



efficient
LIVING



NCC 2022 Section J Deemed-to-Satisfy (DTS) Assessment

Moss Vale Road, Bomaderry -The Yards

Homa Advisory

To be built at Moss Vale Road, Bomaderry NSW 2541

Attention: Sahand Farooji
Company: Homa Advisory

Document Control

Issue	File Ref	Description	Author	Checked	Date
A	24-5729C	Section J DTS Assessment and report	RB	RB	28-June-2024



Sustainable Building Consultants

p. 02 9970 6181 e. admin@efficientliving.com.au
www.efficientliving.com.au

Contents

1.	Executive Summary.....	3
2.	Introduction	4
3.	Section J DTS Requirement Breakdown: Parts J4-J9.....	6
3.1.	J4 Building Fabric.....	6
3.2.	J5 Building Sealing.....	12
3.3.	J6 Air Conditioning and Ventilation Systems	13
3.4.	J7 Artificial Lighting and Power.....	13
3.5.	J8 Heated Water Supply and Swimming/Spa Pool Plant.....	16
3.6.	J9 Facilities for Energy Monitoring	17

Appendix

Appendix A: Conditioned space markups

Appendix B: Insulation markups

1. Executive Summary

The following tables provide a quick reference summary of the building fabric performance requirements for the development. The appendix at the end of this report shows the conditioned area mark-up and locations of required insulation.

Note: information in this table shall not relieve the reader of reviewing the performance requirements in the main body of this report.

Part J1 Building Fabric Performance Requirements

Fabric Element	Required Total System R-Value	Notes
Roofs/ Ceilings	R 3.20	NCC Section J 2022 DTS provisions limit external roof colour to a maximum solar absorptance of 0.45. See insulation options in body of report.
External Walls	R 1.40	With thermal bridging calculated in accordance with AS/NZS 4859.2. NCC Section J 2022 DTS provisions limit external wall colour to a maximum solar absorptance of 0.60. See insulation options in body of report.
Internal Walls	R 1.40	With thermal bridging calculated in accordance with AS/NZS 4859.2. See insulation options in body of report.
External Floors	R 2.00	No in-slab heating or cooling is proposed. R3.25 Required to floors with in slab heating/cooling system. See insulation options in body of report.
Floors to Unconditioned Spaces	R 2.00	No in-slab heating or cooling is proposed. R3.25 Required to floors with in slab heating/cooling system. See insulation options in body of report.

Part J4D6 Glazing Performance Requirements

Level/Location	Orientation	Maximum Total System U-Value	Maximum Total System SHGC
Display Glazing*	All	5.80	0.81
Building A – Service Centre	All	4.30	0.42
Building B – Boarding House	All	3.40	0.36
Building K - Childcare	All	4.20	0.56
Building K – Medical / Childcare	All	2.90	0.32
Building K – Communal Room	All	5.80	0.47
Building L – Workshop	All	5.80	0.81

*Display Glazing is classified as glazing used to display retail goods in a shop or showroom directly adjacent to a walkway or footpath, but not including that used in a café or restaurant.

Mark-ups showing locations where insulation should be applied are contained in Appendix B.

2. Introduction

Efficient Living has been engaged by Homa Advisory to determine what measures are required for the proposal to meet the 2022 National Construction Code (NCC) Section J requirements via *Deemed-to-Satisfy Provisions*.

Report Contact

<p>Prepared By:</p> <p>Consultant: Rishabh Babbar</p> <p>Phone: (02) 9970 6181</p> <p>Email: rishabh@efficientliving.com.au</p>	<p>Prepared For:</p> <p>Client Name: Sahand Farooji</p> <p>Phone: 0423 576 316</p> <p>Client Email: sahand.farooji@homa.network</p>
----------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------

Architectural Documents

<p>Documents prepared by: Sparc Development: Job No. SYB01 (Nominated Architect: David Dove)</p> <p>Drawing Reference: MP105[C], AA100[C], AA110[C], AA120[C], AA130[C], AA140[C], AA160[C], AA161[A], BA140[A] TO BA148[A], KA100[C], KA110[C], KA120[C], KA130[C], KA140[B], KA150[B], KA160[A], KA161[A], LA140[A] to LA145[A].</p> <p>Received: 15th May 2024</p>

Project Address & NCC Climate Zone

The proposal consists of a mixed use development proposal and is located at Moss Vale Road, Bomaderry NSW 2541 - within NCC Climate Zone 6.

