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21 October 2020

West End Mazda

c/- Greenwich Projects

s.craig@greenwichprojects.com.au

Attention: Mr. S. Craig

Dear Stephen,

**RE: National Construction Code (NCC) 2019 Building Code of
Australia Volume One Amendment 1 Section J Part J1 Statement
of Compliance**

JOB NO.: 200337

REV. NO.: [A]

SUBJECT PREMISE: West End Mazda New Showroom & Workshop, 574 - 584 Church Street, Parramatta NSW 2151.

This NCC Section J Part J1 statement has been prepared to demonstrate design compliance for the new West End Mazda New Showroom & Workshop located at 574 - 584 Church Street, Parramatta NSW 2151. The NCC Section J compliance can be achieved by complying with the Deemed-To-Satisfy (DTS) provision and/ or JV Verification Methods requirements.

The proposed development is located in **climate zone 6** as defined by the NCC 2019 Building Code of Australia - Volume One Amendment 1.

The table below shows the areas assessed, NCC 2019 Class classification and the method of compliance.

Building Area Description	NCC Classification	Method of Compliance
Showroom and Dealership	6	JV3
Service Workshops	8	JV3
Office	5	JV3
Carpark	7a	N/A

The assessment is based on the architectural drawings listed below.

Architectural Drawings Gray Puksand
Project code. 218024

Building	Title	Drawing No	Revision
West End Mazda Dealership	Lower Ground Floor Plan	DA100	P6
	Ground Floor Plan	DA101	P6
	Level 1 Floor Plan	DA102	P6

Building	Title	Drawing No	Revision
	Roof Plan	DA103	P5
	Building Elevation	DA200	P5
	Building Sections	DA210	P5
	Building Sections	DA211	P5

A JV Verification Method can be used to show compliance in areas where the proposed building fabric is not complying with the minimum DTS requirements.

As per JV3 Verification Method Provisions of **NCC 2019 Volume One Amendment 1**, design compliance with Part J1 can be met subject to the following specifications:

Part J1 Building Fabric

Required **total R-value** including allowance for **thermal bridging**.

Elements	Total Construction R-value	Note
Roof & Ceiling	R3.2 (Downwards)	<ul style="list-style-type: none"> It is a total system performance value and NOT the insulation. The impact of Thermal Bridging must be included in the building envelope total system R-value calculations. Roof solar absorptance must be no more than 0.45 (lighter colour)
External Walls	R1.4	
Internal Walls to Washbay	R1.4	
Floor Exposed to Outside	Nil	
Floor Exposed to Non-conditioned space	Nil	
Slab on Ground	Nil	

The above construction thermal mark-ups are attached in Attachment C.

Required total system **U-value** and **SHGC**.

Location	Azimuth	Window Assembly (Glass & Frame)		Description
		U-value	SHGC	
External - Showroom	All	5.8	0.80	Single glazed clear
External - Other	All	5.8	0.80	Single glazed clear
Internal	All	N/A	N/A	No Requirements

Part JV3 (a) (ii) Thermal Comfort Level

Thermal modelling is required to demonstrate that all occupied zones have been designed to achieve a Predicted Mean Vote (PMV) performance criteria of -1 to +1 across not less than 95% of the floor area for not less than 98% of the annual hours of operation of the building.

The most appropriate seasonal (summer and winter) space operative temperature set points were investigated based on the occupant activity and clothing level to meet the above criteria

Space Operative Temperature Set Points

Location	Operative Temperature (°C)	
	Summer	Winter
West End Mazda Dealership	24	21

Additional Section J Compliance Notes

Note project needs to adhere to the following NCC2019 Section J construction requirements as applicable:

- J1.2 (a-d) Thermal Construction – general installation requirements for insulations
- J1.3 (e) – The required total R-value and total system U-value, including thermal bridging calculation.

JHA recommend the following general construction requirements from Section J of the NCC 2019 be included in the architectural specification and drawings to ensure compliance.

