CROWN GROUP

EASTLAKES TOWN CENTRE NORTH SITE - MALL

SECTION J PARTS J1-J2 COMPLIANCE REPORT

JULY 2017

wsp

EASTLAKES TOWN CENTRE NORTH SITE - MALL

SECTION J PARTS J1-J2 COMPLIANCE REPORT

CROWN GROUP

WSP
LEVEL 27, 680 GEORGE STREET
SYDNEY NSW 2000
GPO BOX 5394
SYDNEY NSW 2001

TEL: +61 2 9272 5100
FAX: +61 2 9272 5101
WSP.COM

REV	DATE	DETAILS
00	30/06/2017	ISSUE FOR COMMENT
01	04/07/2017	FINAL FOR S75W ISSUE

	NAME	DATE	SIGNATURE
Prepared by:	Allissa Abrenica	04/07/2017	
Reviewed by:	Nick Asha	04/07/2017	
Approved by:	Nick Asha	04/07/2017	

OUR REF: 2302881U 0 2 AHA170630 SECTION J COMPLIANCE REPORT FINAL JULY 2017

TABLE OF CONTENTS

1 INTRODUCTION

1.1 PURPOSE OF REPORT

The purpose of this report is to provide a statement pertaining to the building envelope performance requirements necessary to meet Parts J1 Building Fabric and J2 Glazing, Section J Energy Efficiency, Volume One of the National Construction Code (NCC) Series 2016 based on the Deemed-to-Satisfy (DTS) provisions.

1.2 SOURCE OF INFORMATION

The following sources of information were used to undertake the Part J1 and Part J2 DTS provisions assessment:

- Part J1 – J3, Section J, Volume One of the NCC Series 2016
- Australian Building Codes Board (ABCB) glazing calculator 2014 (current version)
- Glazing selection: Manufacturer declared data
- Architectural drawings: S75W 130000 to S75W 130009 For Approval drawings revised on 29/06/2017
- Correspondence between WSP and FJMT

1.3 BUILDING CLASSIFICATION

Under Part A3.2 of Volume One of the NCC Series 2016, the mall at the north site of the Eastlakes Town Centre development is categorised as a Class 6 building, 'A shop or other building for the sale of goods by retail or the supply of services direct to the public'.

The site is located within Climate Zone 5.

1.4 ASSESSMENT METHOD

The compliance assessment method applied is outlined below:

- Section J, Part J1 requires a comparison of the proposed building fabric against the DTS provisions
- Section J, Part J2 requires the completion of the ABCB glazing calculator for glazing in each storey, including any mezzanine, where the glazing is in the external fabric facing and for each orientation
- Section J, Part J3 requires the appropriate sealing of relevant building elements to restrict air infiltration

The applicable building elements (building fabric and glazing) are all those which form part of the building envelope (all building elements that separate conditioned spaces from non-conditioned spaces).

2 PART J1 BUILDING FABRIC

Table 1 summarises Part J1 DTS provisions for building fabric.

Insulation R-values are in units of m2.K / W. The R-values stated in the table below relate to the total system R-values across a construction build-up.

See Appendix A-1 for a mark-up of applicability of the J1 building fabric requirements for the north site mall.

Table 1: Summary of Part J1 DTS provisions

BUILDING ELEMENT	REQUIREMENTS
All insulation	**≥ R0.2** All insulation must form a continuous barrier with ceilings, walls, bulkheads, floors or the like that inherently contribute to the thermal barrier.
Suspended floors	**R2.0** Between conditioned and non-conditioned internal space (e.g. suspended floor retail and basement car park).
External walls	**Total construction insulation rating must be minimum R2.8** for all walls. This assessment assumes all walls have a surface density less than 220kg/m². **For walls that have a surface density > 220kg/m²**, the minimum total insulation requirement may be reduced as follows: • R2.3 minimum • R1.8 minimum for south oriented walls, or • R1.8 minimum for walls shaded with a projection casting a shade angle between 30° and 60°, or • R1.3 minimum for walls shaded with a projection casting a shade angle > 60° *All wall constructions are assumed to have adequate lining/stud cavity depth to install the required thickness of insulation.*
Envelope walls other than external walls (e.g. between conditioned and non-conditioned internal spaces)	**≥ R1.0** for walls other than an external wall where air change rates are < 1.5 air changes per hour (ach) **≥ R1.8** for all other cases
Roof	**≥ R3.2** for upper surface solar absorptance of ≤0.4 **≥ R3.7** for upper surface solar absorptance of >0.4 and ≤0.6 **≥ R4.2** for upper surface solar absorptance of >0.6

