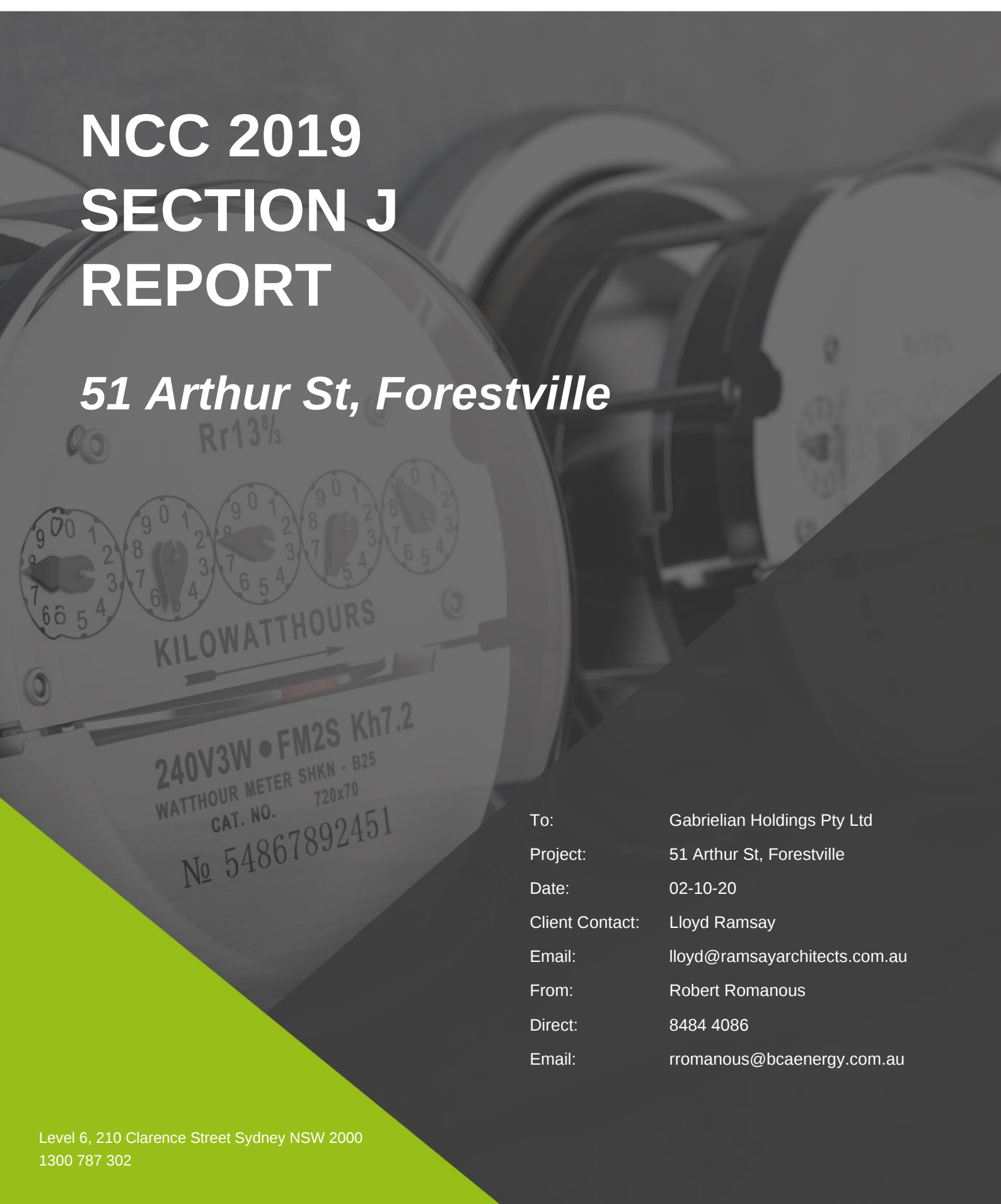


NCC 2019 SECTION J REPORT

51 Arthur St, Forestville



To:	Gabrielian Holdings Pty Ltd
Project:	51 Arthur St, Forestville
Date:	02-10-20
Client Contact:	Lloyd Ramsay
Email:	lloyd@ramsayarchitects.com.au
From:	Robert Romanous
Direct:	8484 4086
Email:	rromanous@bcaenergy.com.au

DOCUMENT CONTROL

Latest Revision	Issue Date	Report Details		
2575-DTS-r1/rr	02-10-20	NCC Section J Deemed-to-Satisfy Assessment Report		
Note: DA Design		Prepared by	Checked by	Approved by
		Robert Romanous	Greg Zheng	Robert Romanous
		ESD Manager	Sustainable Design Consultant	ESD Manager
				
Previous Revisions	Issue Date	Revision Notes		

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EXECUTIVE SUMMARY

BCA Energy has been engaged by Gabrielian Holdings Pty Ltd to provide an assessment under Section J Energy Efficiency Deemed-to-Satisfy (DTS) provisions, Volume1, National Construction Code (NCC) 2019 for the proposed project at 51 Arthur St, Forestville .