Part J3 – Building Sealing

- J3.2 Chimneys and flues
- J3.3 Roof lights
- J3.4 Windows and doors
- J3.5 Exhaust fans
- J3.6 Construction of ceilings, walls and floors
- J3.7 Evaporative coolers

Full Name of Designer: Stefan Takac
Qualifications: BEng, MEngSci
Address of Designer: JHA
Level 23, 101 Miller Street,
NORTH SYDNEY NSW 2060
Business Telephone No: (02) 9437 1000
Name of Employer: JHA

Yours sincerely,



Stefan Takac

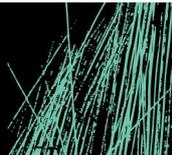
Senior Sustainability Engineer

Disclaimer

This statement is prepared for the nominated recipient only and relates to the specific scope of work and agreement between JHA and the client (the recipient). It is not to be used or relied upon by any third party for any purpose.

Revision History

REV	DATE	Amendment

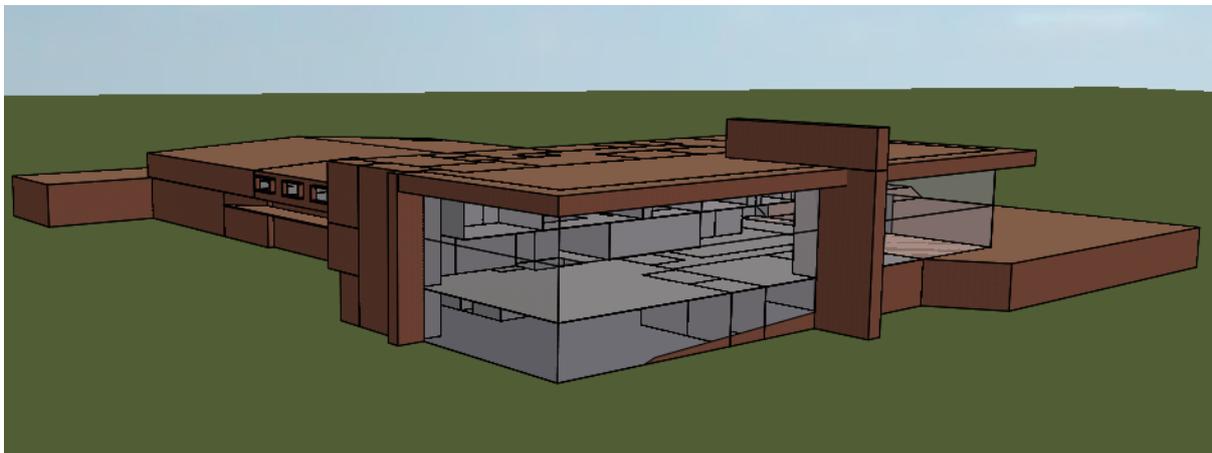


ATTACHMENT A – JV3(A)(I) MODELLING RESULTS:

Thermal modelling was undertaken to demonstrate Building Fabric compliance with the Performance Requirement for JP1 of Section J, NCC 2019, Volume One Amendment 1. Energy simulation was conducted in accordance with NCC 2019, Volume One Amendment 1 JV3 requirements and the calculation method of the ABCB Protocol.

Building	Modelled Item	Calculated Annual Greenhouse Gas Emission [kgCO ₂ -e]
West End Mazda Dealership	Reference Building	419
	Proposed Building JV3(a)(i)	417

The Annual Greenhouse Gas Emission of the Proposed Building is less than Annual Greenhouse Gas Emission of Reference Building. Therefore, the proposed Building Fabric including Glazing is **compliant** with Section JP1 requirements.



