

EVERGREEN ENERGY CONSULTANTS

NCC 2022, Volume One –
Section J Report Deemed to Satisfy Solution

Location: Proposed Renovation of Existing Factory –
70A-70B Harley Crescent, Condell Park

For: RSPCA NSW

Date: 11th December 2024



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Revision No.	Issue	Description	Reviewed	Approved by Director
1	13/11/2024	Draft Report	J. Lorriman	J. Lorriman
2	11/12/2024	Final Report	J. Lorriman	J. Lorriman

TABLE OF CONTENTS

0.1 Introduction	4
0.2 Compliance Summary Sheet.....	4
1.0 Part J1 – Energy Efficiency Performance Requirements	5
2.0 Part J2 – Energy Efficiency	6
3.0 Part J3 – Elemental Provisions for a Sole Occupancy Unit Classes 2 and 4.....	6
4.0 Part J4 – Building Fabric	7
5.0 Part J5 – Building Sealing	9
6.0 Part J6 – Air-Conditioning and Ventilation	10
7.0 Part J7 – Artificial Lighting and Power	11
8.0 Part J8 – Heated Water Supply and Swimming Pool and Spa Pool Plant.....	12
9.0 Part J9 –Energy Monitoring and On-Site Distributed Energy Resources	12
10.0 Section J Compliance Summary.....	12
Appendix 1 – Wall-Glazing Calculator + Solar Admittance	13
Appendix 2 – Envelope	14
Appendix 3 – Lighting Calculations	15

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0.1 Introduction

This report has been prepared at the instruction of David Baxter of Paramount Plans and is intended to identify the requirements of the National Construction Code (NCC) Series 2022 Volume One, Building Code of Australia (BCA) 2022 Class 2 to Class 9 Buildings, Section J for the project and detail proposed design elements to ensure compliance.

The NCC 2022 Volume One Section J compliance review has been performed for the proposed development against the plans and specifications listed in the Compliance Summary Sheet below. If the plans or specifications are amended then the information contained in this document may require updating to reflect any changes.

This report details the proposed design features of the project that ensure compliance with the deemed to satisfy solutions outlined within Section J of the NCC 2022 Volume One. It will then be the responsibility of the builder to construct the building in accordance with the relevant design.

0.2 Compliance Summary Sheet

BCA SECTION J - ENERGY EFFICIENCY - COMPLIANCE SUMMARY			
Climate Zone 5 Client/Owner: Building: BCA Classification: Project Number: Prepared By:	LGA: Canterbury Bankstown Council RSPCA NSW Proposed Renovation of Existing Factory Class 5 and 7b Revision F Paramount Plans		
Relevant Part	Applies	Level of Construction	Works Required/Achieve Compliance
Part J1 Energy Efficiency Performance Req.	Entire Building	Comply with Part J1	Builder and Designers to ensure the development is built in accordance with Part J1
Part J2 Energy Efficiency	Entire Building	Comply with Part J2	Builder to ensure the development is built in accordance with Part J2
Part J3 Class 2/4 Units	N/A	Not Applicable	Not Applicable
Part J4 Building Fabric	Entire Building	Roof (Absorbance less than 0.45): R3.7 External Walls: R1.4 Floor: R2.0 Glazing:	R1.3 foil faced blanket, R4.1 ceiling insulation and plasterboard Brick Veneer and FC Clad – R2.0 insulation Insulbreak and plasterboard Concrete Slab on ground – Nil insulation Suspended Timber – Bulk insulation R2.5 Sliding Door – U-Value 6.00, SHGC 0.46 Existing Windows – U-Value 6.70, SHGC 0.70
Part J5 Building Sealing	Entire Building	All windows and doors	All windows and doors shall comply with Part J3. Designer and installer to certify compliance.
Part J6 A/C and Ventilation	Entire Building	Comply with Part J6	Designer and installer to certify compliance with Part J6
Part J7 Lighting and Power	Entire Building	Comply with Part J7	Electrical designer and installation contractor to certify compliance.
Part J8 Hot Water	Entire Building	Comply with Part J8	Hot Water Installer to confirm unit is installed in accordance with Section 8 of AS/NZS 3500.4
Part J9 Energy Monitoring/PV	Entire Building	Comply with Part J9	Refer to Part J9 Compliance Measures.