Building Classes

The proposal consists of a masterplan project with: Multi residential units/apartments, Boarding House, Office tenancies, Retail tenancies, a childcare center and common amenities.

The following NCC building classifications apply:

- Class 2: Air-conditioned common areas including entry foyer, community rooms etc.
- Class 3: Boarding House
- Class 5: Managers Office
- Class 6: Ground floor retail
- Class 7a: Carpark
- Class 9b: Childcare

It should be understood that this report is a design report only and confirmation of the final built compliance is outside of the agreed scope of works. This report should be used as reference to ensure final built compliance and if construction is consistent with the referenced plans and specifications contained within this report Section J compliance shall be achieved.

Note: The residential portion of this proposal has not been assessed in this report, it is covered by BASIX.

Climate Zone Characteristics

Climate zone 5 – Temperate
Thermal treatment of the building envelope is beneficial in both hotter and colder weather. In summer, limiting heat gain can reduce the energy consumption of the cooling services. In winter, the building fabric can reduce the heat loss to the outside and can also promote solar heat gains through good orientation and treatment of glazing to offset the conductive heat losses.

Section J Part	Comment
Part J4 – Building Fabric	Performance requirements outlined in this report will achieve compliance with DTS provisions.
Part J5 – Building Sealing	DTS Compliance to be documented by Architect.
Part J6 – Air Conditioning and Ventilation	DTS Compliance to be documented by Services Engineer.
Part J7 – Artificial lighting and Power	DTS Compliance to be documented by Electrical Engineer.
Part J8 – Hot Water Supply and Swimming Pool and Spa Plant	DTS compliance to be documented by Hydraulics Engineer.
Part J9 – Energy Monitoring and On-site Distribution Energy Resources	DTS Compliance to be documented by Electrical Engineer.

Disclaimer

This report has been prepared in accordance with the agreed scope of work between Efficient Living and Homa Advisory. Efficient Living has acted diligently and employed all reasonable care in the preparation of this report. The information contained within is based upon the documents and information, accepted in good faith as being true and accurate, provided by the client, architects, and consultants. Should amendments occur to the documents referenced in this report, this may require an update or else non-compliance with the NCC Section J may result.

3. Section J DTS Requirement Breakdown: Parts J4-J9

The building envelope, for the purposes of the Section J, means the parts of the building fabric that separate a conditioned space or habitable room from -

- (a) the exterior of the building; or
- (b) a non-conditioned space including
 - (i) the floor of a rooftop plant room, lift machine room or the like; and
 - (ii) the floor above a carpark or warehouse; and
 - (iii) the common wall with a carpark, warehouse, or the like

3.1. J4 Building Fabric

The following requirements must be implemented in design:

J4D3 Thermal Construction - general

Insulation must be installed in compliance with AS/NZS 4859.1:

- adjoining insulation must abut / overlap and butt up against studs, joists, noggins, etc. where the insulation must be against the member;
- it must form a continuous barrier with ceilings, walls, bulkheads, floors or the like that inherently contribute to the thermal barrier
- must not interfere or affect the safe and effective operation of services or fittings.

Reflective insulation must be installed with:

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

Bulk insulation 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.
- in a ceiling, where there is no bulk insulation or reflective insulation in the wall beneath, it overlaps the wall by not less than 50mm.

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.

Total System Values;

- The required total wall-glazing system U-Value must achieve an average U2.0 across the entire system, which must account for thermal losses due to thermal bridging as per J1.2(e).
- The total System U-Value of the wall-glazing construction must not be greater than U1.1 For Class 3, 9a ward area & 9c in climate zones 1,3,4,6 or 7

Thermal Bridging

Thermal bridging is an unintended path of heat flow, using a path of least resistance through a building envelope between the outside and inside. Thermal bridges may occur where there is an interruption in the insulation (e.g., areas where insulation cannot be installed due to metal/timber frame members such as joists, studs, noggings, top plate, and bottom plate) or where materials with high thermal conductivity are used.