IES Model for energy simulation

Model Inputs

Weather file

AUS_NSW_Sydney.Olympic.Park.Archery.Centre.957650_TMYx.epw

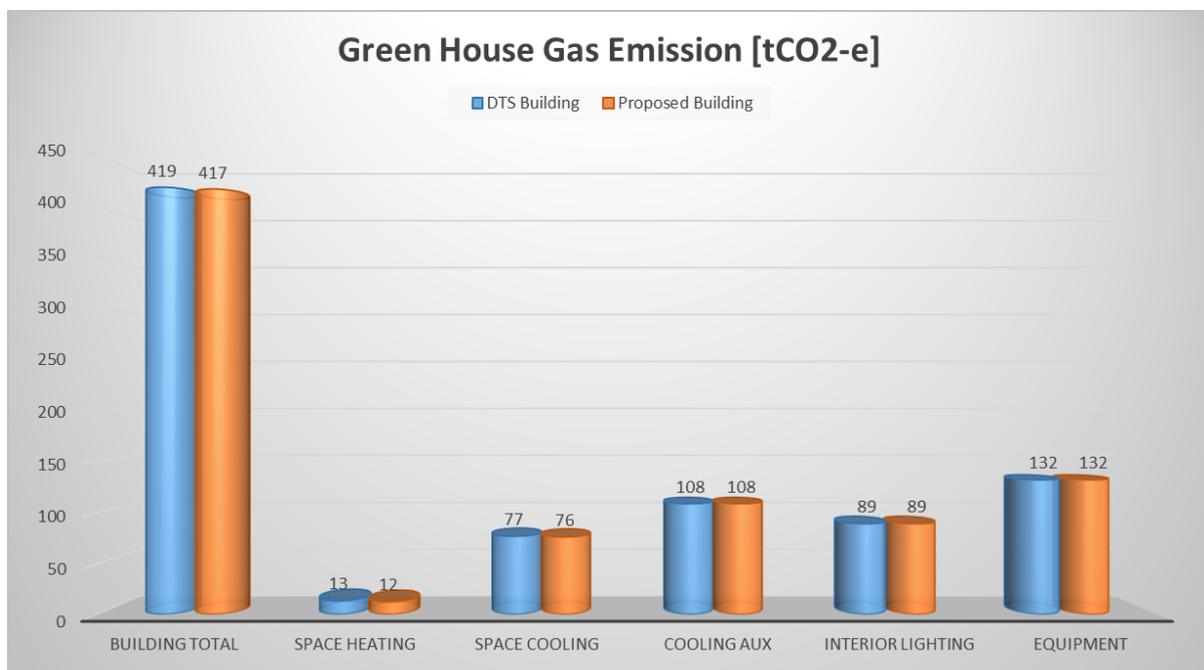
Building Fabric Total R-Value.

Building Fabric Parameter Summary		
Construction	DTS Reference Building	Proposed Building
Roof & Ceiling	R3.2	R3.2
External Walls	R1.4	R1.4
Internal Walls	R1.4	R1.4
Floor Exposed to Outside	R2.0	Nil
Floor Exposed to Non-conditioned space	R2.0	Nil
Slab on Ground	R2.0	Nil

Building Fabric Total System (Glass & Frame) U-Value and SHGC.

Window Assembly (Glass & Frame)					
Location	Azimuth	DTS Reference Building		Proposed Building	
		U Value	SHGC	U Value	SHGC
External - Showroom	N	5.8	0.80	5.8	0.80
	E	-	-		
	S	5.8	0.80		
	W	5.8	0.80		
External - Other	N	7.9	0.55	5.8	0.80
	E	7.9	0.55		
	S	-	-		
	W	7.9	0.55		

Modelling Results



Energy Use	DTS		Proposed		
	Electricity [MWhr]	Gas [MJ]	Electricity MWhr	Gas MJ	
Interior Lighting	96.4	-	96.4	-	
Equipment	143.1	-	143.1	-	
Space Heating	14.4	-	13.2	-	
Space Cooling	83.1	-	82.3	-	
Cooling Aux	117.6	-	117.6	-	
On-site Renewable Energy	Nil	Nil	Nil	Nil	
Total [GJ/annum]		1,634.4	-	1,629.6	-
Green House Gas Emissions factor	NSW	256	52	256	52
Green House Gas Emission [tCO ₂ -e]		419		417	

ATTACHMENT B – JV3(A)(II) PMV MODELLING RESULTS

For NCC 2019 JV3 verification is required for the proposed building to achieve a thermal comfort level of between a Predicted Mean Vote (PMV) of -1 to +1 is across not less than 95% of the floor area of all occupied zones for not less than 98% of the annual hours of operation of the building.

PMV MODEL INPUTS

Space Operative Temperature Set Points and Comfort Parameters.

