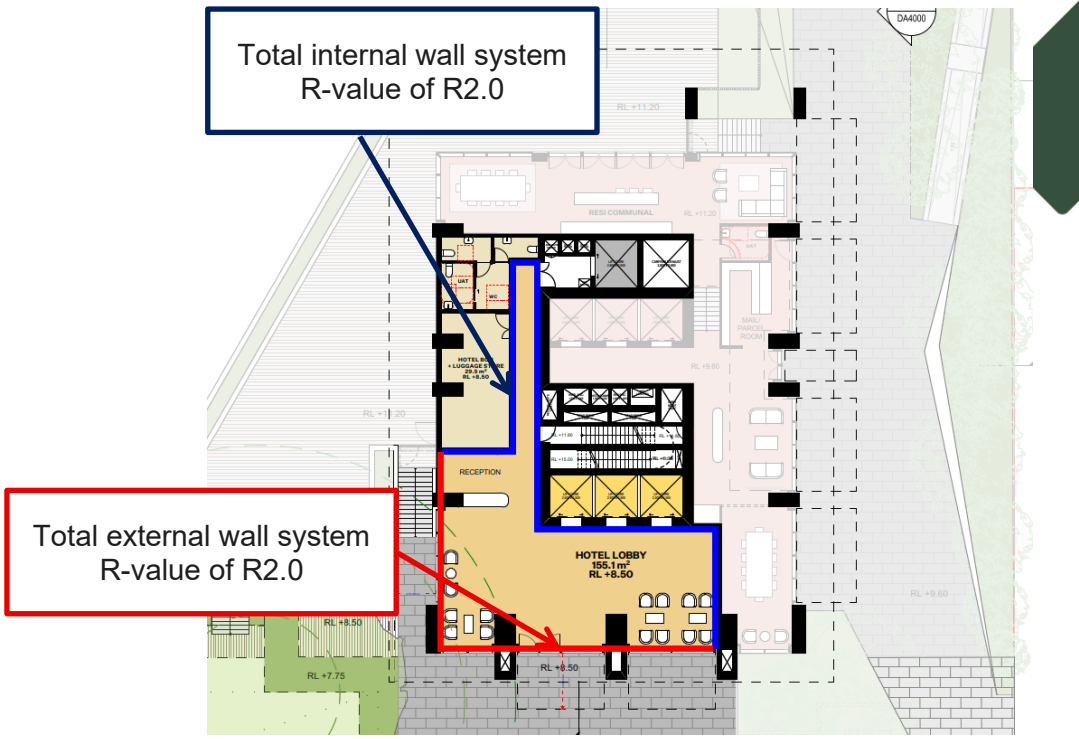


Figure 30 Level 02 Upper

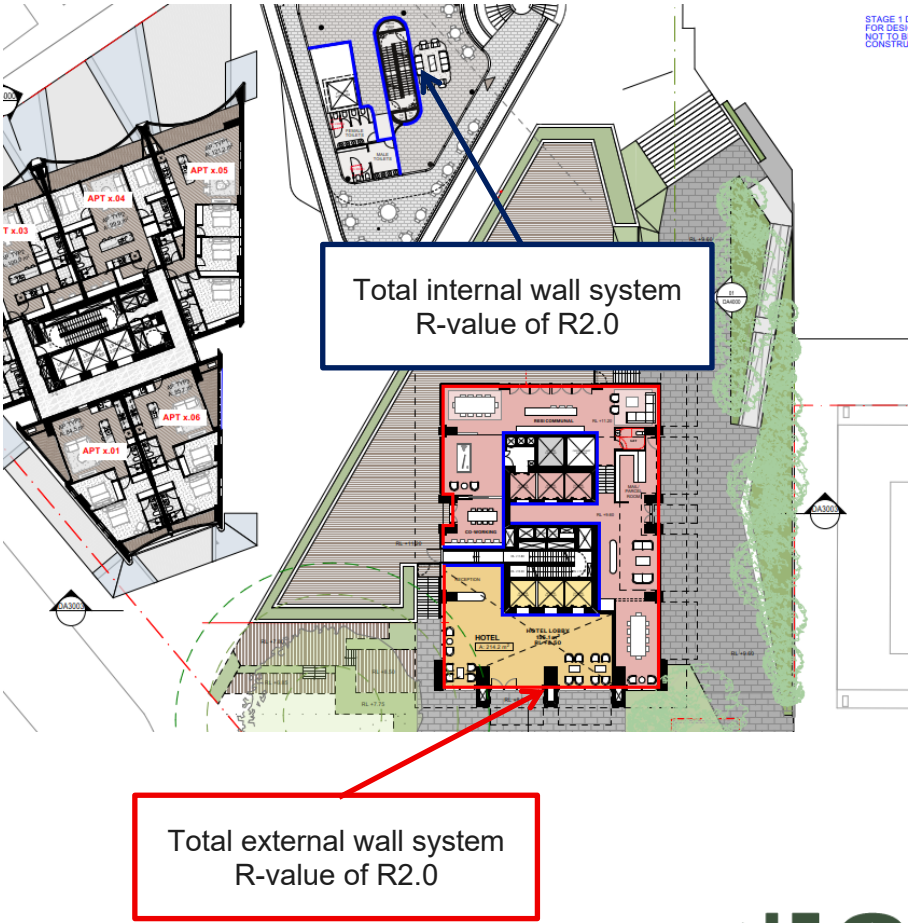


