



ABN 48 612 666 172

Sydney | Brisbane | Melbourne

Level 23, 101 Miller St
North Sydney NSW 2060

PO Box 3
North Sydney NSW 2059
Ph (02) 94371000

8 December 2021

Revelop

Suite 506, Level 5 55 Philip Street

Parramatta NSW 2150

Attention: E.Han

Dear Emily,

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

JOB NO.: 210410

REV. NO.: FINAL V1

SUBJECT PREMISE: Chisholm Shopping Centre

This NCC Section J Part J1 statement has been prepared to demonstrate design compliance for the proposed Chisholm Shopping Centre development located at Heritage Drive Chisholm, NSW 2322.

The proposed development is located in climate **Zone 5** as defined by the NCC.

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

Building Area Description	NCC Classification	Method of Compliance
Main building	6 & 9a	DTS
Detached retail	6	DTS
Gym and Childcare	6 & 9b	DTS

The assessment is based on the architectural drawings listed below.

Architectural Drawings BN Group
 Project no. N/A
 Issued 05/11/2021

Building	Title	Drawing No	Revision
Chisholm Shopping Centre	GLAR & CARPARKING ANALYSIS	A00.20	F
	PROPOSED SITE PLAN	A02.01	F
	PROPOSED BASEMENT FLOOR PLAN CHISHOLM SHOPPING CENTRE AND MEZZANINE FLOOR PLAN	A06.01	G
	PROPOSED GROUND FLOOR PLAN	A06.02	G
	PROPOSED ROOF PLAN	A06.03	E
	PROPOSED CHILDCARE PLAN	A06.04	E
	NORTH ELEVATION	A10.01	F

	SOUTH ELEVATION	A10.02	F
	EAST ELEVATION	A10.03	F
	WEST ELEVATION	A10.04	G
	TIGERHAWK DRIVE STREET VIEW	A10.05	F
	ELEVATION CHILDCARE	A10.09	E
	SECTION 1	A11.01	E
	SECTION 2	A11.02	F
	SECTION 3	A11.03	E
	SECTIONS CHILDCARE	A11.04	E
	3D VISUALIZATION	A80.01	F
	PERSPECTIVES SHEET 1	A80.02	E
	PERSPECTIVES SHEET 2	A80.03	F
	PROPOSED MATERIAL BOARD	A100.01	A

As per the Deemed-to-Satisfy 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	Notes
All Roof	R3.7 (Downward, SA < 0.45)	<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. Main building Slab on ground expected to achieve R3.67 as per Specification J1.6 Sub-floor thermal performance, hence no additional insulation required. Gym and Childcare Slab on ground expected to achieve R3.67 as per Specification J1.6 Sub-floor thermal performance, hence no additional insulation required.
Envelope Walls	R1.4	
Envelope Floors (including slab on Ground)	R2.0 (Downward)	

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

Location	Azimuth	Window Assembly (Glass & Frame)		Description
		U-value	SHGC	
Main building	All	3.0	0.38	Double Low-e Tinted Glazing or the like
Main building (Escalator lobby)	All	4.6	0.59	Single Clear Glazing or the like
Detached retail	All	3.5	0.54	Double Tinted Glazing or the like
Gym and Childcare	All	5.8	0.53	Single Clear Glazing or the like

Please refer to Attachment A for the facade calculator demonstrating compliance, and Attachment B for the mark-ups of the building fabrics thermal construction requirements.

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
- J1.2 (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: Ivan Miao
Qualifications: B. Mechanical Eng (Honours)
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,



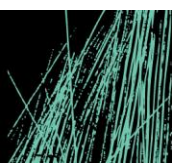
Ivan Miao
Sustainability Engineer

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
Draft V1	25/11/2021	
Final V1	08/12/2021	



Attachment A – Facade Calculator:

The total representative air-conditioning energy value (E_R) value of the proposed building is 681.36 (less than 681.71) and total System U-value is 1.99 (less than 2.00). Therefore, the proposed building façade complies with Part J1 via *Method 2*.