J4D4 Roof & Ceiling

Insulation should be applied to areas highlighted in Appendix B, to meet the total system R-value noted in the following table:

Fabric Element	Required Total System R-Value	Notes
Roofs	R3.20	External roof colour to a maximum solar absorptance of 0.45

The insulation provider / installer is responsible for ensuring that the type and location of insulation is fit for purpose in that; the total system values are achieved, and condensation risk is mitigated. See roof & ceiling indicative build up below:

Indicative build-up of concrete roof with suspended ceiling

Component	R-Value
Outdoor air film (7m/s)	0.03
Concrete Roof 200mm	0.14
Plasterboard, gypsum (10mm, 880 kg/m ³)	0.06
Indoor air film (still air)	0.16
Additional insulation required to achieve total system R-value	
Insulation advice: Assuming uninterrupted rigid board insulation installed under concrete soffit (no thermal bridging allowance).	R2.81 (Rigid board R value)

Indicative build-up of metal roof with raked ceiling and skillion roof less than 5° pitch

Component	R-Value
Outdoor air film (7m/s)	0.03
Metal Roof	0.00
Air Space (25mm to 50mm)	0.15
Plasterboard, gypsum (10mm, 880 kg/m ³)	0.06
Indoor air film (still air)	0.16
Additional insulation required to achieve total system R-value	
Insulation option 1: Bulk insulation - thermal bridging assumed at 12% with metal frame	R2.30 (Bulk Insulation required) + R1.80 Anticon Blanket
Insulation option 2: Uninterrupted Anticon Blanket installed (no thermal bridging allowance).	R2.80 Anticon Blanket

Thermal Breaks - Ceilings

In this case an Anticon blanket is assumed to be installed and therefore no thermal break is required.

J4D5 Roof Lights

There are no roof lights proposed to conditioned space

J4D6 Walls and Glazing

External Walls

Insulation should be applied to areas highlighted in Appendix B, to meet the total system R-value noted in the following table:

Fabric Element	Required Total System R-Value	Notes
External Walls	R1.40	With thermal bridging calculated in accordance with AS/NZS 4859.2.

The insulation provider / installer is responsible for ensuring that the type and location of insulation in all wall types and spandrel systems is fit for purpose in that; the total system values are achieved, and condensation risk is mitigated. See external wall indicative build up below:

Indicative build-up of brick veneer external walls

Component	R-Value
Outdoor air film (7m/s)	0.03
110mm clay brick (1950 kg/m ³ , 3.75kg/brick)	0.14
Airspace	0.16
Plasterboard, gypsum (10mm, 880 kg/m ³)	0.06
Indoor air film (still air)	0.12
Additional insulation required to achieve total system R-value	
Insulation option 1: Bulk insulation - thermal bridging assumed at 12% with metal frame.	R2.10 (Bulk insulation R-value)
Insulation option 2: Uninterrupted rigid board insulation (no thermal bridging allowance).	R1.10 (Rigid board R-value)

Indicative build-up of clad stud framed external walls

Component	R-Value
Outdoor air film (7m/s)	0.03
Metal/ lightweight cladding (assumed negligible R value)	0.00
Airspace	0.16
Plasterboard, gypsum (10mm, 880 kg/m ³)	0.06
Indoor air film (still air)	0.12
Additional insulation required to achieve total system R-value	
Insulation option 1: Bulk insulation - thermal bridging assumed at 12% with metal frame	R2.30 (Bulk insulation R-value)
Insulation option 2: Uninterrupted rigid board insulation (no thermal bridging allowance).	R1.20 (Rigid board R-value)

Internal Walls

Insulation should be applied to areas highlighted in Appendix B, to meet the total system R-value noted in the following table:

Fabric Element	Required Total System R-Value	Notes
Internal Walls	R1.40	With thermal bridging calculated in accordance with AS/NZS 4859.2.