1.0 Part J1 – Energy Efficiency Performance Requirements –

J101 – Objective

- (a) reduce energy consumption and energy peak demand; and
- (b) reduce greenhouse gas emissions; and
- (c) improve occupant health and amenity.

Part J1P1 – Energy Use

A building, other than a sole-occupancy unit of a Class 2 building or a Class 4 part of a building, including its services, must have features that facilitate the efficient use of energy appropriate to—

- (a) the function and use of the building; and
- (b) the level of human comfort required for the building use; and
- (c) solar radiation being—
 - (i) utilised for heating; and
 - (ii) controlled to minimise energy for cooling; and
- (d) the energy source of the services; and
- (e) the sealing of the building envelope against air leakage; and
- (f) for a conditioned space, achieving an hourly regulated energy consumption, averaged over the annual hours of operation, of not more than—
 - (i) for a Class 6 building, 80 kJ/m².hr; and
 - (ii) for a Class 5, 7b, 8 or 9a building other than a ward area, or a Class 9b school, 43 kJ/m².hr; and
 - (iii) for all other building classifications, 15 kJ/m².hr.

Part J1P4 – Renewable Energy and Electric Vehicle Charging

A building must have features that facilitate the future installation of on-site renewable energy generation and storage and electric vehicle charging equipment.

2.0 Part J2 – Energy Efficiency

J2D1 – Deemed to Satisfy Provisions

- 1) Where a Deemed-to-Satisfy Solution is proposed, Performance Requirement NSW J1P1 to NSW J1P7 are satisfied by complying with –
 - (a) NSW J2D2; and
 - (b) NSW J3D2 to J3D15; and
 - (c) NSW J4D2 to J4D7; and
 - (d) NSW J5D2 to J5D8; and
 - (e) NSW J6D2 to J6D13; and
 - (f) NSW J7D2 to J7D9; and
 - (g) J8D2 to NSW J8D4; and
 - (h) J9D2 to J9D5.

J2D2 – Application of Section J

- 1) For a Class 3 and 5 to 9 building, Performance Requirement NSW J1P1 is satisfied by complying with—
 - (a) Part J4, for the building fabric; and
 - (b) Part J5, for building sealing; and
 - (c) Part J6, for air-conditioning and ventilation; and
 - (d) Part J7, for artificial lighting and power; and
 - (e) Part J8, for heated water supply and swimming pool and spa pool plant; &
 - (f) J9D3, for facilities for energy monitoring.
- 2) Not Applicable for this development
- 3) Not Applicable for this development
- 4) For a Class 2 to 9 building, Performance Requirement NSW J1P4 is satisfied by complying with **J9D4 and J9D5**.

3.0 Part J3 – Elemental Provisions for a Sole Occupancy Unit of a Class 2 building or a Class 4 part of a building –

Not Applicable

4.0 Part J4 – Building Fabric

J4D2 Application of Part

The Deemed to Satisfy Provisions of this Part apply to building elements forming the Envelope of a Class 3 and Class 5 to 9 building.

J4D3 Thermal Construction General

All insulation that is part of the envelope will be installed in accordance with Clause J4D3, the Manufacturer's Specifications and **AS/NZS 4859.1**

The required Total R-Value and Total System U-Value calculations have been calculated in accordance with **Part J4D3 (5)**.

J4D4 Roof and Ceiling Construction

A roof and/or ceiling that is part of the envelope must achieve the **Total R-Value** in a downwards direction as specified in **Part J1.3 (a) and (b)**.