Project Chisolm Shopping Centre - Main Building

Climate Zone	CZ 5
Class	Other
Azimuth	18

Exposure	Total Wall-Glazing Area				Walls		Windows				
	Reference Wall Type	External Envelope	Internal Envelope	Excluded Area	Sum	R-Value	A*U-Value	Exposure	U-Value	SHGC	A*U-Value
North	1	885.4	0.0		885.4	1.40	44.5	N1	3.0	0.38	2469.3
	2	112.0			112.0	1.40	80.0	N2	4.6	0.59	0.0
	1				0.0		0.0	N3			0.0
	1				0.0		0.0	N4			0.0
East	1	459.5	0.0	28.8	430.7	1.40	142.3	E1	3.0	0.38	694.2
	2	88.2			88.2	1.40	35.6	E2	4.6	0.59	176.5
	1				0.0		0.0	E3			0.0
	1				0.0		0.0	E4			0.0
South	1	929.6	0.0	4.0	925.7	1.40	499.0	S1	3.0	0.38	681.3
	2	112.0			112.0	1.40	80.0	S2	4.6	0.59	0.0
	1				0.0		0.0	S3			0.0
	1				0.0		0.0	S4			0.0
West	1	554.5	0.0		554.5	1.40	148.1	W1	3.0	0.38	1041.3
	2	39.6			39.6	1.40	0.0	W2	4.6	0.59	182.1
	1				0.0		0.0	W3			0.0
	1				0.0		0.0	W4			0.0

Exposure	Façade Area				Method 1		Method 2		U-value		R-value	
	Total [m ²]	Wall [m ²]	Window [m ²]	Wall Glazing Ratio	Solar Admittance				Total System		Total System	
					Max SA	Achieved SA	Max Er	Achieved Er	Max U-Value	Achieved U-Value	Min. R-Value	Achieved R-Value
N	997.4	174.3	823.1	17%	0.13	0.19	295.63	423.93	2.0	2.60	1.0	1.40
E	518.9	249.2	269.8	48%	0.13	0.09	116.03	82.72	2.0	2.02	1.0	1.40
S	1037.7	810.5	227.1	78%	0.13	0.07	134.89	72.29	2.0	1.21	1.0	1.40
W	594.1	207.4	386.7	35%	0.13	0.10	135.15	102.42	2.0	2.31	1.0	1.40
					SUM		681.71	681.36	2.0	1.99		