1. Office/ Meeting/ Reception

Period	Summer	Winter	Description
Operative Temperature (°C)	24	21	
Clothing Level (CLO)	0.57	1.00	Solid trousers/ Skirts & short sleeve shirt + long sleeve sweater in winter
Activity Level (MET)	1.1 (65W/m ²)		Seated, reading, typing
Nominal Air Velocity (m/s)	0.15		
Infiltration	NCC 2019		0.35 ACH when plant operating, 0.7 ACH any other time

2. Showroom

Period	Summer	Winter	Description
Operative Temperature (°C)	24	21	
Clothing Level (CLO)	0.57	1.00	Solid trousers/ Skirts & short sleeve shirt + long sleeve sweater in winter
Activity Level (MET)	1.0 (70W/m ²)		Standing, relaxed
Nominal Air Velocity (m/s)	0.15		
Infiltration	NCC 2019		0.35 ACH when plant operating, 0.7 ACH any other time

3. Café - Seated

Period	Summer	Winter	Description
Operative Temperature (°C)	24	21	
Clothing Level (CLO)	0.57	1.00	Solid trousers/ Skirts & short sleeve shirt + long sleeve sweater in winter
Activity Level (MET)	1.0 (55W/m ²)		Seated, relaxed
Nominal Air Velocity (m/s)	0.15		
Infiltration	NCC 2019		0.35 ACH when plant operating, 0.7 ACH any other time

4. Café - Staff

Period	Summer	Winter	Description
Operative Temperature (°C)	24	21	
Clothing Level (CLO)	0.48	0.75	Solid trousers & T-shirt + long sleeve sweater (thin) in winter
Activity Level (MET)	1.7 (100W/m ²)		Light Activities
Nominal Air Velocity (m/s)	0.15		
Infiltration	NCC 2019		0.35 ACH when plant operating, 0.7 ACH any other time

Internal Heat Gains

Location	Area per person [m ² /person]	Lighting [W/m ²]	Internal Sensible [W/m ²]	Per person	
				Sensible	Latent
Office/ Reception	10	2.5	11	75 W	55 W
Board room	2	5	-	75 W	55 W
Corridor	-	5	-	-	-
Cafe	1	14	5	80 W	80 W
Showroom	5	14	5	75 W	55 W
Services Department	5	14	5	75 W	55 W
Spare Parts	30	1.5	5	75 W	55 W

Please note:

- All comfort parameters suffice "ASHRAE Standard 55-2017.
- Modelling profiles are as per NCC 2019 Specification Jvc.