The insulation provider / installer is responsible for ensuring that the type and location of insulation is fit for purpose in that; the total system values are achieved, and condensation risk is mitigated. See internal wall indicative buildup below:

Indicative build-up of stud framed internal walls

Component	R-Value
Indoor air film (still air)	0.12
Plasterboard, gypsum (10mm, 880 kg/m ³)	0.06
Airspace	0.16
Plasterboard, gypsum (10mm, 880 kg/m ³)	0.06
Indoor air film (still air)	0.12
Additional insulation required to achieve total system R-value	
Insulation option 1: Bulk insulation - thermal bridging assumed at 12% with metal frame.	R1.70 (Bulk insulation R-value)

Indicative build-up of concrete internal walls

Component	R-Value
Indoor air film (still air)	0.12
150mm concrete	0.10
Airspace	0.16
Plasterboard, gypsum (10mm, 880 kg/m ³)	0.06
Indoor air film (still air)	0.12
Additional insulation required to achieve total system R-value	
Insulation option 1: Bulk insulation - thermal bridging assumed at 12% with metal frame.	R2.10 (Bulk insulation R-value)
Insulation option 2: Assuming uninterrupted rigid board insulation (no thermal bridging allowance).	R1.20 (Rigid board R-value)

Glazing Requirements

For the purposes of Section J, glazing means a transparent or translucent element and its supporting frame located in the envelope and includes a window other than a roof light.

The glazing supplier is responsible for ensuring that the total system values are achieved, and condensation risk is mitigated.

Part J4D6 Glazing Performance Requirements

Level/Location	Orientation	Maximum Total System U-Value	Maximum Total System SHGC
Display Glazing*	All	5.80	0.81
Building A – Service Centre	All	4.30	0.42
Building B – Boarding House	All	3.40	0.36
Building K - Childcare	All	4.20	0.56
Building K – Medical / Childcare	All	2.90	0.32
Building K – Communal Room	All	5.80	0.47
Building L – Workshop	All	5.80	0.81

*Display Glazing is defined as glazing used to display retail goods in a shop or showroom directly adjacent to a walkway or footpath, but not including that used in a café or restaurant.

All awnings and shading structures to be installed as per plans and elevations referenced. Should there be any changes to the glazing or shading configuration, the new layouts will need to be reassessed to verify compliance with Section J.

J4D7 Floors

Insulation should be applied to areas highlighted in Appendix B, to meet the total system R-value noted in the following table:

Fabric Element	Required Total System R-Value	Notes
External Floors	R2.00	No in-slab heating or cooling is proposed. R3.25 Required to floors with in slab heating/cooling system.
Floors to Unconditioned Spaces	R2.00	

The insulation supplier / installer is responsible for ensuring that the type and location of insulation is fit for purpose in that; the total system values are achieved, and condensation risk is mitigated. See floor indicative build-up below:

Indicative build-up of concrete slab on ground floor

Component	R-Value
Indoor air film (still air)	0.12
150mm concrete	0.10
A slab-on-ground that does not have an in-slab heating or cooling system is considered to achieve a Total R-Value of R2.0. No additional insulation required to achieve total system R-value.	

Indicative build-up of suspended concrete floor

Component	R-Value
Indoor air film (still air)	0.12
150mm concrete	0.10
Outdoor air film (7m/s)	0.03
Additional insulation required to achieve total system R-value	
Insulation advice: Uninterrupted rigid board insulation (no thermal bridging allowance).	R1.75 (Rigid board R-value)

3.2. J5 Building Sealing

The following requirements relating to building sealing must be achieved in design. The below requirements shall be verified, if required, by the architect or builder.