	Minimum Total R-Value	Typical Construction Type Specification	Required Added Insulation	Achieved Total R-Value
Roof & Ceiling	R3.7 (downwards)	Colorbond metal roof sheeting (solar absorbance must not exceed 0.45), R1.3 foil faced blanket under and plasterboard internal linings.	R4.1 ceiling insulation	R3.70 (including thermal bridging)

J4D5 Roof Lights

Not Applicable

J4D6 Walls and Glazing

The calculations used to determine the Total System U-Value of the wall-glazing construction are based on the specified wall construction and the following glazing units. Alternative glazing units may be substituted that have similar properties to those specified.

Fixed Windows – Assumed

Aluminium Framed, Single Glazed, Clear
(U-Value 6.70, SHGC 0.70).

Sliding Doors

G. James Type 445 Series Aluminium Framed Sliding Doors Single Glazed
(U-Value 6.00, SHGC 0.46). Window ID – GJA-106-14: 6Gy

NB The external glazing above is assumed to enable completion of the Wall-Glazing Calculator. Assumptions have been made as the external glazing is existing.

Wall-Glazing Construction

The Total System U-Value of the wall-glazing construction must not be greater than the values specified in **Part J4D6 (1)** – refer Appendix 1

	Maximum Total System U-Value	Achieved Total System U-Value
Wall-Glazing Construction	U-2.0	U-0.95

External Wall Construction

Wall components of the wall-glazing construction must achieve the minimum Total R-Value, where applicable, as specified in **Table J4D6a**

	Wall Area %	Minimum Required Total R-Value	Typical Construction Type Specification	Achieved Total R-Value
Envelope Walls	96%	1.4	Brick Veneer and FC Clad, Steel Framed with Insulbreak, R2.0 insulation and plasterboard internal linings	R1.64 and R1.50

NB The external wall constructions above are assumed to enable completion of the Wall-Glazing Calculator. Assumptions have been made as the walls are existing and not being altered.

Solar Admittance

Solar Admittance – Method 2 (Multiple Aspects) has been used to determine compliance.

The solar admittance of wall-glazing construction must achieve a representative air-conditioning energy value less than that achieved by the reference solar admittance – **Refer to Annexure 1.**

J4D7 Floors

(1) A floor must achieve the Total R-Value specified in Table J4D7.

	Minimum Required Total R-Value	Typical Construction Type Specification	Required Added Insulation	Achieved Total R-Value
Floor	R2.0 (downwards)	Suspended timber with carpet floor coverings	R2.5	R2.03 (down)

(2) 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.

5.0 Part J5 – Building Sealing

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.

J5D4 Roof Lights

Not Applicable

J5D5 Windows and Doors

All external doors must be fitted with air infiltration seals.

The entrance doors to a conditioned space are self-closing in accordance with **Clause J5D5(4).**

J5D6(5) – Not Applicable

J5D7 Exhaust Fans

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

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

J5D7 Construction of Roofs, Walls and Floors

All roofs, walls and floors must be constructed to minimise air leakage.

J5D8 Evaporative Coolers

Not Applicable

6.0 Part J6 – Air-Conditioning and Ventilation**J6D3 Air-Conditioning System Control****J6D3 (a) (i)**

The installed packaged air conditioning units must be capable of being deactivated when the building is unoccupied.

J6D3 (a) (i) (ii)

A time switch must be provided in accordance with this clause if the air conditioning system is larger than 2kW_r and a heater of 1kW_r when used for air conditioning.

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 65kW_r must comply with **J6D12 (a) (b)**.

Report Note – Where Applicable

All other air-conditioning and ventilation systems and components will be designed in accordance with the DTS requirements of **Part J6** and a separate report will be submitted by the mechanical services designer verifying compliance where required.

7.0 Part J7 – Artificial Lighting and Power

J7D3 Artificial Lighting

The proposed lighting fixtures as detailed on the drawings comply with this requirement – **Refer the attached Lighting Calculator in Appendix 3.**

J7D4 Interior Artificial Lighting and Power Control

Artificial lighting of a room or space is individually switched in accordance with **Part J7D4 (1).**

Light fittings must be installed in accordance with **Part J7D4 (4).**

J7D5 Interior Decorative and Display Lighting

Interior decorative and display lighting, must be controlled separately from other artificial lighting.