Description	Level	Window Exposure	Reference Wall Type	Window			P [m]	H [m]	P/H	G/H	Shading Multiplier	A*SHGC
				Height [m]	Width [m]	Area [m ²]						
1		N1	1	4.00		180.4	6.44	4.00	1.61	0.00	0.35	23.99
2		N1	1	4.00	8.53	34.1	3.70	4.00	0.80	0.00	0.41	5.32
3		N1	1	4.00	25.26	101.0	2.77	4.00	0.69	0.00	0.51	19.58
4		N1	1	4.00	7.10	28.4	2.75	4.00	0.69	0.00	0.51	5.50
5		W1	1	4.00	12.16	48.6	2.75	4.00	0.69	0.00	0.51	9.42
6		W1	1	5.28		33.3	12.40	5.28	2.35	0.00	0.35	4.42
7		N1	1	5.28	8.00	42.2	17.90	5.28	3.39	0.00	0.35	5.62
8		E1	1	5.28		34.8	9.40	5.28	1.78	0.00	0.35	4.63
9		E2	2	5.28		38.4	4.60	5.28	0.87	0.00	0.41	9.28
10		E1	1	4.00	11.10	44.4	2.80	4.00	0.70	0.00	0.46	7.76
11		N1	1	4.00	7.63	30.5	2.80	4.00	0.70	0.00	0.46	5.33
12		N1	1	4.00	31.50	126.0	2.80	4.00	0.70	0.00	0.46	22.02
13		N1	1	4.00	7.40	29.6	2.80	4.00	0.70	0.00	0.46	5.17
14		W1	1	4.00	7.40	29.6	2.80	4.00	0.70	0.00	0.46	5.17
15		N1	1	4.00	3.30	14.0	1.74	3.90	0.45	0.00	0.64	3.40
16		W1	1	4.00	58.90	235.6	5.00	1.34	3.73	0.00	0.35	31.33
17		S1	1	3.90	14.50	56.6	9.62	6.45	1.49	0.40	0.74	15.90
18		S1	1	2.45	69.70	170.6	0.73	2.45	0.30	0.00	0.87	56.39
19		E1	1	3.65	6.86	25.0					1.00	9.51
20		E1	1	3.60		39.3	4.85	3.65	1.33	0.01	0.35	5.23
21		E1	1	3.60		17.14	6.17	4.85	3.65	1.33	0.01	8.21
22		E1	1	3.65	3.10	17.6	4.66	3.65	1.28	0.00	0.35	2.33
23		E1	1	1.83	4.68	8.5	4.66	1.83	2.55	0.00	0.35	1.14
24		N1	1	1.50	33.82	50.6					1.00	19.22
25		N1	1	2.13	71.18	151.6					1.00	57.61
26		N1	1	1.50	23.13	34.6					1.00	13.75
38		W2	2	3.26	12.14	39.6	29.50	3.26	9.05	0.00	0.35	8.17

The total representative air-conditioning energy value (E_R) value of the proposed building is 83.70 (less than 84.74) and total System U-value is 1.96 (less than 2.00). Therefore, the proposed building façade complies with Part J1 via *Method 2*.

Project Chisolm Shopping Centre - Building detached retail

Climate Zone	CZ 5
Class	Other
Azimuth	18

Exposure	Total Wall-Glazing Area				Walls		Windows				
	Reference Wall Type	External Envelope	Internal Envelope	Excluded Area	Sum	R-Value	A*U-Value	Exposure	U-Value	SHGC	A*U-Value
North	1	91.4	0.0	0.0	91.4	1.40	45.1	N1	3.5	0.54	99.2
	1				0.0		0.0	N2			0.0
	1				0.0		0.0	N3			0.0
	1				0.0		0.0	N4			0.0
East	1	41.8	0.0	0.0	41.8	1.40	16.9	E1	3.5	0.54	63.5
	1				0.0		0.0	E2			0.0
	1				0.0		0.0	E3			0.0
	1				0.0		0.0	E4			0.0
South	1	263.5	0.0	0.0	263.5	1.40	113.0	S1	3.5	0.54	368.6
	1				0.0		0.0	S2			0.0
	1				0.0		0.0	S3			0.0
	1				0.0		0.0	S4			0.0
West	1	61.8	0.0	0.0	61.8	1.40	6.5	W1	3.5	0.54	184.4
	1				0.0		0.0	W2			0.0
	1				0.0		0.0	W3			0.0
	1				0.0		0.0	W4			0.0

Exposure	Façade Area				Solar Admittance				U-value		R-value	
	Total [m ²]	Wall [m ²]	Window [m ²]	Wall Glazing Ratio	Max SA	Achieved SA	Max Er	Achieved Er	Max. U-Value	Achieved U-Value	Min. R-Value	Achieved R-Value
N	91.4	63.1	28.3	69%	0.13	0.12	27.10	25.11	2.0	1.58	1.0	1.40
E	41.8	23.7	18.1	57%	0.13	0.08	9.34	5.90	2.0	1.92	1.0	1.40
S	263.5	158.1	105.3	60%	0.13	0.13	34.25	35.26	2.0	1.83	1.0	1.40
W	61.8	9.1	52.7	15%	0.13	0.16	14.05	17.43	2.0	3.09	1.0	1.40
					SUM		84.74	83.70	2.0	1.96		