3 PART J2 GLAZING

Table 2 summarises Part J2 DTS provisions for glazing and a compliant example product for reference.

All shadings as per the Architect's drawings have been included in the glazing calculators. "Device" has been included where appropriate in accordance with Part J2.5 (b).

The U-value and SHGC given in the table below are whole of window system values and allow for both frame and glass effects.

See Appendix A-2 for a mark-up of that glazing area that have been identified for each orientation and Appendix A-3 for the completed glazing calculator.

Table 2: Required glazing performance and recommended product

ORIENTATION	REQUIRED U-VALUE	REQUIRED SHGC	COMPLIANT EXAMPLE PRODUCT			
			GLAZING SYSTEM	GLASS COMPOSITION	U-VALUE	SHGC
Internal Glazing	Not more than 3.1 W/m².K	Not less than 0.35	Capral 419 Flushline 100 mm Frame Series – Double Glazed, Aluminium Frame	6.38 mm ComfortPlus Neutral + 12 mm Air Gap + 6 mm Clear	2.9 W/m².K	0.4
East Glazing	Between 1.5 and 8.0 W/m².K	Not more than 0.4				
South West Glazing	Not more than 3.2 W/m².K	Not more than 0.4				
North West Glazing	Between 1.5 and 8.0 W/m².K	Between 0.1 and 0.8				
South Glazing	Not more than 2.9 W/m².K	Not less than 0.34				

Note: The compliant example glazing product is presented for information only. This demonstrates that the glazing performance requirements detailed are achievable with commercial glazing products. It is the responsibility of the architect or contractor to select glazing products which meet the stated U-value and Solar Heat Gain Coefficient (SHGC) performance requirements.

Other combination of U-value and SHGC may be compliant and can be verified using the NCC glazing calculator.

4 ADDITIONAL PART J1 AND J2 COMMENTS TO NOTE

4.1 GENERAL REQUIREMENTS

Insulation is to comply with AS/NZS 4856.9 and be installed so it abuts or overlaps adjoining insulation other than at supporting members such as studs, noggins, joists, furring channels and the like where insulation must be against the member.

All insulation must form a continuous barrier with ceilings, walls, bulkheads, floors or the like that inherently contribute to the thermal barrier.

4.2 BULK INSULATION

Bulk insulation should 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.

5 PART J3 BUILDING SEALING

Table 3 summarises the building sealing performance requirements to demonstrate compliance with the Part J3 Building Sealing DTS provisions.

Table 3: Building sealing performance requirements to demonstrate compliance

PART	COMMENTS
J3.1	Applicable – Part J3 is applicable to this development.
J3.2	Not Applicable – There are no chimneys or flues.
J3.3	Not Applicable – There are no roof lights.
J3.4	The following to be covered in the Architectural specification: • A seal to restrict air infiltration must be fitted to each edge of a door, openable window or the like forming part of the envelope of a conditioned space • For a seal required on the bottom edge of an external swing door, a draft protection device must be installed • The other edges of an external door may be a foam or rubber compression strip, fibrous seal or the like. *This requirement is met by windows complying with AS 2047.*
J3.5	To be covered in the Mechanical specification.
J3.6	The following to be covered in the Architectural specification: • Window and door frames, to be enclosed by internal lining systems OR • Sealed by caulking, skirting, architraves, cornices or the like.
J3.7	Not Applicable – There are no evaporative coolers.