Figure 31 Level 03

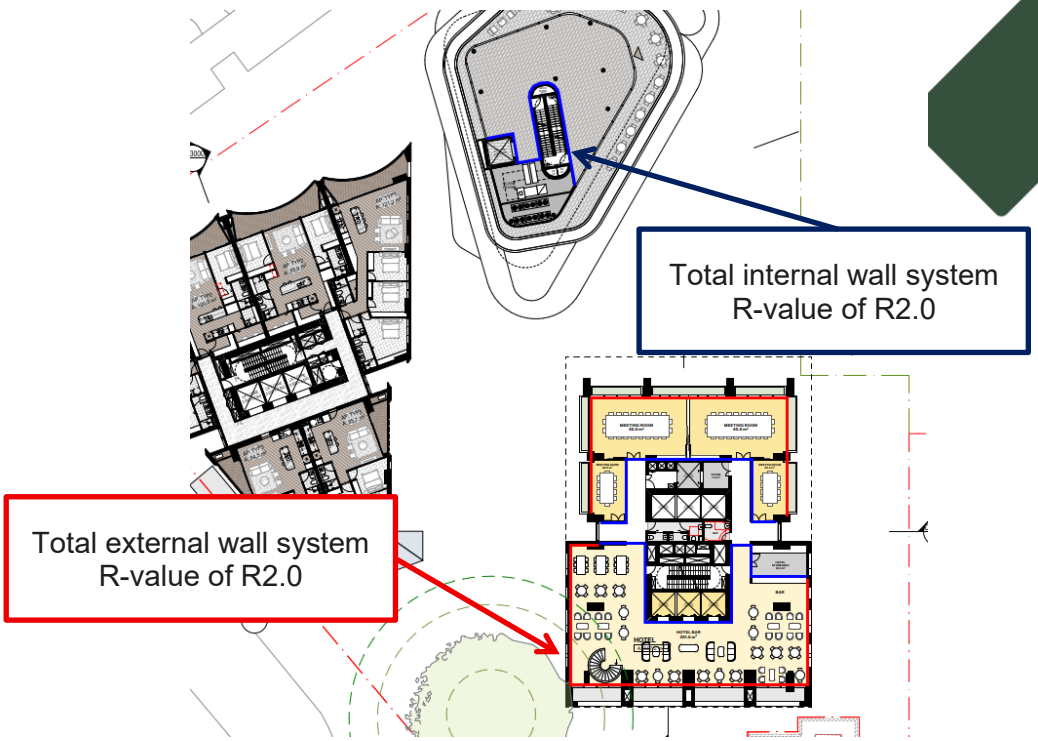


Figure 32 East Tower Level 04

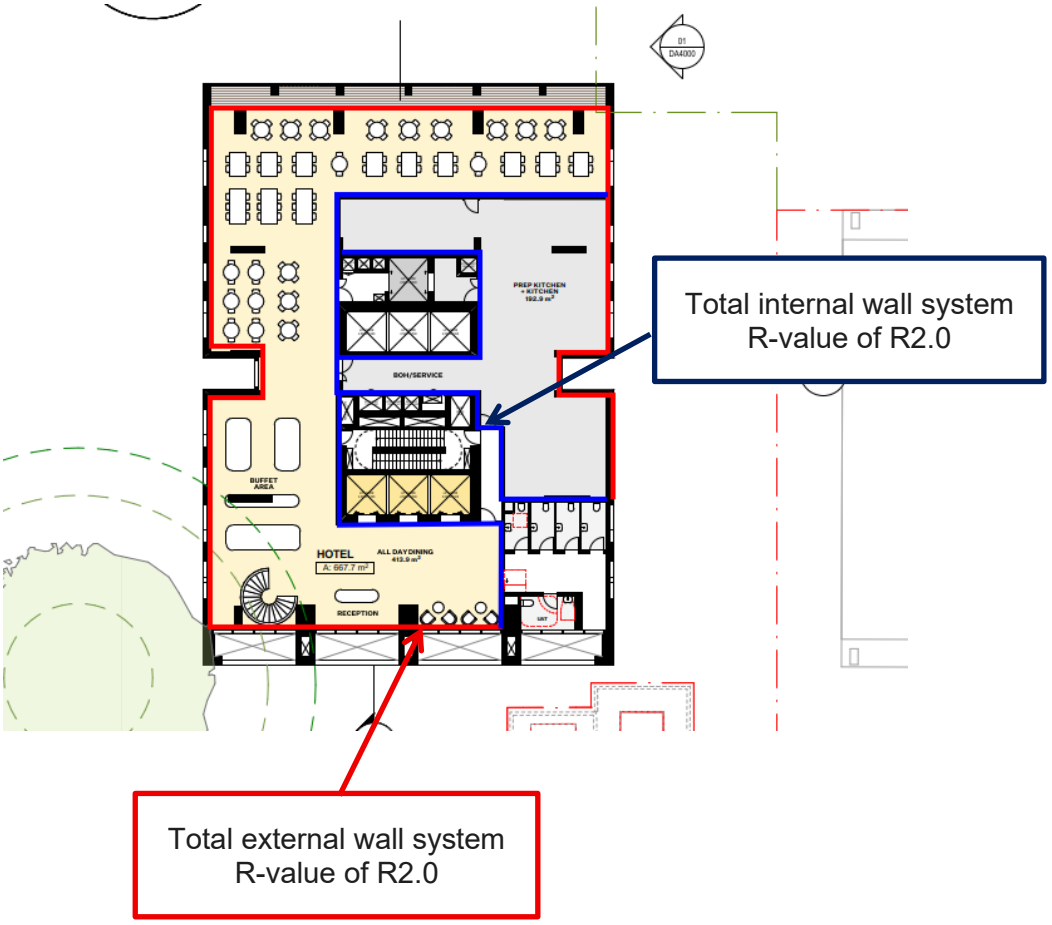