J7D6 Exterior Artificial Lighting

Exterior artificial lighting attached to or directed at the façade of the building, where installed, must be controlled by a daylight sensor or a time switch as detailed in **Part J7D6 (a).**

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 J6.**

J7D8 Lifts

Lift to be installed in accordance with Part J7D8

J7D9 Escalators and Moving Walkways

Not Applicable

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

J8D2 Heated Water Supply

A heated water supply system for food preparation and sanitary purposes must be designed and installed in accordance with Part B2 of NCC Volume 3 – Plumbing Code of Australia.

J8D3 Swimming Pool Heating and Pumping

Not Applicable

J8D4 Spa Pool Heating and Pumping

Not Applicable

9.0 Part J9 – Energy Monitoring and On-Site Distributed Energy Resources

J9D3 (1) A building with a floor area of more than 500m² must have an energy meter configured to record the time-of-use consumption of gas and electricity. or

J9D4 Facilities for Electric Vehicle Charging Equipment

A carpark associated with a Class 2 to 9 building must be provided with electrical distribution boards dedicated to electric vehicle charging. This does not apply to stand-alone Class 7a buildings. Refer to **Part J9D4** for detailed specifics.

J9D5 Facilities for Solar Photovoltaic and Battery Systems

Provisions must be made for the installation of photovoltaic panels and battery storage systems. Refer to **Part J9D5** for detailed specifics.

10. Section J Compliance Summary

The building has been designed to meet the requirements outlined above. The builder shall ensure that all items of plant are installed during construction to meet the requirements outlined above in order to ensure compliance is met.