J Part	Requirement
J5D3 - Chimneys & Flues	Any new chimney or flue of an open solid fuel burning appliance, located within conditioned areas indicated in the project reference, must be fitted with a sealing device such as a self-closing damper or the like
J5D4 - Roof Lights	No Roof Lights (DELETE THIS ROW OR ABOVE AS NESSECCARY)
J5D5 - Windows and Doors	<p>The window supplier must provide verification that all glazing is sealed to comply with AS 2047 or J5D5.</p> <p>A seal to restrict air infiltration must be fitted to each edge of a door, openable window or the like forming part of:</p> <ul style="list-style-type: none"> (i) the envelope of a conditioned space; or (ii) the external fabric of a habitable room or public area in climate zones 4, 5, 6, 7 or 8. <p>All doors forming part of the buildings thermal envelope must have a draft protection device installed to the bottom edge. All other edges of a window or door forming part of the building's thermal envelope.</p> <p>The above requirements do not apply to a window complying with AS 2047 or any fire or smoke door, roller shutter doors/grilles or security doors installed for out of hours security.</p> <p>An entrance to a building, if leading to a conditioned space must have an airlock, self-closing door, revolving door or the like, other than:</p> <ul style="list-style-type: none"> (i) where the conditioned space has a floor area of not more than 50 m²; or (ii) where a café, restaurant, open front shop or the like has— <ul style="list-style-type: none"> (A) a 3 m deep un-conditioned zone between the main entrance, including an open front, and the conditioned space; and (B) at all other entrances to the café, restaurant, open front shop or the like, self-closing doors. <p>A loading dock entrance, if leading to a conditioned space, must be fitted with a rapid roller door or the like.</p>
J5D6 - Exhaust Fans	Any exhaust fans, located within conditioned areas indicated in the project reference, must be fitted with a sealing device such as a self-closing damper or the like.
J5D7 Roof, Walls & Floors	Construction forming elements of the envelope or external fabric must be enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions or sealed by caulking, skirting, architraves, cornices, or the like.
J5D8 Evaporative Coolers	<p>An evaporative cooler must be fitted with a self-closing damper or the like when serving—</p> <ul style="list-style-type: none"> (a) a heated space; or (b) a habitable room or a public area of a building in climate zones 4, 5, 6, 7 or 8

3.3. J6 Air Conditioning and Ventilation Systems

The project mechanical engineer shall be responsible for ensuring compliance with NCC Section J6 parts J6D1-J6D13.

3.4. J7 Artificial Lighting and Power

The project electrical engineer shall be responsible for ensuring the design complies with NCC Section J7. A summary of the requirements has been provided below for reference:

J Part	Requirements																																																								
J7D3 Interior Artificial Lighting	<p>The 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.</p> <p>Allowable maximum illumination power density</p> <table border="1"> <thead> <tr> <th>Space</th> <th>Maximum W/m²</th> <th>Space</th> <th>Maximum W/m²</th> </tr> </thead> <tbody> <tr> <td>Retail, whose purpose is the sale of objects</td> <td>14 W/m²</td> <td>Restaurant, café, bar and space for the serving and consumption of food and drink</td> <td>14 W/m²</td> </tr> <tr> <td>Stairways</td> <td>2 W/m²</td> <td>Office</td> <td>4.5 W/m²</td> </tr> <tr> <td>Entry lobby from outside the building</td> <td>9 W/m²</td> <td>Board room or conference room</td> <td>5 W/m²</td> </tr> <tr> <td>Sole occupancy unit of a Class 3 building</td> <td>5 W/m²</td> <td>Lift cars</td> <td>3 W/m²</td> </tr> <tr> <td>Dormitory of a Class 3 building used for sleeping only</td> <td>3 W/m²</td> <td>Dormitory of a Class 3 building used for sleeping and study</td> <td>4 W/m²</td> </tr> <tr> <td></td> <td></td> <td>Office</td> <td>4.5 W/m²</td> </tr> <tr> <td>Health-care examination room</td> <td>4.5 W/m²</td> <td>Board room or conference room</td> <td>5 W/m²</td> </tr> <tr> <td>Health-care examination room in intensive care and high dependency ward</td> <td>4.5 W/m²</td> <td>School / Childcare</td> <td>4.5 W/m²</td> </tr> <tr> <td>Toilet, locker room, staff room or the like</td> <td>3 W/m²</td> <td>Communal lounge areas</td> <td>4.5 W/m²</td> </tr> <tr> <td>Kitchen and food preparation areas</td> <td>4 W/m²</td> <td>Carpark - general</td> <td>2 W/m²</td> </tr> <tr> <td>Carpark – entry zone (first 15m of travel during day time)</td> <td>11.5 W/m²</td> <td>Carpark – entry zone (next 4m of travel during day time)</td> <td>11.5 W/m²</td> </tr> <tr> <td>Plant areas</td> <td>2 W/m²</td> <td>Corridors</td> <td>5 W/m²</td> </tr> <tr> <td>Carpark – entry zone (first 20m of travel during night time)</td> <td>11.5 W/m²</td> <td>Storage/service/cleaners room and the like</td> <td>1.5 W/m²</td> </tr> </tbody> </table>	Space	Maximum W/m ²	Space	Maximum W/m ²	Retail, whose purpose is the sale of objects	14 W/m ²	Restaurant, café, bar and space for the serving and consumption of food and drink	14 W/m ²	Stairways	2 W/m ²	Office	4.5 W/m ²	Entry lobby from outside the building	9 W/m ²	Board room or conference room	5 W/m ²	Sole occupancy unit of a Class 3 building	5 W/m ²	Lift cars	3 W/m ²	Dormitory of a Class 3 building used for sleeping only	3 W/m ²	Dormitory of a Class 3 building used for sleeping and study	4 W/m ²			Office	4.5 W/m ²	Health-care examination room	4.5 W/m ²	Board room or conference room	5 W/m ²	Health-care examination room in intensive care and high dependency ward	4.5 W/m ²	School / Childcare	4.5 W/m ²	Toilet, locker room, staff room or the like	3 W/m ²	Communal lounge areas	4.5 W/m ²	Kitchen and food preparation areas	4 W/m ²	Carpark - general	2 W/m ²	Carpark – entry zone (first 15m of travel during day time)	11.5 W/m ²	Carpark – entry zone (next 4m of travel during day time)	11.5 W/m ²	Plant areas	2 W/m ²	Corridors	5 W/m ²	Carpark – entry zone (first 20m of travel during night time)	11.5 W/m ²	Storage/service/cleaners room and the like	1.5 W/m ²
Space	Maximum W/m ²	Space	Maximum W/m ²																																																						
Retail, whose purpose is the sale of objects	14 W/m ²	Restaurant, café, bar and space for the serving and consumption of food and drink	14 W/m ²																																																						
Stairways	2 W/m ²	Office	4.5 W/m ²																																																						
Entry lobby from outside the building	9 W/m ²	Board room or conference room	5 W/m ²																																																						
Sole occupancy unit of a Class 3 building	5 W/m ²	Lift cars	3 W/m ²																																																						
Dormitory of a Class 3 building used for sleeping only	3 W/m ²	Dormitory of a Class 3 building used for sleeping and study	4 W/m ²																																																						
		Office	4.5 W/m ²																																																						
Health-care examination room	4.5 W/m ²	Board room or conference room	5 W/m ²																																																						
Health-care examination room in intensive care and high dependency ward	4.5 W/m ²	School / Childcare	4.5 W/m ²																																																						
Toilet, locker room, staff room or the like	3 W/m ²	Communal lounge areas	4.5 W/m ²																																																						
Kitchen and food preparation areas	4 W/m ²	Carpark - general	2 W/m ²																																																						
Carpark – entry zone (first 15m of travel during day time)	11.5 W/m ²	Carpark – entry zone (next 4m of travel during day time)	11.5 W/m ²																																																						
Plant areas	2 W/m ²	Corridors	5 W/m ²																																																						
Carpark – entry zone (first 20m of travel during night time)	11.5 W/m ²	Storage/service/cleaners room and the like	1.5 W/m ²																																																						