Figure 33 East Tower Level 05

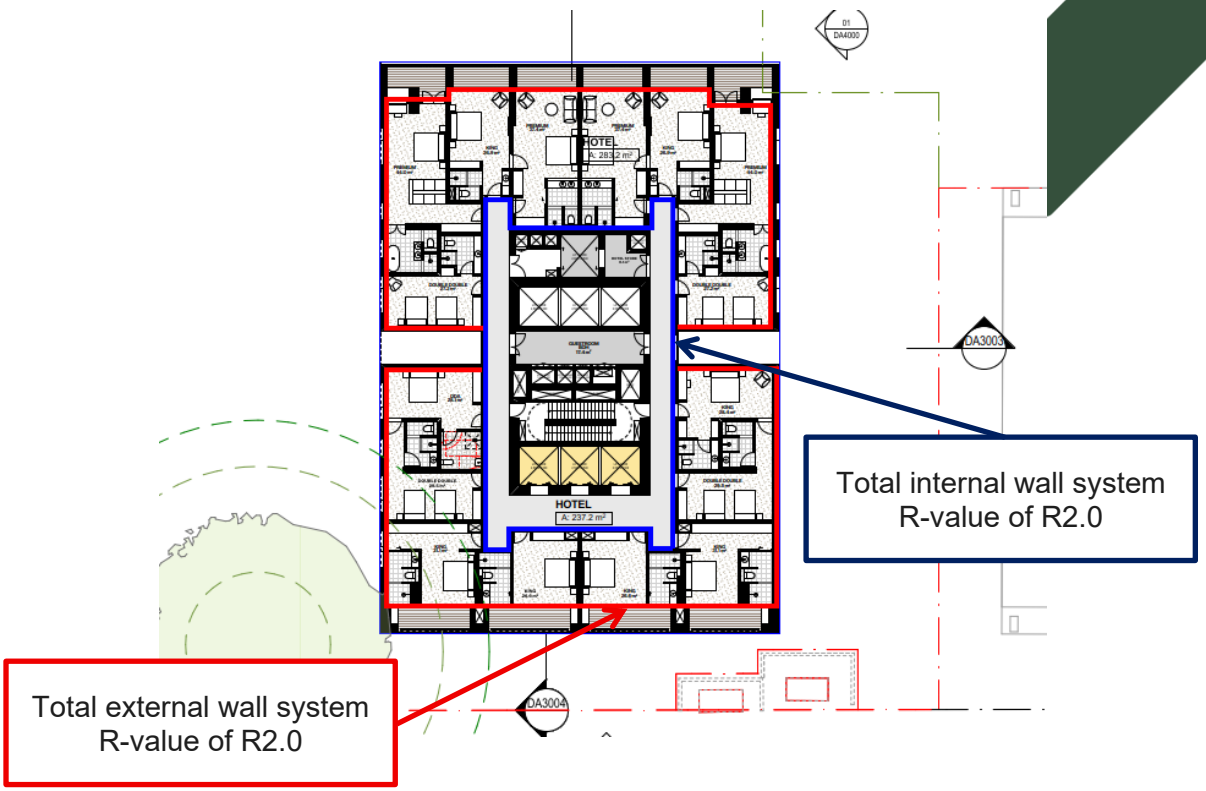
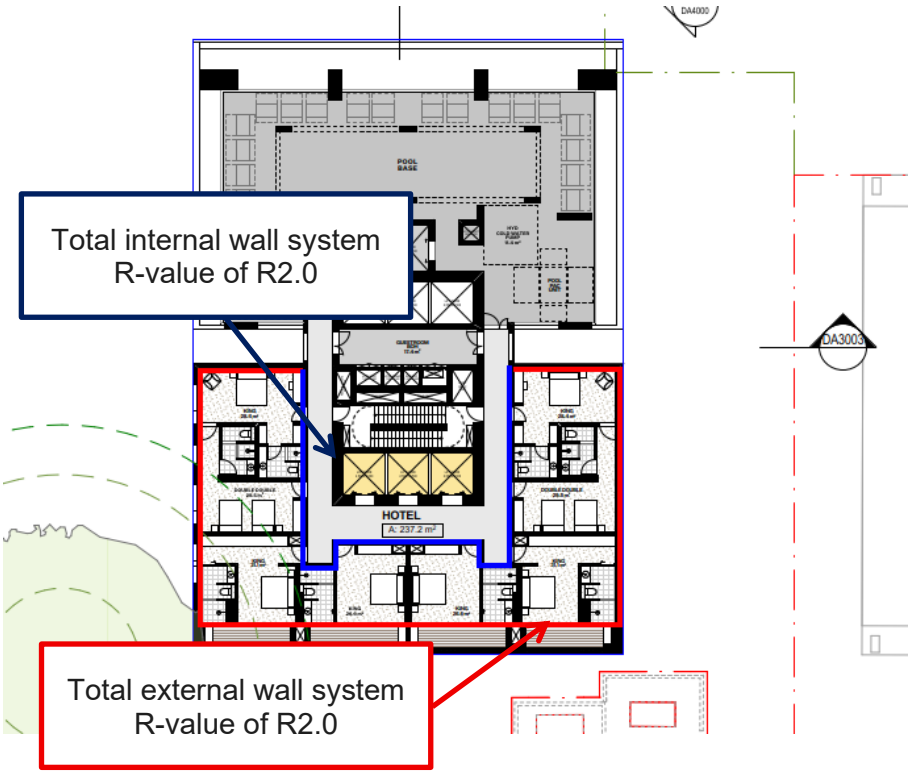