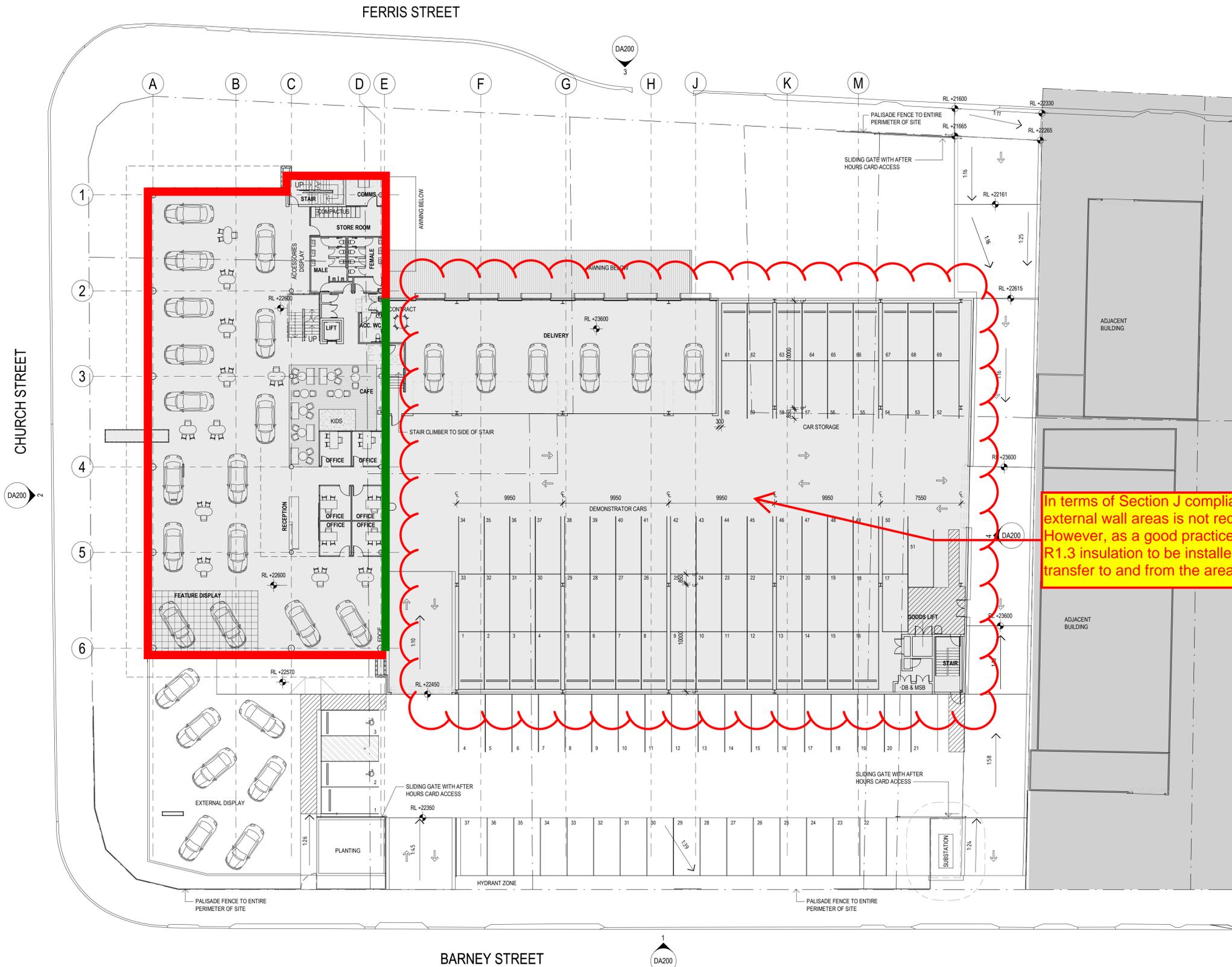
PMV MODELLING RESULTS

Predicted Mean Vote (% hours in range)										
Location	Period	Jan-Apr			May-Aug			Sep-Dec		
		< -1	-1 ≤ & ≤ 1	> 1	< -1	-1 ≤ & ≤ 1	> 1	< -1	-1 ≤ & ≤ 1	> 1
Office/ Meeting/ Reception	LG_Spare Parts	0	100	0	0	100	0	0	100	0
	LG_Breakout	0	100	0	0	100	0	0	100	0
	LG_Office	0	100	0	0	100	0	0	100	0
	LG_Office	0	100	0	0	100	0	0	100	0
	LG_Office	0	100	0	0	100	0	0.2	99.8	0
	LG_Office	0	100	0	0	100	0	0	100	0
	LG_Service Department	0	100	0	0	100	0	0	100	0
	GF_Office	0	100	0	0	100	0	0	100	0
	GF_Office	0	100	0	0	100	0	0	100	0
	GF_Office	0	100	0	0	100	0	0	100	0
	GF_Office	0	100	0	0	100	0	0	100	0
	GF_Office	0	100	0	0	100	0	0	100	0
	GF_Office	0	100	0	0	100	0	0	100	0
	GF_Office	0	100	0	0	100	0	0	100	0
	L1_Office	0	100	0	0	100	0	0	100	0
	L1_Office	0	100	0	0	100	0	0	100	0
	L1_Breakout	0	100	0	0	100	0	0	100	0
	L1_Boardroom	0	100	0	0	100	0	0	100	0
	L1_Office	0	100	0	0	100	0	0	100	0
	L1_Office	0	100	0	0	100	0	0	100	0
L1_Office	0	100	0	0	100	0	0	100	0	
L1_Office	0	100	0	0	100	0	0	100	0	
L1_Office	0	100	0	0	100	0	0	100	0	
L1_Office	0	100	0	0	100	0	0	100	0	
Showroom	GF_Showroom	0	100	0	0	100	0	0	100	0
Cafe	GF_Cafe seated	0	100	0	0	100	0	0	100	0

Predicted Mean Vote (% hours in range)										
Location	Period	Jan-Apr			May-Aug			Sep-Dec		
	PMV	< -1	-1 ≤ & ≤ 1	> 1	< -1	-1 ≤ & ≤ 1	> 1	< -1	-1 ≤ & ≤ 1	> 1
	GF_Cafe staff	0	100	0	0	100	0	0	100	0

The PMV modelling results demonstrate that the proposed blocks **meet** the JV3 Verification Method thermal comfort level requirements.