Description	Level	Window Exposure	Reference Wall Type	Window		Area [m ²]	P [m]	H [m]	P/H	G/H	Shading Multiplier	A*S*SHGC
				Height [m]	Width [m]							
38		N1	1	4.96		28.3	1.52	4.96	0.31	0.00	0.72	11.02
39		W1	1	4.96		52.7	5.04	4.96	1.02	0.00	0.35	9.96
40		S1	1	5.65		105.3	4.70	5.65	0.83	0.00	0.62	35.26
41		E1	1	6.80		18.1	6.90	6.80	1.01	0.00	0.35	3.43

The total representative air-conditioning energy value (E_R) value of the proposed building is 211.54 (less than 214.17) and total System U-value is 1.77 (less than 2.00). Therefore, the proposed building façade complies with Part J1 via Method 2.

Project Chisolm Shopping Centre - Gym and Childcare

Climate Zone	CZ 5
Class	Other
Azimuth	18

Exposure	Total Wall-Glazing Area				Walls		Windows				
	Reference Wall Type	External Envelope	Internal Envelope	Excluded Area	Sum	R-Value	A*U-Value	Exposure	U-Value	SHGC	A*U-Value
North	1	273.0	0.0	0.0	273.0	1.40	179.7	N1	5.8	0.53	124.4
	1				0.0		0.0	N2			0.0
	1				0.0		0.0	N3			0.0
	1				0.0		0.0	N4			0.0
East	1	517.9	0.0	7.4	510.5	1.40	304.3	E1	5.8	0.53	489.9
	1				0.0		0.0	E2			0.0
	1				0.0		0.0	E3			0.0
	1				0.0		0.0	E4			0.0
South	1	133.7	0.0	7.1	126.6	1.40	90.4	S1	5.8	0.53	0.0
	1				0.0		0.0	S2			0.0
	1				0.0		0.0	S3			0.0
	1				0.0		0.0	S4			0.0
West	1	971.4	0.0	29.9	941.4	1.40	474.0	W1	5.8	0.53	1611.4
	1				0.0		0.0	W2			0.0
	1				0.0		0.0	W3			0.0
	1				0.0		0.0	W4			0.0