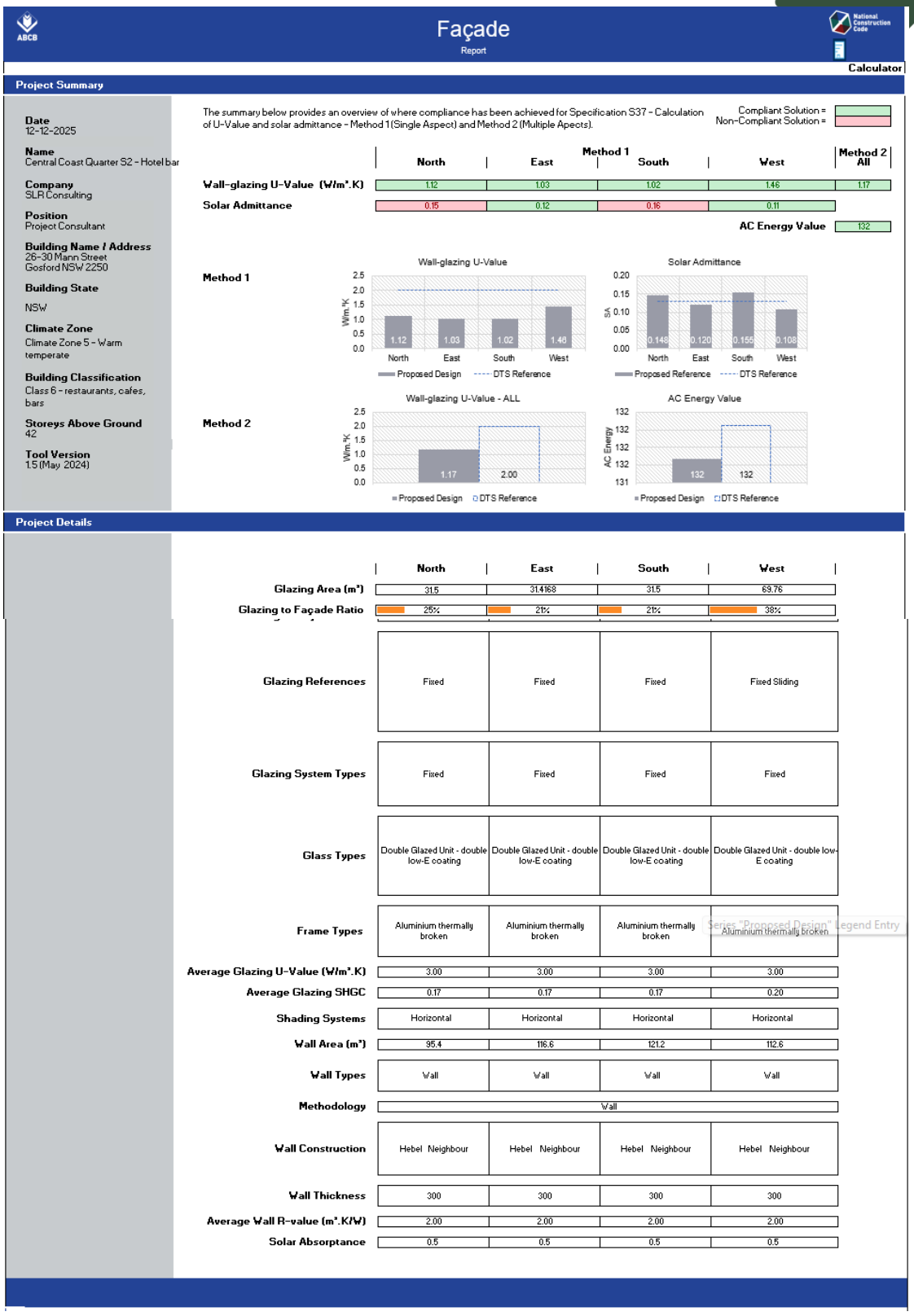
Figure 34 East Tower Level 15



Appendix D Glazing Calculator

D.1 Glazing calculators

Figure 35:Calculation of U value and solar admittance for East Tower Level 3 and 4 Bar & Restaurant Façade calculator-NCC-Volume-One- 2022



Façade
Report
Calculator

Project Summary

Date 12-12-2025
Name Central Coast Quarter S2 - Hotel bar
Company SLR Consulting
Position Project Consultant
Building Name / Address 26-30 Mann Street Gosford NSW 2250
Building State NSW
Climate Zone Climate Zone 5 - Warm temperate
Building Classification Class 6 - restaurants, cafes, bars
Storeys Above Ground 42
Tool Version 1.5 (May 2024)

The summary below provides an overview of where compliance has been achieved for Specification S37 - Calculation of U-Value and solar admittance - Method 1 (Single Aspect) and Method 2 (Multiple Apects).