Highlighted within section-3 of this report, the summary outlines the relevant NCC section J provisions and nominates the minimum prescriptive requirements for the proposed project to achieve DTS compliance. Should the DTS pathway proven to be impractical, JV3 performance-based design solution can be adopted as an alternative section J compliance pathway.

Based on the project nominated design specification, whilst most of the development may achieve or is capable of compliance under the specified Section J DTS provisions, the proposed roof colour (*landscaped/green roof*) design exceeded maximum DTS allowance and hence must refer to a JV3 alternative solution pathway for a full NCC Section J compliance assessment.

The JV3 alternative solution will lead to items listed below:

- Roof colour above 0.45 solar absorptance – needed for landscape and green roof.
- Removal of suspended floor insulation above car park area below.

1 BASIS OF ASSESSMENT

1.1 Location and Description

The building development, the subject of this report, is located at 51 Arthur St, Forestville and consists of Retail and shop-top housing development.



1.2 Purpose

The purpose of this report is to assess the design proposal against the Deemed-to-Satisfy provisions of Section J of the NCC 2019, and to clearly outline those areas where compliance is not achieved.

The Report addresses ONLY matters relevant to Section 'J' of Volume 1 of the NCC pertaining to the Class 6 portion of the building. It is assumed relevant specialised consultants are engaged to ensure compliance of service design requirements within section J5 & J6 provisions, hence this assessment does not include the following sub-sections.

- a) *Part J5 Airconditioning and ventilation systems*
- b) *Part J6 Artificial lighting and power*

1.3 Building Code of Australia

This report is based on the Deemed-to-Satisfy Provisions of Section J of the National Construction Code Series Volume 1 - Building Code of Australia, 2019 Edition incorporating the State variations where applicable. Please note that the version of the NCC applicable is the version applicable at the time of the Construction Certificate Application is dated as received by the certifying authority.

1.4 Limitations

This report does not include nor imply any detailed assessment for design, compliance or upgrading for -

Sections B, C, D, E, F, G, H and I of the NCC;

The structural adequacy or design of the building;

The inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to); and

The design basis and/or operating capabilities of any proposed electrical, mechanical or hydraulic fire protection services.

This report does not include, or imply compliance with:

- c) The National Construction Code - Plumbing Code of Australia Volume 3
- d) The Disability Discrimination Act;
- e) The Premises Standard;
- f) Demolition Standards not referred to by the NCC;
- g) Occupational Health and Safety Act;
- h) Requirements of other Regulatory Authorities including, but not limited to, Telstra, Sydney Water, Electricity Supply Authority, WorkCover, RTA, Council and the like;
and
- i) Conditions of Development Consent
- j) Any insulation or sarking is required to be non-combustible material in accordance with BCA Specification C1.1.

1.5 Design Documentation

This report has been based on the Design plans and Specifications listed in Annexure A of this Report.

2 BUILDING DESCRIPTION

For the purpose of the NCC the development may be described as follows.