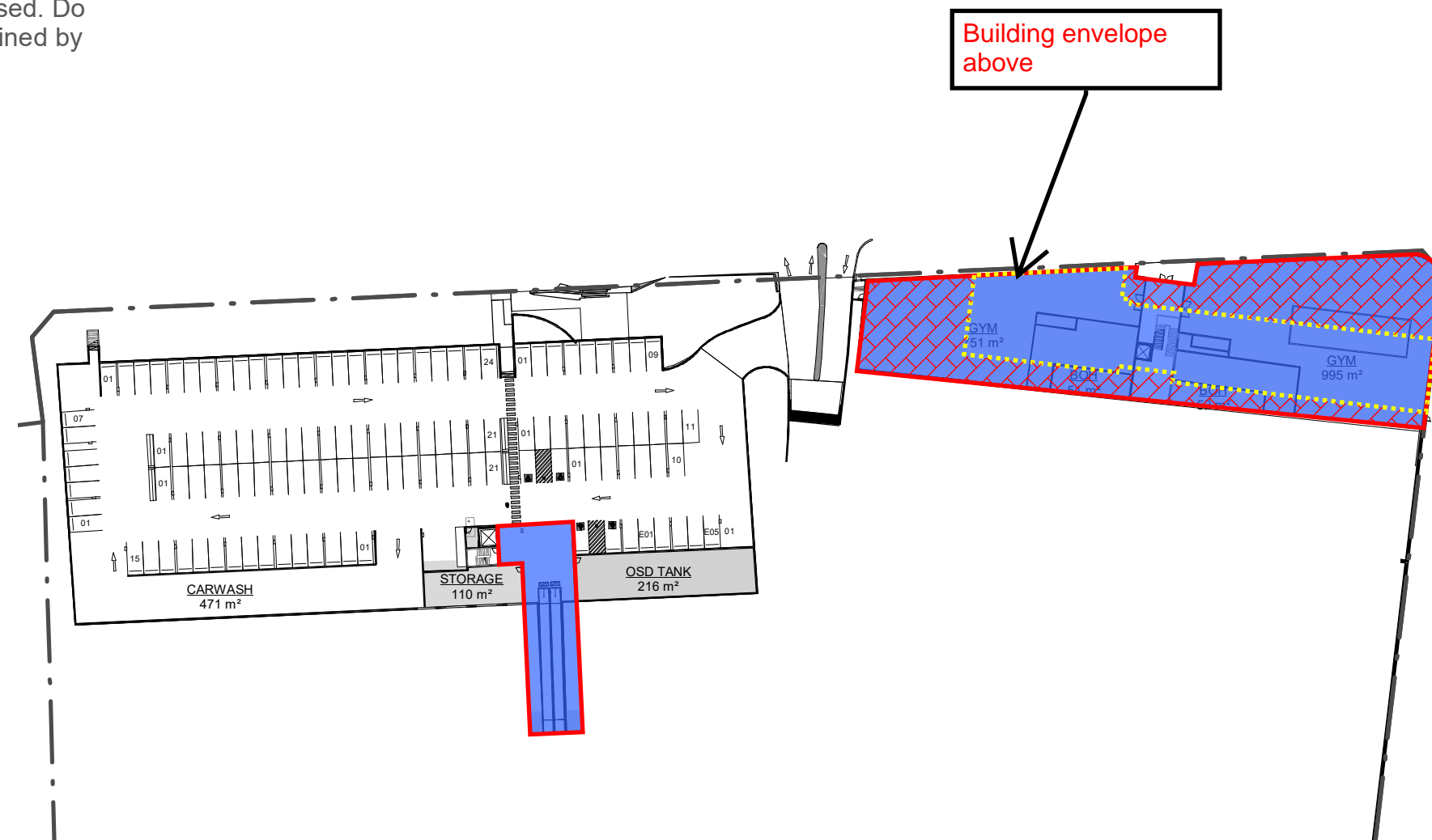
Exposure	Façade Area				Solar Admittance				U-value		R-value	
	Total [m ²]	Wall [m ²]	Window [m ²]	Wall Glazing Ratio	Max SA	Achieved SA	Max Er	Achieved Er	Max. U-Value	Achieved U-Value	Min. R-Value	Achieved R-Value
N	273.0	251.5	21.5	92%	0.13	0.02	0.00	0.00	2.0	1.11	1.4	1.40
E	510.5	426.0	84.5	83%	0.13	0.07	0.00	0.00	2.0	1.56	1.4	1.40
S	126.6	126.6	0.0	100%	0.13	0.00	0.00	0.00	2.0	0.71	1.4	1.40
W	941.4	663.6	277.8	70%	0.13	0.13	214.17	211.54	2.0	2.22	1.0	1.40
SUM							214.17	211.54	2.0	1.77		

Description	Level	Window Exposure	Reference Wall Type	Window		Area [m ²]	P [m]	H [m]	P/H	G/H	Shading Multiplier	A*SHGC
				Height [m]	Width [m]							
27		E1	1	2.20	8.70	19.1	0.40	3.35	0.11	0.38	1.00	10.14
28		E1	1	4.90		39.1	3.80	4.90	0.78	0.00	0.46	9.54
29		E1	1			26.2			-	-	1.00	13.90
30		W1	1	3.60		27.5	2.40	3.60	0.67	0.00	0.51	7.44
31		W1	1	3.60		53.0			-	-	1.00	28.08
32		W1	1	3.60		51.1	0.54	4.52	0.12	0.20	0.98	26.57
33		W1	1	1.70	15.70	26.7			-	-	1.00	14.15
34		N1	1	3.30	6.50	21.5	3.00	3.30	0.91	0.00	0.38	4.32
35		W1	1	1.60	24.83	39.7	3.63	2.20	1.65	0.27	0.47	9.90
36		W1	1	3.60		17.6	5.70	7.70	0.74	0.53	0.90	8.41
37		W1	1	2.82	22.06	62.1	0.60	2.82	0.21	0.00	0.80	26.35