Compliant Solution =
Non-Compliant Solution =

	Method 1 North	East	South	West	Method 2 All
Wall-glazing U-Value (W/m².K)	1.12	1.03	1.02	1.46	1.17
Solar Admittance	0.15	0.12	0.16	0.11	
AC Energy Value					132

Method 1

Method 2

Project Details

	North	East	South	West
Glazing Area (m²)	31.5	31.4168	31.5	69.76
Glazing to Façade Ratio	25%	21%	21%	38%
Glazing References	Fixed	Fixed	Fixed	Fixed Sliding
Glazing System Types	Fixed	Fixed	Fixed	Fixed
Glass Types	Double Glazed Unit - double low-E coating	Double Glazed Unit - double low-E coating	Double Glazed Unit - double low-E coating	Double Glazed Unit - double low-E coating
Frame Types	Aluminium thermally broken	Aluminium thermally broken	Aluminium thermally broken	Aluminium thermally broken
Average Glazing U-Value (W/m².K)	3.00	3.00	3.00	3.00
Average Glazing SHGC	0.17	0.17	0.17	0.20
Shading Systems	Horizontal	Horizontal	Horizontal	Horizontal
Wall Area (m²)	95.4	116.6	121.2	112.6
Wall Types	Wall	Wall	Wall	Wall
Methodology	Wall			
Wall Construction	Hebel Neighbour	Hebel Neighbour	Hebel Neighbour	Hebel Neighbour
Wall Thickness	300	300	300	300
Average Wall R-value (m².K/W)	2.00	2.00	2.00	2.00
Solar Absorptance	0.5	0.5	0.5	0.5

Series "Proposed Design" Legend Entry

Figure 36:Calculation of U value and solar admittance for East Tower Retail , communal and Hotel admin Façade calculator-NCC-Volume-One- 2022

Façade

Report

Calculator

Project Summary

Date
12-12-2025

Name
Central Coast Quarter S2 - Hotel Communal

Company
SLR Consulting

Position
Project Consultant

Building Name / Address
26-30 Mann Street
Gosford NSW 2250

Building State
NSW

Climate Zone
Climate Zone 5 - Warm temperate

Building Classification
Mixed 2 - 2 common, 5, 6, 7, 8, 9b, 9a non-ward

Storeys Above Ground
42

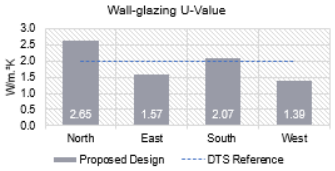
Tool Version
1.5 (May 2024)

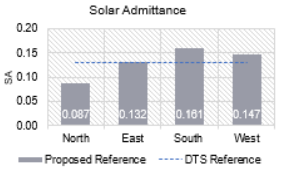
The summary below provides an overview of where compliance has been achieved for Specification S37 - Calculation of U-Value and solar admittance - Method 1 (Single Aspect) and Method 2 (Multiple Apects).

Compliant Solution =
Non-Compliant Solution =

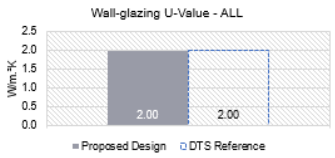
	Method 1 North	Method 1 East	Method 1 South	Method 1 West	Method 2 All
Wall-glazing U-Value (W/m².K)	2.65	1.57	2.07	1.39	2.00
Solar Admittance	0.09	0.13	0.16	0.15	
AC Energy Value					463