2.1 Classification (Clause A3.2)

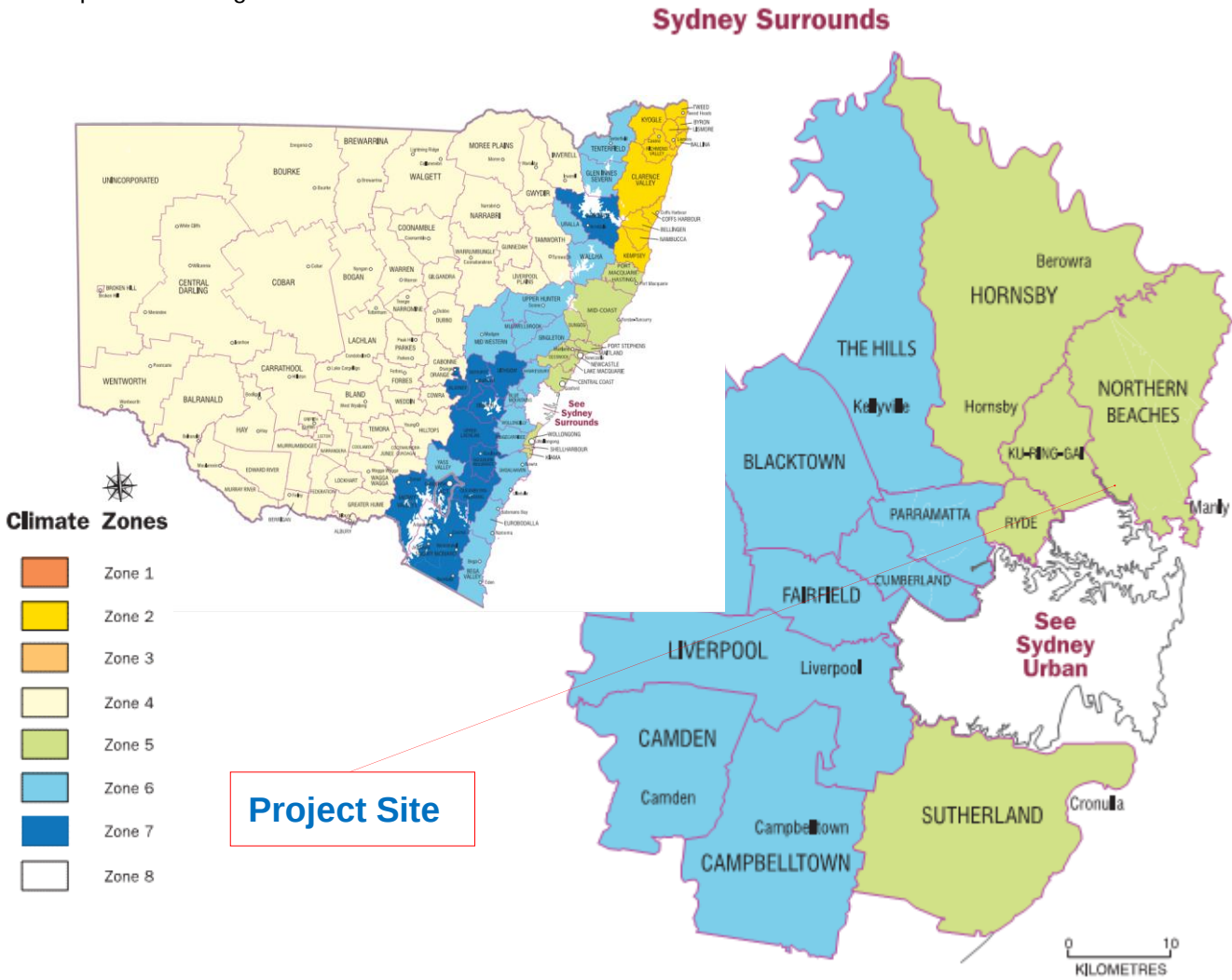
The Building has been classified as follows:

Class	Level	Description
6	Ground	Retail
2	1-2	Shop-top housing

This Report addresses ONLY matters relevant to Section ‘J’ of Volume 1 of the NCC pertaining to the Class 6 portion/s of the building.

2.2 Climate Zone (Clause A1.1)

The building is located within Climate Zone 5 . Any reference to ‘this climate zone’ throughout the report is referring to Climate Zone 5



3 SUMMARY OF PROVISIONS TO COMPLY WITH SECTION J

The following is a summary of the requirements for compliance for Section J to be achievable, for full details of the assessment see Part 4 of this report:

3.1 Part J1.1 - Building Fabric Requirements

Building Element	Min. DTS Checker	Off-set	Fabric Min. Insulation	Fabric Min. Total R	Comply	Compliance Recommendation
<u>New Roof</u> - Concrete Slab <u>Solar Absorptance</u> <u><0.45</u>	Rt3.70 (downwards)	-	R2.30	Rt3.80	No*	<u>Provision of:</u> 50mm, R2.30 reflective insulation board - JV3 required for landscape roof
<u>New Envelop Wall</u> – Hebel Panel & Metal stud	<u>Wall >80%</u> Rt1.4 <u>Wall =<80%</u> Rt1.0	-	R1.38	Rt1.78	Yes	<u>Provision of:</u> 20mm Air gap 55mm, R1.38 bulk insulation
<u>New Exposed Floor</u> - Suspended Concrete	Rt2.00	-	R1.70	Rt2.05	Yes	<u>Provision of:</u> 40mm, R1.75 insulation board

NB Any insulation or sarking is required to be non-combustible material in accordance with BCA Specification C1.1.

***For non-compliance building elements, refer to JV3 performance solution for alternative compliance pathway.**

A JV3 Performance Solution also offers opportunities to remove subfloor insulation beneath the suspended floor.