ATTACHMENT C – BUILDING FABRIC REQUIREMENTS



NCC 2019 Section J1
Building Fabric Required total system R-Values

	Roof & Ceiling	- R3.2 (Downward)
	External Walls	- R1.4
	Internal Walls	- R1.4

Note:
 1) The above construction R-values including allowance for Thermal bridging.
 2) The R-value is a total system performance value and NOT insulation.
 3) The above construction are only to be applied to non-glazed portions of the envelope and spandrel panels; glazing must be installed as per the architectural layouts with its thermal performances pursuant to the respective glazing specifications stated in the Section J report.
 4) The roof solar absorptance must be no more than 0.45 (lighter colour)

Glazing (Glass + Frame) Requirements.
 1) External windows - Showroom
 U-value of 5.8 & SHGC of 0.80 (Single Glazed Clear)
 2) External windows - Other
 U-value of 5.8 & SHGC of 0.80 (Single Glazed Clear)
 3) Internal windows - No requirements.

JHA
 MARKUP / SKETCH

DOCUMENT No.: 200901_ESD - West End Mazda
 DOCUMENT TITLE: NCC 2019 Section J1 Building Fabric Minimum R-Value Requirements
 DOCUMENT REV: A
 DOCUMENT BY: ST DATE: 21/10/2020

In terms of Section J compliance insulating Carpark roof & external wall areas is not required. However, as a good practice we still recommend at least an R1.3 insulation to be installed to reduce unwanted heat transfer to and from the area.

SCOPE OF WORKS LEGEND

	NO WORKS REQUIRED
	AREA OF NEW WORKS

SITE INFORMATION

SITE AREA	6387m ²
BUILDING GFA (total building area not excluding LEP definition)	6411m ²
REQUIRED CAR PARKING (0.75 spaces per 100m ² site area plus workbay requirements)	138 spaces
TOTAL PARKING PROVIDED	145 spaces

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REV	DESCRIPTION	DATE
P1	PRELIMINARY ISSUE	12/02/2020
P2	PRELIMINARY ISSUE	06/04/2020
P3	PRELIMINARY SERVICES ISSUE	24/08/2020
P4	PRELIMINARY ISSUE FOR INFORMATION	16/09/2020
P5	PRELIMINARY ISSUE	25/09/2020
P6	PRELIMINARY ISSUE FOR INFORMATION	28/09/2020

1 GROUND FLOOR PLAN
 DA200 1:200

PROJECT NO	218024
DRAWN	Author
CHECKED	Checker
APPROVED	Approver

West End Mazda Dealership
 574 - 584 Church Street,
 Paramatta NSW

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GROUND FLOOR PLAN

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NCC 2019 Section J1
Building Fabric Required total system R-Values

Roof & Ceiling - R3.2 (Downward)
 External Walls - R1.4
 Internal Walls - R1.4

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 U-value of 5.8 & SHGC of 0.80 (Single Glazed Clear)
 3) Internal windows - No requirements.

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 DOCUMENT REV: A
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SCOPE OF WORKS LEGEND

NO WORKS REQUIRED
 AREA OF NEW WORKS

SITE INFORMATION

SITE AREA	6387m ²
BUILDING GFA (total building area not excluding LEP definition)	6411m ²
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TOTAL PARKING PROVIDED	145 spaces