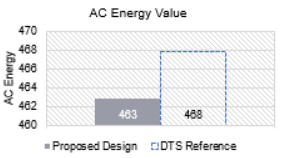
Method 1





Method 2



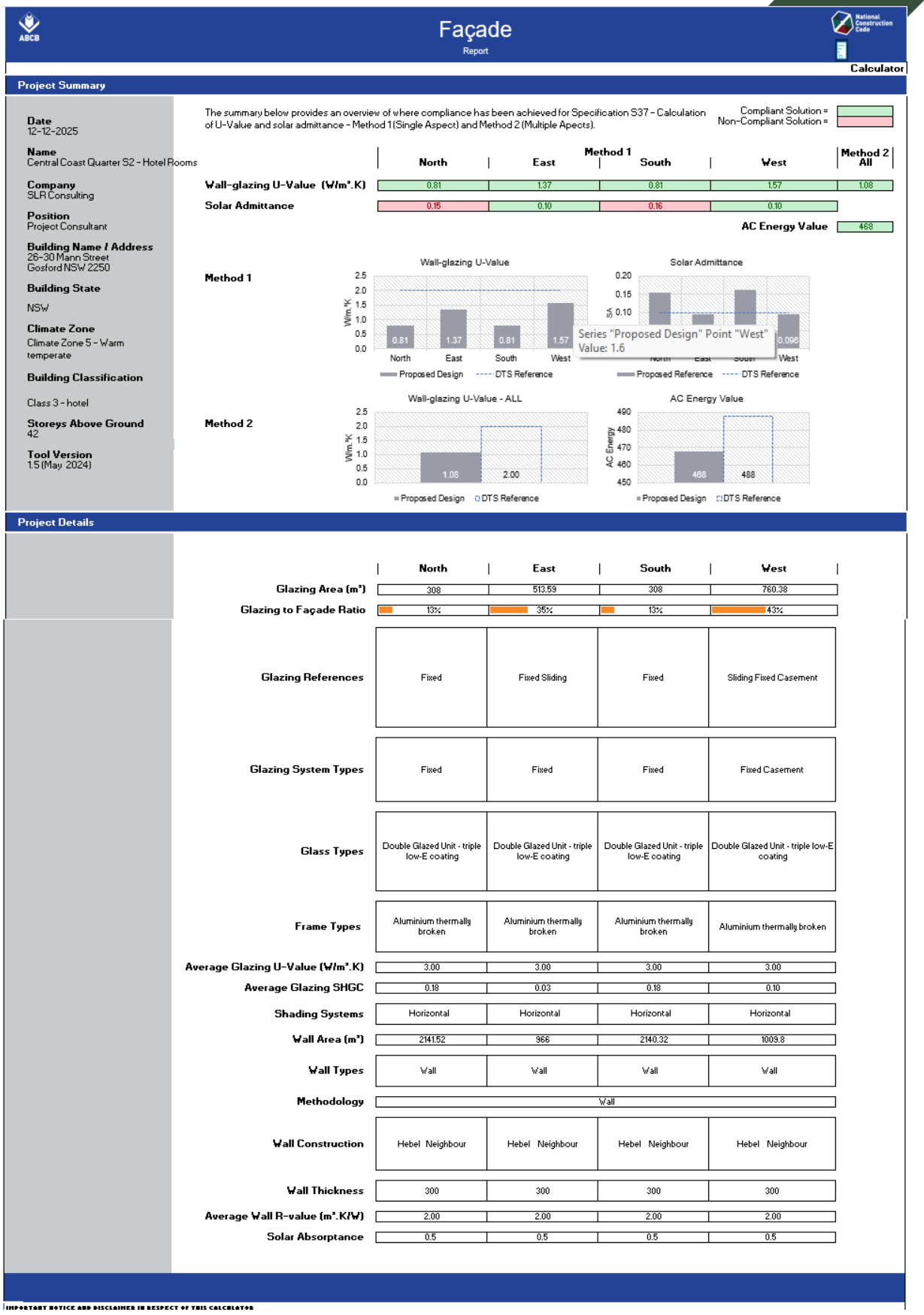


Project Details

	North	East	South	West
Glazing Area (m²)	298.08	172.64	480	65.28
Glazing to Façade Ratio	61%	31%	45%	25%
Glazing References	Fixed Casement	Fixed Casement	Fixed Casement	Fixed Casement
Glazing System Types	Fixed Casement	Fixed Casement	Fixed Casement	Fixed Casement
Glass Types	Double Glazed Unit - single low-E coating	Double Glazed Unit - single low-E coating	Double Glazed Unit - single low-E coating	Double Glazed Unit - single low-E coating
Frame Types	Aluminium thermally broken	Aluminium thermally broken	Aluminium thermally broken	Aluminium thermally broken
Average Glazing U-Value (W/m².K)	4.00	4.00	4.00	4.00
Average Glazing SHGC	0.22	0.10	0.11	0.08
Shading Systems	Horizontal	Horizontal	Horizontal	Horizontal
Wall Area (m²)	188.24	392.4	589.7	190.8
Wall Types	Wall	Wall	Wall	Wall
Methodology	Wall			
Wall Construction	Hebel Neighbour	Neighbour Hebel	Hebel Neighbour	Hebel Neighbour
Wall Thickness	300	300	300	300
Average Wall R-value (m².K/W)	2.00	2.00	2.00	2.00
Solar Absorptance	0.5	0.5	0.5	0.5

IMPORTANT NOTICE AND DISCLAIMER IN RESPECT OF THIS CALCULATOR

Figure 37:Calculation of U value and solar admittance for Hotel rooms Façade calculator-NCC-Volume-One- 2022



ABCB

Façade

Report

National Construction Code

Calculator

Project Summary

Date
12-12-2025

Name
Central Coast Quarter S2 - Hotel Rooms

Company
SLR Consulting

Position
Project Consultant

Building Name / Address
26-30 Mann Street
Gosford NSW 2250

Building State
NSW

Climate Zone
Climate Zone 5 - Warm temperate

Building Classification
Class 3 - hotel

Storeys Above Ground
42

Tool Version
1.5 (May 2024)

The summary below provides an overview of where compliance has been achieved for Specification S37 - Calculation of U-Value and solar admittance - Method 1 (Single Aspect) and Method 2 (Multiple Apects).