Ceiling Assumption	The loss of insulation area because of exhaust fans, flues or down-lights is less than 0.5% of the ceiling area.
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3.2 Part J1.2 – Glazing Requirements

Orientation	U-value maximum	SHGC* maximum	Possible Glazing Solution
North (Bifold)	4.80	0.38	Single, low-e, neutral, Al frame
West (Fixed)	4.80	0.46	Single, low-e, neutral, Al frame

*SHGC - Solar Heat Gain Coefficient - % of solar radiation transmitted through glass

3.3 Part J3 - Building Sealing

Building Element	Comment
New Entry Doors	Must be self-closing provided with weather seals.
New Exhaust Fans	Must have self-closing dampers.
Chimneys & Flues	Must have damper or flap that can be closed to seal the chimneys & flues.
Doors & Windows	Must have seals to restrict air infiltration or the windows must comply with AS 2047
Bi-Fold Doors	Any bi-fold doors must be interlocked to ensure the air-conditioning system is inactive when these doors are open.
Roof, Walls & Floor	Minimise air leakage by enclosed or internal lining systems that are close fitting at ceiling, wall and floor junctions or sealed by caulking, skirting, architraves, cornices or the like.

3.4 Part J7 - Hot Water Supply

Building Element	Comment
Food preparation and sanitary purposes	Must be designed and installed in accordance with Part B2 of NCC Volume Three – Plumbing Code of Australia.

3.5 Part J8 - Facilities for Energy Monitoring

Monitoring	Comment
Energy Monitoring	Up to 500m² - Standard authority gas and electricity metering is sufficient.

4 DETAILED ASSESSMENT

4.1 Part J1 - Building Fabric

J1.1 Application - All new parts of the new building envelope need to comply.

The deemed-to-satisfy provisions of this part apply to building elements forming the envelope of a Class 2 to 9 building.

Building Envelope – The building envelope for the purpose of this Section J is described as the external walls, glazing, floors, ceiling and roof of any conditioned space within the proposed Class 6 premises, as well as any internal walls or floors of the premises exposed to an unconditioned space. Please see APPENDIX 1 for building envelope and insulation mark-up.

J1.2 Thermal Construction General - Builder is to ensure compliance, during construction.

- Insulation must comply with AS/NZS 4859.1.
- Abuts or overlaps adjoining insulation other than at supporting members such as studs, noggins, joists, furring channels where the insulation must be against the member.
- Forms a continuous barrier with ceilings, walls, bulkheads, floors or the like that contribute to the thermal barrier.
- Does not affect the safe or effective operation of a service or fitting.
- Reflective insulation must be installed with the necessary airspace between the reflective insulation and a lining or cladding.
- Reflective insulation must be installed closely against any penetration, door or window opening.
- Reflective insulation must be adequately supported by framing members
- Each adjoining sheet of roll membrane being overlapped not less than 50mm or taped together.
- Bulk insulation must be installed so that it maintains its position and thickness.
- When selecting insulation, caution should be taken to clearly identify the total R-value of the installed roofing, ceiling, floor and wall systems.
- Total R-Value and Total System U-Value, must include allowance for thermal bridging, which in accordance with:
 - AS/NZS 4859.2 for a roof or floor, or
 - Specification J1.5a for wall-glazing construction, or
 - Specification J1.6 or Section 3.5 of CIBSE Guide A for soil or sub-floor spaces

J1.3 Roof & Ceiling Construction

- a) In this Climate Zone (5), a minimum total R-value of R3.7 (downwards), for the conditioned spaces.
- b) In Climate Zone 1 to 7, the solar absorption of the upper surface of a roof must be no more than 0.45.

Typical roof types for the project are listed as below. For Green roof construction, performance solution is required to demonstrate it can achieve equal or better outcome than the standard roof types with solar absorptance no more than 0.45

TYPE-1 Concrete roof: *R-Value R3.7 Climate-5 (Solar Absorption <0.45) Downward*

The roof & ceiling system that is a concrete roof with plasterboard ceiling has an un-insulated R-value of R0.39 (<5°) (downwards). Additional insulation is required to achieve a minimum total R-value of R3.70.

Roof & Ceiling Element	R-Value Unventilated-Down
Outside air film	0.04
Waterproof membrane	0.03
150mm concrete roof	0.10
<i>Additional reflective insulation E(0.9-0.05)(<10°)</i>	<i>2.25 minimum</i>
Reflective Airspace	1.06
Plasterboard	0.06
Internal air film	0.16
Total R-value	3.70 minimum

Compliance can be met by:

- Installing 50mm rigid board reflective insulation material with thermal conductivity of 0.021 or better provides a **total 'R-value' of R3.80 (downwards)**, which exceeds the required minimum of R3.70.
- The upper surface of the roof material must not be higher than 0.45 (solar absorption); a landscaped/green roof must have an JV3 alternative solution to comply.
- Any insulation or sarking is required to be non-combustible material in accordance with BCA Specification C1.1.