	Control room, switch room or the like – intermittent monitoring	3 W/m ²	Common rooms, spaces and corridors in a Class 2 building	4.5 W/m ²
	Control room, switch room or the like – constant monitoring	4.5 W/m ²		
<p>If lighting will not comply with the W/m² detailed above an ABCB Lighting calculator can be completed and adjustment factors using control devices or the like considered in order to ensure compliance.</p> <p>These requirements to not apply for:</p> <ol style="list-style-type: none"> Emergency lighting in accordance with Part E4 Signage and display lighting within cabinets and display cases that are fixed in place. A heater where the heater also emits light, such as in bathrooms. Lighting of performances such as theatrical or sporting. Lighting installed solely for indoor plant growth on green walls or the like. 				
<p>J7D4 Interior Artificial Lighting and Power Control</p>	<p>Artificial lighting of a room or space is to be individually switched or operated or both.</p> <p>These switches or devices must be located in a visible position-</p> <ul style="list-style-type: none"> in the room or space being switched; or in an adjacent room or space from where the lighting being switched is visible <p>Sole-occupancy units, except for those rooms specifically for people with a disability or the aged, are to have an occupant sensing device such as a card reader, motion detector in accordance with Specification 40 S40C4 or the like installed to cut power to lighting, air-conditioner and exhaust fans when these rooms are unoccupied. This requirement is only applicable to sole-occupancy units. Further advice can be given on suitable devices if desired.</p> <p>Other than a space where a sudden loss of light would result in an unsafe situation, any non-residential building that exceeds 250m² will require 95% of light fittings to be controlled by either a time switch in accordance with Specification 40 S40C3, a security card reader or motion detector in accordance with Specification 40 S40C4.</p> <p>Other than in a single functional space, lighting controls or switches within each room, cannot operate lighting for an area of more than:</p> <ol style="list-style-type: none"> 250m² for a space of less than 2000m²; or 1000m² for a space of more than 2000m². <p>Artificial lighting in a fire isolated stairway must be controlled by a motion detector.</p> <p>Artificial lighting in a foyer, corridor, and other circulation spaces with more than 250W within a single zone and adjacent to windows must be controlled by a daylight sensor and lighting controls in accordance with Specification 40 S40C5.</p> <p>Artificial lighting for daytime travel in the first 19m of a car park entry must be controlled by a daylight sensor.</p> <p>These requirements do not apply to emergency lighting in accordance with Part E4, or areas with 24-hour occupancy</p>			
<p>J7D5 Interior decorative and display lighting</p>	<p>If installing lighting for the display of artwork / photographs or the like, it must be controlled by a manual switch and operated separately from other artificial lighting. This display lighting can be combined on one switch if the operating times for the display lighting are the same in a number of areas.</p>			

	<p>If the display lighting exceeds 1kW in total, then it must have a time switch in accordance with Specification 40.</p> <p>Any window display lighting to be separately switched from other display lighting.</p>
<p>J7D6 Exterior artificial lighting</p>	<p>If installing artificial lighting around the perimeter of the building, it is to be controlled by a daylight sensor or time switch with pre-programmable times.</p> <p>If total perimeter lighting load exceeds 100W it must:</p> <ul style="list-style-type: none"> - use LED luminaires for 90% of the total lighting load; or - be controlled by a motion detector in accordance with Specification 40 S40C4 <p>Lighting that is used for decorative purposes, such as façade lighting or signage lighting must have a separate time switch in accordance with Specification 40 S40C3.</p> <p>*These requirements do not apply to emergency lighting in accordance with Part E4</p>
<p>J7D7 Boiling water and chilled water storage units</p>	<p>Any boiling water or chilled water storage unit must be controlled by a time switch in accordance with Specification S40C3.</p>
<p>J6.7 Lifts</p>	<p>Lifts must –</p> <ul style="list-style-type: none"> (a) be configured to ensure artificial lighting and ventilation in the car are turned off when it is unused for 15 minutes; and (b) achieve the idle and standby performance level in Table J7D8a; and (c) achieve - <ul style="list-style-type: none"> (i) the energy efficiency class in Table J7D8b; or (ii) if a dedicated goods lift, energy efficiency class D in accordance with ISO 25745-2
<p>J6.8 Escalators and moving walkways</p>	<p>No Escalators Proposed</p>

3.5. J8 Heated Water Supply and Swimming/Spa Pool Plant

The project hydraulic engineer shall be responsible for ensuring the design complies with NCC Section J8. A summary of the requirements has been provided below for reference:

J Part	Requirements
J8D2 Hot water Supply	Any new heated water supply system for food preparation must be designed and installed in accordance with Part B2 of NCC Volume Three – Plumbing Code of Australia.
J8D3 Swimming Pool Heating and Plumbing	<p>Pool heating must be provided by one of the following:</p> <ul style="list-style-type: none"> • solar heater not boosted by electric resistance heating • a heater using reclaimed energy • gas heating <ul style="list-style-type: none"> ◦ if rated to consume 500MJ/hour or less has an efficiency of at least 86% ◦ if rates to consume greater than 500MJ/hour has an efficiency of at least 90% • heat pump • or a combination of these options <p>*It has been assumed that the method of pool heating will be either gas or heat pump. Therefore, the swimming pool must have cover with a minimum R-value of 0.05 and the pool heater will also need a time switch.</p> <p>A time switch must be provided to control the operation of a circulation pump.</p> <p>Where required a time switch must be capable of being pre-programmed to switching electric power on and off.</p> <p>Pipework carrying heated or cooled chilled water must comply with the insulation requirements of J6D9.</p>
J8D4 Spa Pool Heating and Pumping	<p>Spa heating must be provided by one of the following:</p> <ul style="list-style-type: none"> • solar heater • a heater using reclaimed energy • gas heating that- <ul style="list-style-type: none"> ◦ if rated to consume 500MJ/hour or less has an efficiency of at least 86% ◦ if rates to consume greater than 500MJ/hour has an efficiency of at least 90% • heat pump • or a combination of these options <p>*It has been assumed that the method of spa heating will be either gas or heat pump. Therefore, the spa must have cover with a minimum R-Value of 0.05 and the spa heater will also need push button and a time switch.</p> <p>A time switch must be provided to control the operation of a circulation pump for a spa pool.</p> <p>Where required a time switch must be capable of being pre-programmed to switching electric power on and off.</p> <p>Pipework carrying heated or cooled chilled water must comply with the insulation requirements of J6D9.</p>

3.6. J9 Facilities for Energy Monitoring

The project electrical engineer shall be responsible for ensuring the design complies with NCC Section J9. A summary of the requirements has been provided below for reference:

J Part	Requirements
J9D3 Facilities for Energy Monitoring	<p>The development floor area is over 2500m², therefore it must have energy meters configured to enable individual time-of-use energy consumption data recording of:</p> <ul style="list-style-type: none"> (a) air-conditioning plant including where appropriate, heating plant, cooling plant and air handling fans; and (b) artificial lighting; and (c) appliance power; and (d) central hot water supply; and (e) internal transport devices including lifts, escalators, and travelators where there is more than one serving the building; and (f) on-site renewable energy equipment; and (g) on-site electric vehicle charging equipment; and (h) on-site battery systems; and (i) other ancillary plant. <p>Energy meters required by in the above 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, analyzed, and reviewed.</p> <p>The above provisions do not apply to a Class 2 building with a floor area of more than 2500m² where the total area of the common areas is less than 500m².</p>
J9D4 Facilities for Electric Vehicle Charging Equipment	<p>A carpark must be provided with electrical distribution boards dedicated to electric vehicle charging:</p> <ul style="list-style-type: none"> (a) in accordance with Table J9D4 in each storey of the carpark; and (b) labelled to indicate use for electric vehicle charging equipment. <p>Electrical distribution boards dedicated to serving electric vehicle charging in a carpark must:</p> <ul style="list-style-type: none"> (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) when associated with a Class 2 building, 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; and (c) when associated with a Class 5 to 9 building, 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; and (d) when associated with a Class 3 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 48 kWh from 11:00 pm to 7:00 am daily; and (e) be sized to support the future installation of a 7 kW (32 A) type 2 electric vehicle charger in: <ul style="list-style-type: none"> (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 (f) 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

	(g) be labelled to indicate the use of the space required by (f) is for the future installation of metering equipment.
<p>J9D5 Facilities for Solar Photovoltaic and Battery Systems</p>	<p>The main electrical switchboard of a building must:</p> <ul style="list-style-type: none"> (a) contain at least two empty three-phase circuit breaker slots and four DIN rail spaces labelled to indicate the use of each space for— <ul style="list-style-type: none"> (i) solar photovoltaic system; and (ii) a battery system; and (b) be sized to accommodate the installation of solar photovoltaic panels producing their maximum electrical output on at least 20% of the building roof area. <p>At least 20% of the roof area of a building must be left clear for the installation of solar photovoltaic panels, except for buildings:</p> <ul style="list-style-type: none"> (a) with installed solar photovoltaic panels on: <ul style="list-style-type: none"> (i) at least 20% of the roof area; or (ii) an equivalent generation capacity elsewhere on-site; or (b) where 100% of the roof area is shaded for more than 70% of daylight hours; or (c) with a roof area of not more than 55 m²; or (d) where more than 50% of the roof area is used as a terrace, carpark, roof garden, roof light or the like.