Compliant Solution =
Non-Compliant Solution =

	Method 1 North	East	South	West	Method 2 All
Wall-glazing U-Value (W/m².K)	0.81	1.37	0.81	1.57	1.08
Solar Admittance	0.15	0.10	0.16	0.10	
AC Energy Value					468

Method 1

Method 2

Project Details

	North	East	South	West
Glazing Area (m²)	308	513.59	308	760.38
Glazing to Façade Ratio	13%	35%	13%	43%
Glazing References	Fixed	Fixed Sliding	Fixed	Sliding Fixed Casement
Glazing System Types	Fixed	Fixed	Fixed	Fixed Casement
Glass Types	Double Glazed Unit - triple low-E coating	Double Glazed Unit - triple low-E coating	Double Glazed Unit - triple low-E coating	Double Glazed Unit - triple low-E coating
Frame Types	Aluminium thermally broken	Aluminium thermally broken	Aluminium thermally broken	Aluminium thermally broken
Average Glazing U-Value (W/m².K)	3.00	3.00	3.00	3.00
Average Glazing SHGC	0.18	0.03	0.18	0.10
Shading Systems	Horizontal	Horizontal	Horizontal	Horizontal
Wall Area (m²)	2141.52	966	2140.32	1009.8
Wall Types	Wall	Wall	Wall	Wall
Methodology	Wall			
Wall Construction	Hebel Neighbour	Hebel Neighbour	Hebel Neighbour	Hebel Neighbour
Wall Thickness	300	300	300	300
Average Wall R-value (m².K/W)	2.00	2.00	2.00	2.00
Solar Absorptance	0.5	0.5	0.5	0.5

IMPORTANT NOTICE AND DISCLAIMER IN RESPECT OF THIS CALCULATOR

Figure 38:Calculation of U value and solar admittance for South Tower (Retails, Cafes and Communal areas) calculator-NCC-Volume-One- 2022

Façade

Report

Calculator

Project Summary

Date
12-12-2025

Name
Central Coast Quarter S2

Company
SLR Consulting

Position
Project Consultant

Building Name / Address
26-30 Mann Street
Gosford NSW 2250

Building State
NSW

Climate Zone
Climate Zone 5 - Warm temperate

Building Classification
Mixed 2 - 2 common, 5, 6, 7, 8, 9b, 9a non-ward

Storeys Above Ground
42

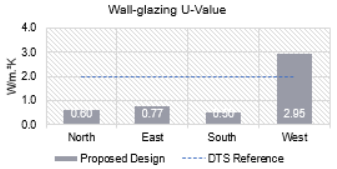
Tool Version
1.5 (May 2024)

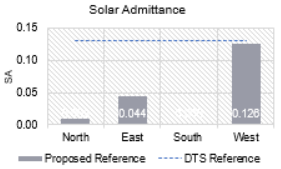
The summary below provides an overview of where compliance has been achieved for Specification S37 - Calculation of U-Value and solar admittance - Method 1 (Single Aspect) and Method 2 (Multiple Apects).

Compliant Solution =
Non-Compliant Solution =

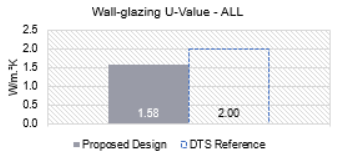
	Method 1				Method 2
	North	East	South	West	All
Wall-glazing U-Value (W/m².K)	0.60	0.77	0.50	2.95	1.58
Solar Admittance	0.01	0.04		0.13	
AC Energy Value					74

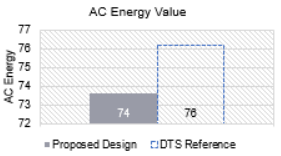
Method 1





Method 2





Project Details

	North	East	South	West
Glazing Area (m²)	8.12	12.72	0	328.76
Glazing to Façade Ratio	4%	11%	0%	98%
Glazing References	Fixed Casement	Fixed Casement		Fixed Casement
Glazing System Types	Fixed Casement	Fixed Casement		Fixed Casement
Glass Types	Double Glazed Unit - double low-E coating	Double Glazed Unit - double low-E coating		Double Glazed Unit - double low-E coating
Frame Types	Aluminium thermally broken	Aluminium thermally broken		
Average Glazing U-Value (W/m².K)	3.00	3.00		3.00
Average Glazing SHGC	0.21	0.16	0.00	0.25
Shading Systems	Horizontal	Horizontal	Horizontal	Horizontal
Wall Area (m²)	204.7	104.2	145.3	6.1
Wall Types	Wall	Wall	Wall	Wall
Methodology	Wall			
Wall Construction	Hebel Neighbour	Neighbour Hebel	Hebel Neighbour	Hebel Neighbour
Wall Thickness	300	300	300	300
Average Wall R-value (m².K/W)	2.00	2.00	2.00	2.00
Solar Absorptance	0.5	0.5	0.5	0.5

IMPORTANT NOTICE AND DISCLAIMER IN RESPECT OF THIS CALCULATOR

Figure 39:Calculation of U value and solar admittance for Pavilion Façade calculator- NCC-Volume-One- 2022

ABCB

Façade

Report

National Construction Code

Calculator

Project Summary

Date
12-12-2025

Name
Central Coast Quarter S2 - West tower

Company
SLR Consulting

Position
Project Consultant

Building Name / Address
26-30 Mann Street
Gosford NSW 2250

Building State
NSW

Climate Zone
Climate Zone 5 - Warm temperate

Building Classification
Class 6 - restaurants, cafes, bars

Storeys Above Ground
42

Tool Version
1.5 (May 2024)

The summary below provides an overview of where compliance has been achieved for Specification S37 - Calculation of U-Value and solar admittance - Method 1 (Single Aspect) and Method 2 (Multiple Apects).