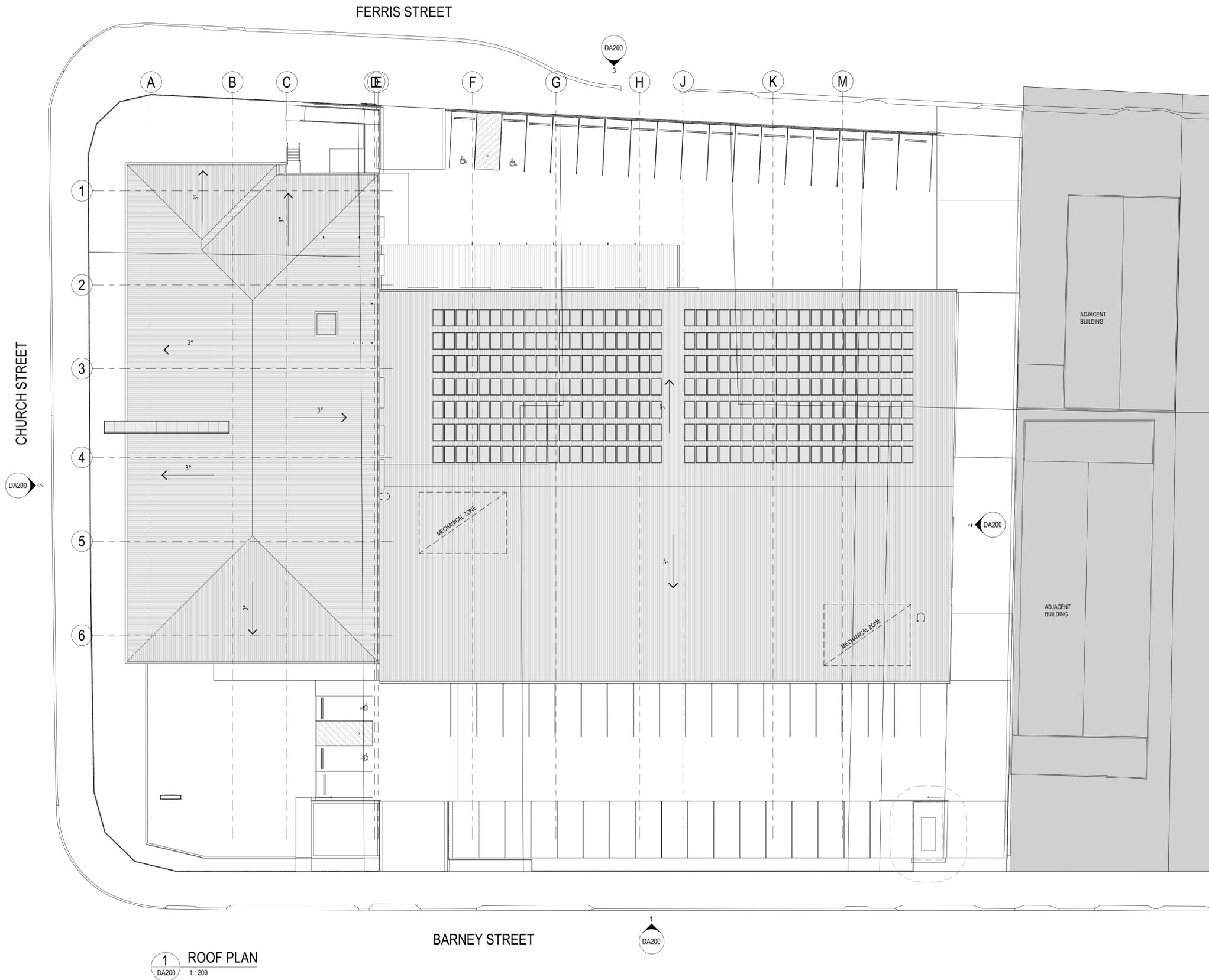
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1 ROOF PLAN
DA200 1:200

NCC 2019 Section J1
Building Fabric Required total system R-Values

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- NO WORKS REQUIRED
- AREA OF NEW WORKS

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 BUILDING GFA (total building area not excluding LEP definition) 6411m²

REQUIRED CAR PARKING 138 spaces
 (0.75 spaces per 100m² site area plus workbay requirements)

TOTAL PARKING PROVIDED 145 spaces

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PROJECT NO 218024
 DRAWN Author
 CHECKED Checker
 APPROVED Approver

West End Mazda Dealership

574 - 584 Church Street,
 Parramatta NSW

DA APPROVAL ISSUE

ROOF PLAN

DWG # DA103 REV P5
 SCALE @ A1 As indicated