J1.4 Roof lights – (No Relevant to project)

J1.5 Wall and Glazing

The Total System U-Value and the Solar Admittance of wall-glazing construction must be calculated in accordance with Specification J1.5a and J1.5b of NCC 2019 provision:

- a) The Total System U-Value of wall-glazing construction must not be greater than -
 - i. 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
 - ii. for a Class 3 or 9c building or a Class 9a ward area –
 - (a) in climate zones 1, 3, 4, 6 or 7, **U1.1**; or
 - (b) in climate zones 2 or 5, **U2.0**; or
 - (c) in climate zone 8, **U0.9**.
- b) The Total System U-Value of display glazing must not be greater than **U5.8** (for shop or showroom adjacent to walkway or footpath, not including café or restaurants).
- c) Wall components of a wall-glazing construction must achieve a minimum Total R-Value of -
 - i. where the wall is less than 80% of the area of the wall-glazing construction, **R1.0**; or
 - ii. where the wall is 80% or more of the area of the wall-glazing construction, the value specified in Table J1.5a
- d) The solar admittance of externally facing wall-glazing construction must not be greater than -
 - i. 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 J1.5b; and
 - ii. for a Class 3 or 9c building or a Class 9a ward area, the values specified in Table J1.5c.
- e) The solar admittance of a wall-glazing construction must be calculated in accordance with Specification J1.5a
- f) 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 J1.5a.

Table J1.5a Minimum wall Total R-Value - Wall area 80% or more of wall-glazing construction area

<i>Climate zone</i>	Class 2 common area, Class 5, 6, 7, 8 or 9b building or a Class 9a building other than a <i>ward area</i>	Class 3 or 9c building or Class 9a <i>ward area</i>
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

Table J1.5b 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

<i>Climate zone</i>	<i>Eastern aspect solar admittance</i>	<i>Northern aspect solar admittance</i>	<i>Southern aspect solar admittance</i>	<i>Western aspect solar admittance</i>
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

Refer to Table J1.5a above for minimum wall and façade performance requirement.

Orientation	Class	Min. Wall R-value (m ² .K/W)	Max. DTS U-value (W/m ² .K)
N	6	1.0	2.0
E	6	1.4	2.0
S	6	1.4	2.0
W	6	1.0	2.0

J1.5.1 Façade Systems

Total Façade System Value:

Compliance	Facade	U-value	Solar Admittance	Compliance
Method 1 – Façade	North	4.15	0.150	No
	East	0.56	-	Yes
	South	0.56	-	Yes
	West	2.32	0.089	No
Method 2 – Combined façades	U-value		1.97 of 2.0	Yes
	AC Energy		43 of 44	Yes

Nominated compliance pathway: Method-2 Combined Façade

J1.5.2 Glazing Elements

Nominated Glazing system types:

Glazing types	Methodology	System U-Value	System SHGC	System Type
Bifold	WERS	4.80	0.38	Single, low-e, neutral, Al frame
Fixed	WERS	4.80	0.46	Single, low-e, neutral, Al frame

J1.5.3 Wall Elements

Nominated wall construction types for the projects; refer to Appendix-2 for Wall construction detail (incl. thermal bridging losses)

Wall system types	DTS min. checker	Min. to Comply Insulation R-value (m ² .K/W)	Min. to Comply Total system R-value (m ² .K/W)
Hollow-core concrete wall 75mm Hebel, 20mm airgap, 64mm steel stud + 55mm insulation + 6mm plasterboard	Rt1.4/Rt1.0	20mm Air Gap + R1.38	1.78

J1.6 Floors

- A floor must achieve the Total R-Value specified in Table J1.6.
- A floor must be insulated around the vertical edge of its perimeter with insulation having an R-Value greater than or equal to 1.0 when the floor—
 - is a concrete slab-on-ground in *climate zone* 8; or
 - has an in-slab or in-screed heating or cooling system, except where used solely in a bathroom, amenity area or the like.
- Insulation required by (b) for a concrete slab-on-ground must—
 - be water resistant; and
 - be continuous from the adjacent finished ground level—
 - to a depth not less than 300 mm; or
 - for the full depth of the vertical edge of the concrete slab-on-ground.

Location	<i>Climate zone</i> 1 — up-wards heat flow	<i>Climate zones</i> 2 and 3 — upwards and downwards heat flow	<i>Climate zones</i> 4, 5, 6 and 7 — downwards heat flow	<i>Climate zone</i> 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

Nominated floor construction types for the projects.

Floor types	Wall width (mm)	Floor area (m ²)	Total Perimeter (m)	1- Offset (m ² .K/W)	2- Offset (m ² .K/W)	R-value Required* (m ² .K/W)
Suspended slab above car park	-	352	-	-	-	2.00

* A JV3 Alternative Solution offers opportunity to remove floor insulation beneath the ground and suspended floor.