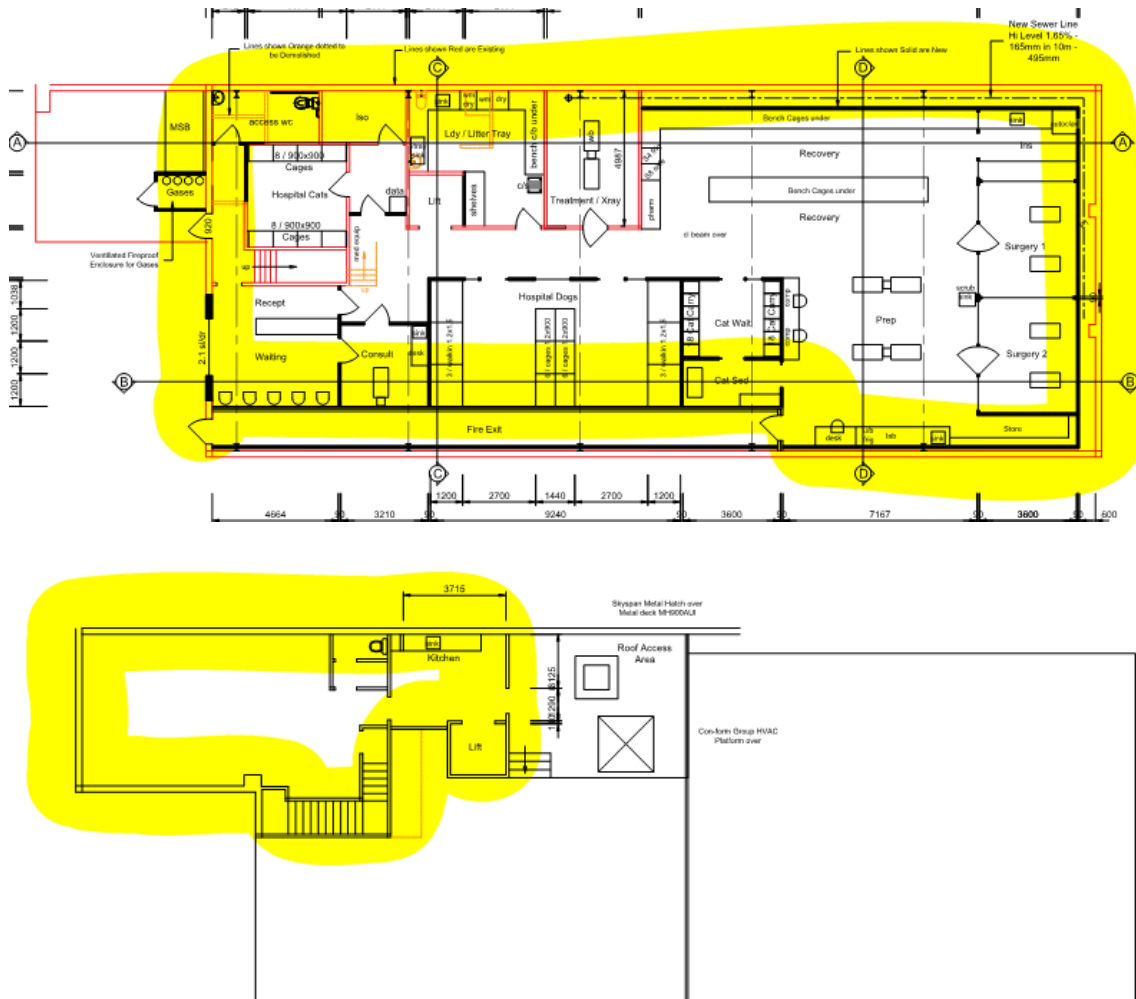


Joseph Mark Lorriman
DMN Accredited Assessor DMN/16/174
11th December 2024

Appendix 1 – Wall-Glazing Calculator + Solar Admittance

NCC 2019 Wall-Glazing Calculator v3.0											
Wall and glazing energy efficiency in Class 2-9 buildings - Method 2 of Specification J1.5a, NCC 2019											
Building name and description 70A-70B Harley Crescent, Condell Park					Classification Other		Climate Zone 5				
Calculated Area-Weighted U-Value 0.95					Calculated Representative Air-Conditioning Energy Value 6.4						
Allowable Area-Weighted U-Value 2.00					Allowable Representative Air-Conditioning Energy Value 6.5						
Building total U-Value allowance met 48%					Building total SHGC allowance met 98%						
Check Values Not Visible		Wall Element Requirements Met		Display Glazing Element Requirements -							
Use of this calculator does not guarantee compliance with the NCC. The disclaimer and a version update check are available at the bottom of the page.											
Element Description				U-Value		SHGC and Shading					
ID	Description (optional)	Element Type	Facing Sector	Area (m ²)	U-Value	U-Value Element share of allowance used	SHGC	Glazing Height (m)	Shading Height (m)	Shading Projection (m)	SHGC Element share of allowance used
1	South Elevation	Wall	South	39.55	0.69	8% of building total					Not counted
2	Ext. Mezz Window	Glazing	South	2.70	6.70	5% of building total	0.7				30% of building total
3	Ext. Mezz Window	Glazing	South	2.70	6.70	5% of building total	0.7				30% of building total
4	Ext. GroundWindow	Glazing	South	0.34	6.70	1% of building total	0.7	0.45	0.75	6.3	3% of building total
5	Ext. GroundWindow	Glazing	South	0.34	6.70	1% of building total	0.7	0.45	0.75	6.3	3% of building total
6	Ext. GroundWindow	Glazing	South	0.34	6.70	1% of building total	0.7	0.45	0.75	6.3	3% of building total
7	New Sliding Door	Glazing	South	4.41	6.00	8% of building total	0.46				32% of building total
8	West Elevation	Wall	West	129.20	0.69	26% of building total					Not counted
9	North Elevation	Wall	North	52.79	0.69	11% of building total					Not counted
10	East Elevation	Wall	East	123.80	0.69	25% of building total					Not counted
11	Ext. Mezz Window	Glazing	East	2.70	6.70	5% of building total	0.7				0% of building total
12	Ext. Mezz Window	Glazing	East	2.70	6.70	5% of building total	0.7				0% of building total