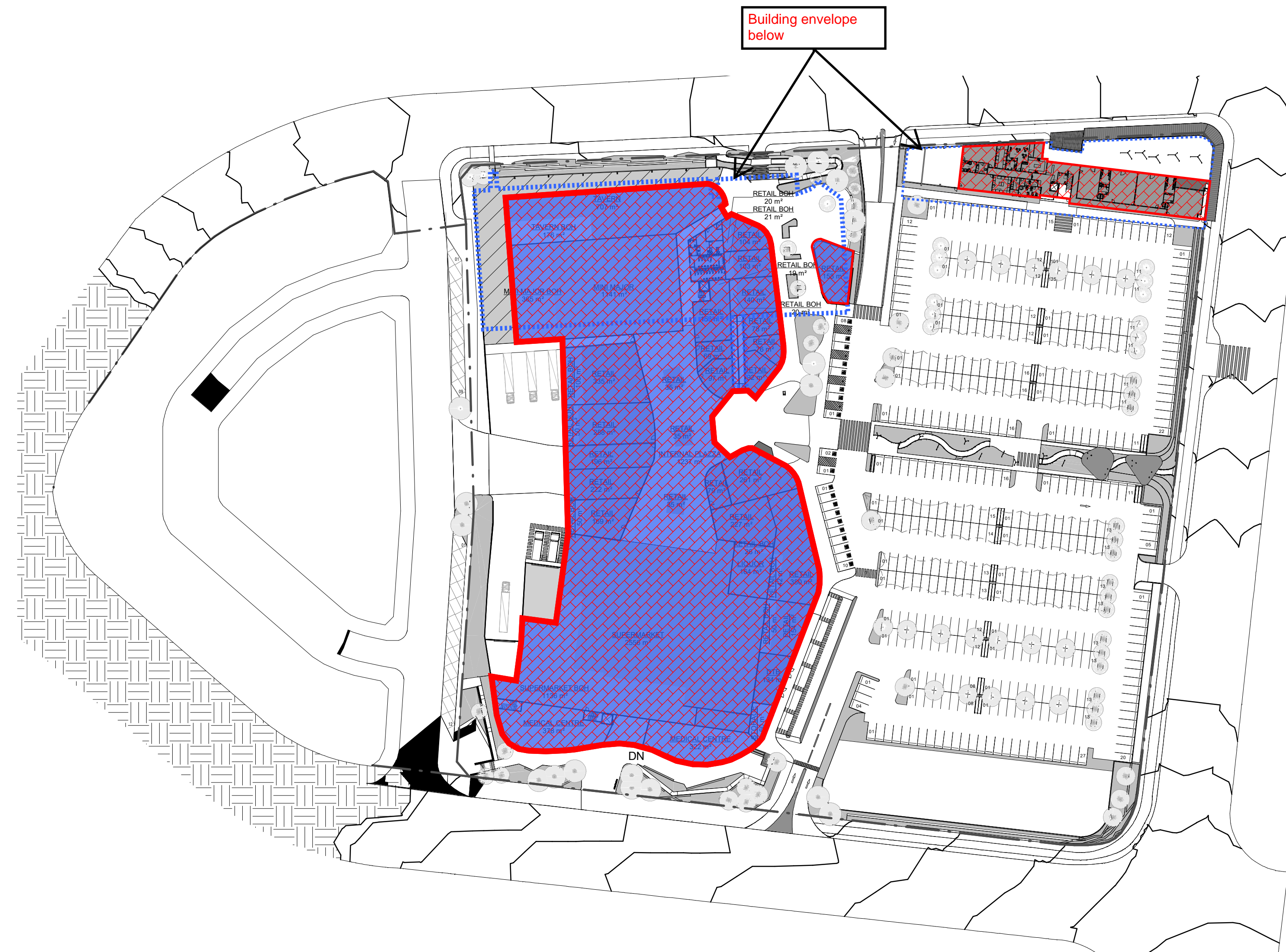
Attachment B – Building Fabric Requirements