The concrete *suspended* floor has an un-insulated R-value of R0.3. Additional insulation is required to achieve a total R-value of R2.0.

Floor Element	R-Value
Outdoor air film	0.04
<i>Additional insulation layer</i>	<i>1.70 minimum</i>
Concrete Slab 150mm	0.10
Indoor air film	0.16
Total R-value	2.00 minimum

Compliance can therefore be met by the following:

Adding 40mm rigid board with a thermal conductivity of 0.021 or better to the concrete slab which provides an added **R-value of 1.75**. This will achieve a **total 'value' of R2.05 which exceeds the required R-value of R2.0**

4.2 Part J3 - Building Sealing

J3.1 Application

Applies to elements forming the envelope of a Class 2 to 9 building other than -

- i. A building in climate zones 1, 2, 3 and 5 where the only means of air-conditioning is by using an evaporative cooler; OR
- ii. A permanent building opening, in a space where a gas appliance is located, that is necessary for the safe operation of a gas appliance; OR
- iii. A building or space where the mechanical ventilation required by Part F4 (Health and amenity – ventilation) provides sufficient pressurisation to prevent infiltration.

J3.2 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.

J3.3 Roof Lights

A roof light must be sealed when serving a conditioned space and must be constructed with an impermeate ceiling diffuser or a weatherproof seal if it is a roof window, or a readily operable shutter system (manual, mechanical or electronic).

J3.4 Windows and doors

All external envelope doors and windows must either have seals to restrict air infiltration or the windows must comply with AS 2047.

An entrance to a building must have an airlock, self-closing door, rapid roller door, revolving door or the like...where the conditioned space has a floor area greater than 50m².

Compliance can be met by the following:

- All new entry doors must be self-closing.
- Rapid roller door for entrance to loading dock
- All bi-fold doors must be interlocked to ensure the air-conditioning system is inactive when these doors are open.

J3.5 Exhaust Fans

All exhaust fans fitted in a conditioned space must have a sealing device such as a self-closing damper or the like.

Compliance can be met by:

- Any new exhaust fans to have self-closing dampers, including “miscellaneous exhaust fans”.

J3.6 Constructions of roofs, walls and floors

Roofs, ceilings, walls and floors and any opening such as a window or door must be constructed to minimise air leakage by -

- Enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions or
- Sealed by architraves, skirting, cornices or expanding foam, rubber compressible strip, caulking or the like.

J3.7 Evaporative coolers

An evaporative cooler must be fitted with a self-closing damper when serving -

- i. A heated space; or
- ii. A habitable room or a public area of a building in Climate Zones 4, 5, 6, 7 & 8.

4.3 Part J7 - Heated Water Supply, Swimming Pool & Spa Pool

J7.2 Heated Water Supply

Builder to generally ensure system for food preparation and sanitary purposes must be designed and installed in accordance with Part B2 of NCC Volume Three – Plumbing Code of Australia

Compliance can be met by:

- Specifying system as per required under Part B2 of NCC Volume Three – Plumbing Code of Australia

J7.3 Swimming Pool Heating and Pumping - Not Applicable

J7.4 Spa Pool Heating and Pumping - Not Applicable

4.4 Part J8 - Facilities for Energy Monitoring

J8.1 Application

The provisions of this part do not apply to a sole-occupancy unit of a Class 2 building, a Class 4 part of a building or to a Class 8 electricity network substation.

J8.2 *****

J8.3 Facilities for Energy Monitoring

- a) A building or sole-occupancy unit with a floor area of more than 500 m² must have an energy meter configured to record the time-of-use consumption of gas and electricity.
- b) A building with a floor area of more than 2500 m² must have energy meters configured to enable individual time-of-use energy consumption data recording, in accordance with (c), of the energy consumption of, air-conditioning plant, artificial lighting, appliance power, central hot water supply, internal transport devices, and other ancillary plant.
- c) Energy meters required by (b) 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.
- d) The provisions of (b) do not apply to a Class 2 building with a floor area of more than 2500 m² where the total area of the common areas is less than 500 m².

Compliance can be met by:

- Up to 500m² - Standard authority electricity and gas metering is sufficient.

5 STATEMENT OF COMPLIANCE

The design documentation as referred to in this report has been assessed against the applicable provisions of Section J of the National Construction Code (NCC) and it is considered that such documentation achieves or is capable of full compliance under the specified Section J provisions, with the exception of roof colour (landscape/green roof) design exceeded maximum DTS allowance and hence must refer to JV3 alternative solution pathway for a full NCC Section J compliance assessment.

The JV3 alternative solution will lead to items listed below:

- Roof colour above 0.45 solar absorptance – needed for landscape and green roof.
- Removal of suspended floor insulation above car park area below.