Appendix 2 – Envelope



Appendix 3 – Lighting Calculations

Non-residential Lighting
Class 3 and 5-9 buildings

ABCB National Construction Code

Multiple Lighting System Calculator

Calculator

Building name/description
70A-70B Harley Crescent, Condell Park

Classification
Class 5

Number of rows preferred in table below
21 (see currently displayed)

ID	Description	Floor area of the space	Perimeter of the space	Floor to ceiling height	Design Illumination Power Load	Space	Illuminance		Adjustment Factor One			Adjustment Factor Two			Light Colour Adjustment Factors		SATISFIES PART J6.2	
							Designed Lux Level	Recommended Lux Level	Adjustment Factor One	Dimming % Area	Illuminance Turndown	Adjustment Factor Two	Dimming % Area	Illuminance Turndown	Light Colour Adjustment Factor One	Light Colour Adjustment Factor Two	System Illumination Power Load Allowance	Lighting System Share of % of Aggregate Allowance Used
1	Waiting	12.2 m ²	15 m	2.4 m	48 W	Office - antiscaly fit to an ambient level of 200 lx or more											90 W	2% of 78%
2	Reception	8.2 m ²	12 m	2.4 m	72 W	Office - antiscaly fit to an ambient level of 200 lx or more											63 W	2% of 78%
3	Reception Cabs	13.7 m ²	15 m	2.4 m	80 W	Health care - examination room											97 W	4% of 78%
4	Access W/C	7.5 m ²	10 m	2.4 m	40 W	Toilet, locker room, staff room, rest room and the like											27 W	2% of 78%
5	Boo	6.0 m ²	9 m	2.4 m	40 W	Toilet, locker room, staff room, rest room and the like											24 W	2% of 78%
6	Autoboo	5.0 m ²	9 m	2.4 m	40 W	Toilet, locker room, staff room, rest room and the like											26 W	2% of 78%
7	Consult	9.6 m ²	14 m	2.4 m	48 W	Office - antiscaly fit to an ambient level of 200 lx or more											72 W	2% of 78%
8	Hallway	29.8 m ²	32 m	2.4 m	144 W	Corridors											287 W	7% of 78%
9	Lift	3.7 m ²	8 m	2.4 m	40 W	Lift cabs											19 W	2% of 78%
10	Laundry/Lift	20.5 m ²	22 m	2.4 m	120 W	Toilet, locker room, staff room, rest room and the like											88 W	6% of 78%
11	Treatment/Day	16.0 m ²	20 m	2.4 m	80 W	Health care - examination room											123 W	4% of 78%
12	Reception Clinic	47.7 m ²	47 m	2.4 m	168 W	Health care - examination room											301 W	8% of 78%
13	Recovery/Prep	125.1 m ²	57 m	2.7 m	528 W	Health care - all patient care areas including wards and outpatients											649 W	28% of 78%
14	Cat Wait	10.3 m ²	13 m	2.7 m	48 W	Health care - infants and children's ward and emergency department											43 W	2% of 78%
15	Cat Sed	6.2 m ²	9 m	27.0 m	24 W	Health care - infants and children's ward and emergency department											49 W	1% of 78%
16	Boo	9.4 m ²	12 m	2.7 m	48 W	Health care - infants and children's ward and emergency department											63 W	2% of 78%
17	Station 1	15.2 m ²	16 m	2.7 m	72 W	Health care - examination room											110 W	3% of 78%
18	Station 2	10.2 m ²	10 m	2.7 m	72 W	Health care - examination room											110 W	3% of 78%
19	Stairs	10.3 m ²	14 m	2.4 m	40 W	Stairways, including free-isolated stairways											28 W	2% of 78%
20	Mezzanine	68.4 m ²	46 m	2.4 m	288 W	Office - antiscaly fit to an ambient level of 200 lx or more											434 W	14% of 78%
21	Mezzanine W/C	4.0 m ²	8 m	2.4 m	80 W	Toilet, locker room, staff room, rest room and the like											24 W	4% of 78%
Total							2120 W										2712 W	

If inputs are valid