Compliant Solution =
Non-Compliant Solution =

	Method 1 North	Method 1 East	Method 1 South	Method 1 West	Method 2 All
Wall-glazing U-Value (W/m².K)	2.10	1.31	1.26	2.63	1.88
Solar Admittance	0.10		0.16	0.10	
AC Energy Value					173

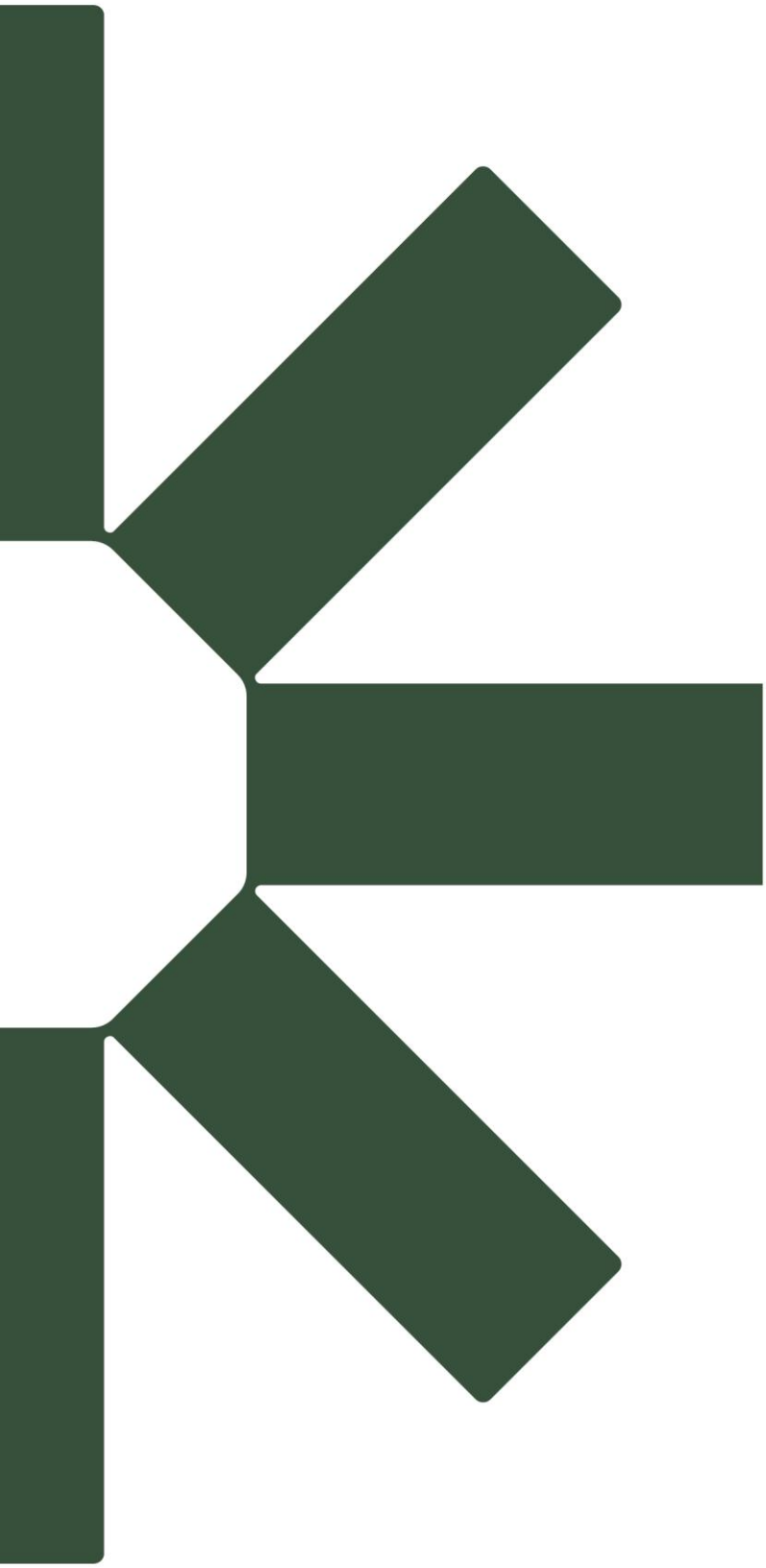
Method 1

Method 2

Project Details

	North	East	South	West
Glazing Area (m²)	144.16	82.96	102	345.1
Glazing to Façade Ratio	64%	32%	31%	85%
Glazing References	Fixed	Fixed	Fixed	Fixed
Glazing System Types	Fixed	Fixed	Fixed	Fixed
Glass Types	Double Glazed Unit - double low-E coating	Double Glazed Unit - double low-E coating	Double Glazed Unit - double low-E coating	Double Glazed Unit - double low-E coating
Frame Types	Aluminium thermally broken	Aluminium thermally broken	Aluminium thermally broken	Aluminium thermally broken
Average Glazing U-Value (W/m².K)	3.00	3.00	3.00	3.00
Average Glazing SHGC	0.13	0.00	0.10	0.15
Shading Systems	Horizontal	Horizontal	Horizontal	Horizontal
Wall Area (m²)	81.6	172.72	231.54	60
Wall Types	Wall	Wall	Wall	Wall
Methodology	Wall			
Wall Construction	Neighbour	Neighbour	Neighbour	Neighbour
Wall Thickness	300	300	300	300
Average Wall R-value (m².K/W)	2.00	2.00	2.00	2.00
Solar Absorptance	0.5	0.5	0.5	0.5

IMPORTANT NOTICE AND DISCLAIMER IN RESPECT OF THIS CALCULATOR



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