ANNEXURE A - DESIGN DOCUMENTATION

This report has been based on the following design documentation.

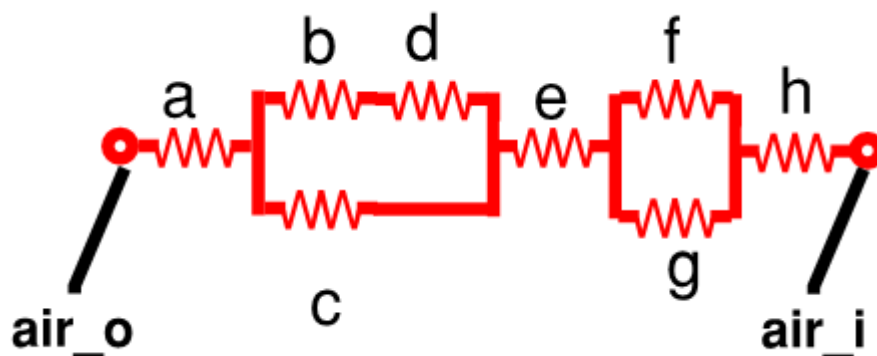
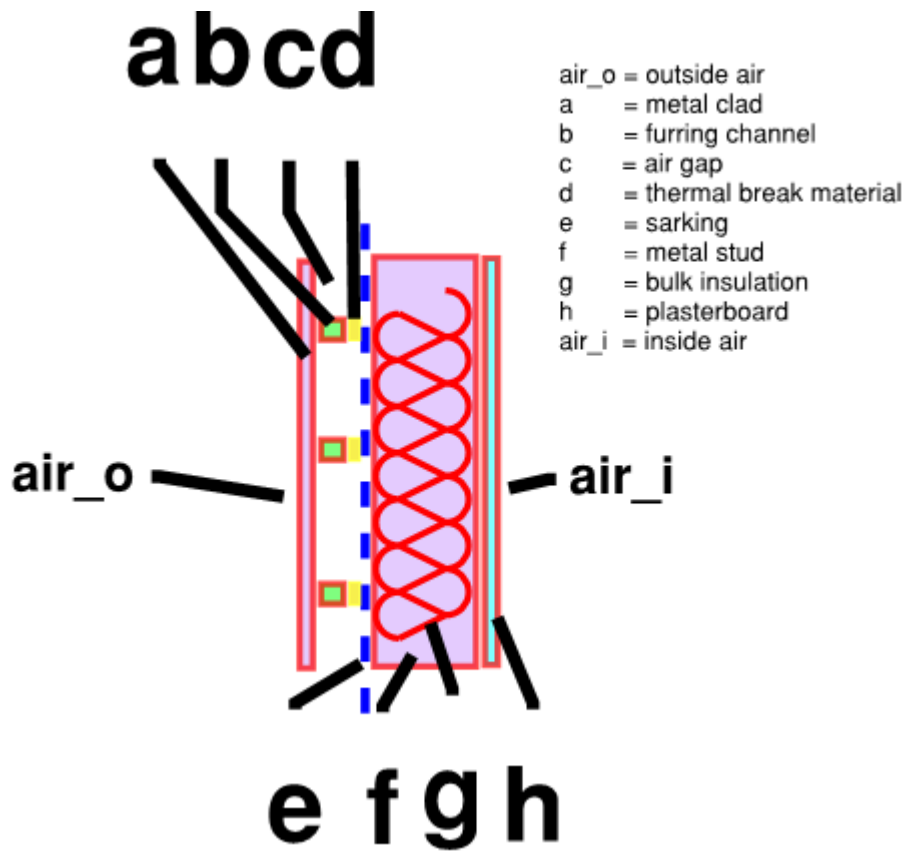
Revision K