DEVELOPMENT APPLICATION

All dimensions to be checked on site, written dimensions only to be used. Do not scale from drawings. Copyright of the design shown herein is retained by the Architect. Written authority is required for any reproduction.



1 BASEMENT
1:1000



2 GROUND FLOOR(1)
1:1000

- AMENITIES
- BOH
- CARWASH
- CHILDCARE
- DTB
- GYM
- INTERNAL PLAZZA
- LIQUOR
- MEDICAL CENTRE
- MINI MAJOR
- MINI MAJOR BOH
- OSD TANK
- RETAIL
- RETAIL BOH
- SERVICE
- STORAGE
- SUPERMARKET
- SUPERMARKET BOH
- TAVERN
- TAVERN BOH

CAR PARKING SCHEDULE

PROPOSED BASEMENT LEVEL	
CARPARKING 5400X 2600	116
DISABLED 5400X 2600	4
EV PARKING 5400X 2600	5
BIKE PARKING 5400X 2600	4
GRAND TOTAL	129

PROPOSED GROUND LEVEL	
CARPARKING 5400X 2600	537
DISABLED 5400X 2600	10
PARENTS 5400X 2700	10
GRAND TOTAL	557

Area Schedule	
Name	Area

BOH AREA	
LIQUOR	164 m ²
MINI MAJOR	1141 m ²
RETAIL	3491 m ²
SUPERMARKET	2556 m ²
TAVERN	707 m ²
1: 28	8060 m ²
2	
CHILDCARE	875 m ²
GYM	1747 m ²
MEDICAL CENTRE	700 m ²
2: 5	3322 m ²
3	
AMENITIES	198 m ²
INTERNAL PLAZZA	1328 m ²
3: 5	1526 m ²
Grand total: 38	12908 m²

SITE AREA	43,940m ²
PROPOSED FSR	1:0.29
REQUIRED FSR	1:0.30

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

- ▨ Roof & Ceiling - Rt 3.7 (Downward)
- ▨ Envelope Floors - Rt 2.0 (Downward)
- ▨ Envelope Walls - Rt 1.4

Note:
1) All R-values must account for the impact of Thermal Bridging.
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.

Glazing (Glass + Frame) requirements.
1) Main building performance glazing with U-value 3.0 SHGC 0.38
2) Main building (Escalator lobby) performance glazing with U-value 4.6 SHGC 0.59
3) Detached retail performance glazing with U-value 3.5 SHGC 0.54
4) Gym and Childcare performance glazing with U-value 5.8 SHGC 0.53

JHA
MARKUP / SKETCH

DOCUMENT No.: 210410
DOCUMENT TITLE: Chisholm Shopping Centre - Section J DTS

DOCUMENT REV: Draft V1

DOCUMENT BY: I.M. DATE: 24/11/2021

TROLLEY CORRAL SCHEDULE

DESCRIPTION	No. OF TROLLEY BAY	TROLLEYS PER BAY	No. OF TROLLEYS
1000 x 3000	33		
PROPOSED BASEMENT LEVEL			
SINGLE TROLLEY BAY	4	15	30
PROPOSED GROUND LEVEL			
SINGLE TROLLEY BAY	2	15	540
DOUBLE TROLLEY BAY	16	30	480
Grand total			