DRAWING LIST		
LAYOUT ID	LAYOUT NAME	DRAWING SCALE
	PERSPECTIVE	
	PERSPECTIVE	
	PERSPECTIVE	
	PERSPECTIVE	
	PERSPECTIVE	
	PERSPECTIVE	
	PERSPECTIVE	
	PERSPECTIVE	
	PERSPECTIVE	
A01	COVER PAGE	
A02	INDEX	
A03	LOCATION PLAN	
A04	STREETSCAPE ELEVATION	
A05	PRECEDENTS	
A06	AERIAL PHOTOGRAPH	
A07	SITE ANALYSIS	1:250
A08	PLANNING ANALYSIS	1:250
A09	SITE PLAN	1:250
A10	BASEMENT FLOOR PLAN	1:200
A11	GROUND FLOOR PLAN	1:200
A12	FIRST FLOOR PLAN	1:200
A13	SECOND FLOOR PLAN	1:200
A14	NORTH ELEVATION	1:200
A15	SOUTH ELEVATION	1:200
A16	EAST ELEVATION	1:200
A17	WEST ELEVATION	1:200
A18	SECTION SHOP 2/UNIT 2	1:200
A19	SECTION BB APARTMENT INTERNAL	1:200
A20	SHADOWS 9AM MARCH 21	1:250
A21	SHADOWS 12PM MARCH 21	1:250
A22	SHADOWS 3PM MARCH 21	1:250
A23	SHADOWS 6PM MARCH 21	1:250
A24	SHADOWS 9AM JUNE 21	1:250
A25	SHADOWS 12PM JUNE 21	1:250
A26	SHADOWS 3PM JUNE 21	1:250
A27	SHADOWS 6PM JUNE 21	1:250
A28	SHADOWS 9AM DECEMBER 21	1:250
A29	SHADOWS 12PM DECEMBER 21	1:250
A30	SHADOWS 3PM DECEMBER 21	1:250
A31	SHADOWS 6PM DECEMBER 21	1:250
A32	COMPLIANCE - PRIVATE OPEN SPACE	1:200
A33	COMPLIANCE NATURAL VENTILATION	1:200
A34	COMPLIANCE NATURAL VENTILATION	1:200
A35	SECTION BB RETAIL APARTMENT INTERNAL	1:200
A36	SECTION BB DRIVEWAY	1:200
A37	SECTION BB FIRE STAIRS	1:200
A38	SECTION BB FOYER AND RAMP	1:200
A39	SECTION BB RETAIL INTERNAL STAIR	1:200
A40	SECTION SHOP 1/UNIT 1	1:200
A41	SECTION SHOP 1/UNIT 1	1:200
A42	SECTION SHOP 2/UNIT 2	1:200
A43	SECTION SHOP 2/UNIT 2	1:200
A44	SECTION SHOP 3/UNIT 3	1:200
A45	SECTION SHOP 3/UNIT 3	1:200
A46	SECTION SHOP 4/UNIT 4	1:200
A47	SECTION SHOP 4/UNIT 4	1:200
A48	HEIGHT PLANE 3D 01	
A49	HEIGHT PLANE 3D 02	
A50	HEIGHT PLANE 3D 03	
A51	HEIGHT PLANE 3D 04	
A52	MATERIAL BOARD	
A53	LIVABLE APARTMENT	

[illegible]

APPENDIX 2 – WALL CONSTRUCTION DETAILS

Wall thermal resistance schematic (thermal break inclusion)



Wall type 1 – AAC concrete wall (Refer to Façade Calculator)

Wall Element	Element Spec	R-Value
Outside air film		0.03
AAC Panel	75mm panel – ($k=0.1w/mK$)	0.75
Air Gap	55mm bulk insulation – ($k=0.040w/mK$) - Metal frame – 0.75mm thick & 36mm width, 14% framing area	0.85
Insulation + Frame		
Plasterboard	6mm sheet – ($k=0.17w/mK$)	0.04
Internal air film		0.12
Total R-value		1.79 minimum

Façade

Report

Calculator

Project Summary

Date
2/10/2020

Name
Robert Romaous

Company
BCA Energy

Position
ESD Manager

Building Name / Address
51 Arthur St, Forestville
0

Building State

NSW

Climate Zone

Climate Zone 5 - Warm
temperate

Building Classification

Class 6 - restaurants, cafes,
bars

Stores Above Ground

1

Tool Version
1.1 (April 2020)

The summary below provides an overview of where compliance has been achieved for Specification J1.5a - Calculation of U-Value and solar admittance - Method 1 (Single Aspect) and Method 2 (Multiple Aspects).

Compliant Solution =
Non-Compliant Solution =

	Method 1				Method 2
	North	East	South	West	All
Wall-glazing U-Value ($W/m^2.K$)	4.15	0.56	0.56	2.32	1.97
Solar Admittance	0.17			0.07	
AC Energy Value					44

Method 1

Wall-glazing U-Value

Direction	Proposed Design ($W/m^2.K$)	DTS Reference ($W/m^2.K$)
North	4.15	2.00
East	0.56	2.00
South	0.56	2.00
West	2.32	2.00

Solar Admittance

Direction	Proposed Design (SA)	DTS Reference (SA)
North	0.168	0.13
East	0.067	0.13
South	0.067	0.13
West	0.067	0.13

Method 2

Wall-glazing U-Value - ALL

Direction	Proposed Design ($W/m^2.K$)	DTS Reference ($W/m^2.K$)
ALL	1.97	2.00

AC Energy Value

Direction	Proposed Design (AC Energy)	DTS Reference (AC Energy)
ALL	44	44