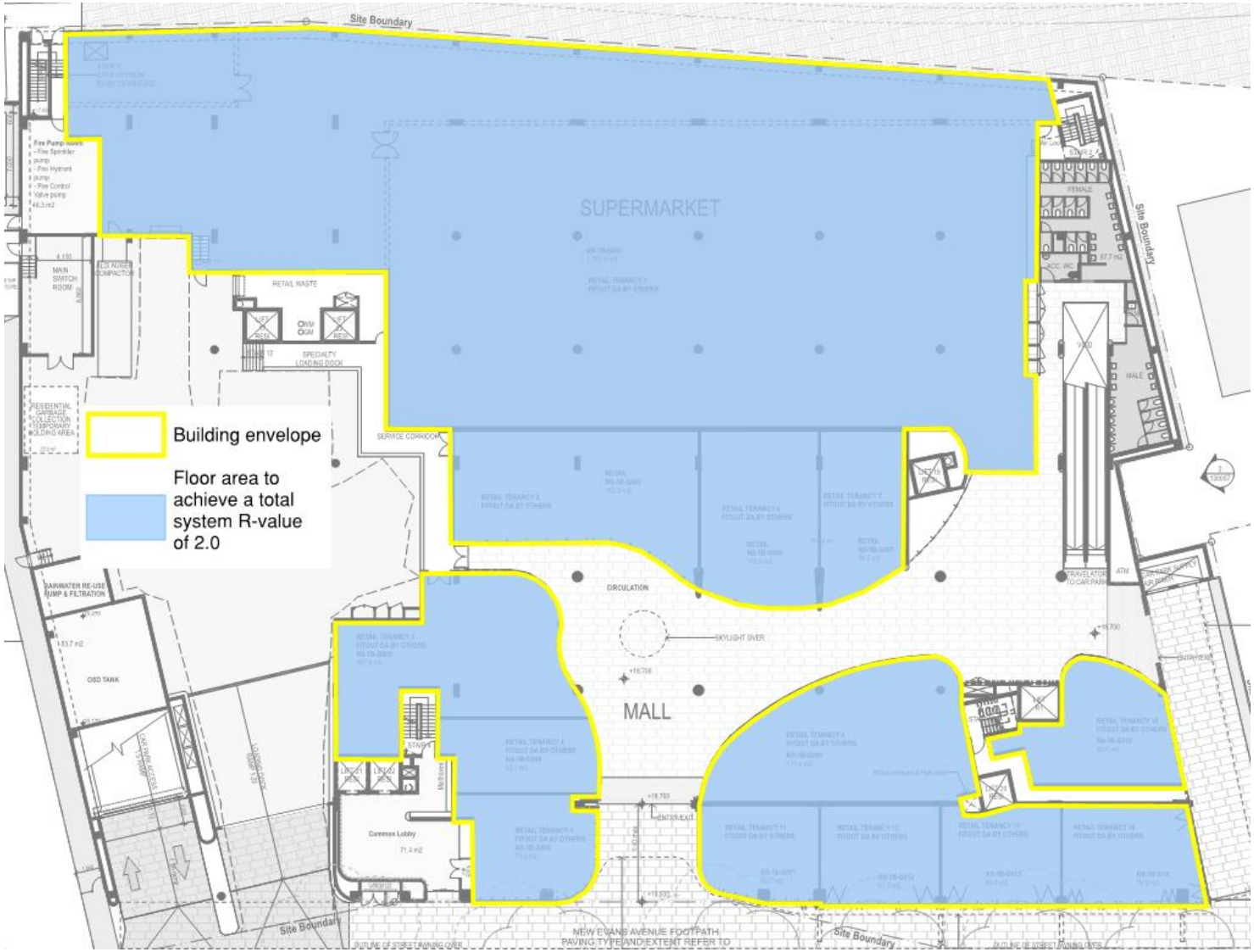
6 CONCLUSION

Based on the analysis performed and subject to the incorporation of the recommendations:

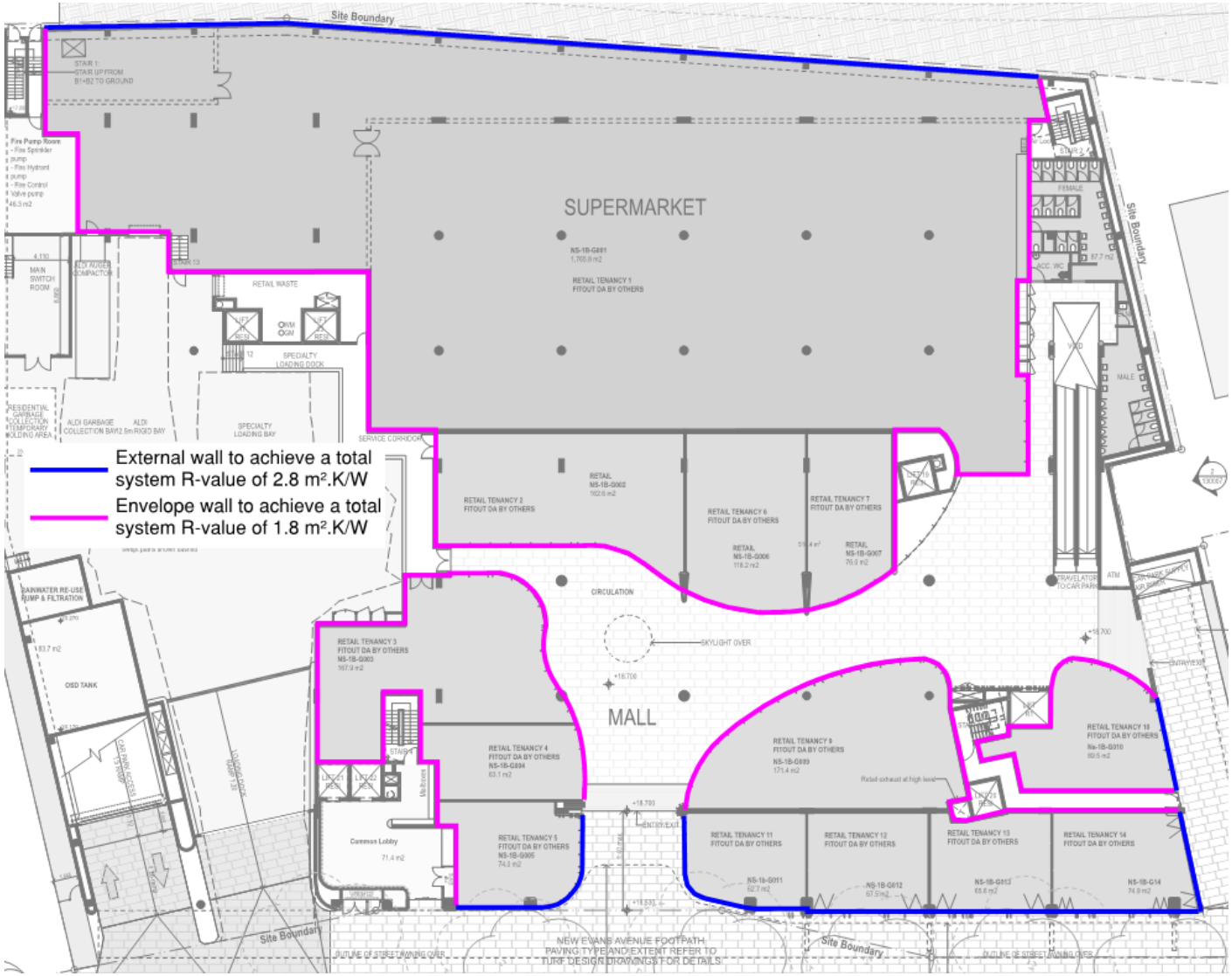
- The building fabric meets the performance requirements Part J1 of Section J of Volume One of the NCC Series 2016
- The glazing meets the performance requirements of Part J2 of Section J of Volume One of the NCC Series 2016.

APPENDIX A-1
BUILDING FABRIC MARK-UPS

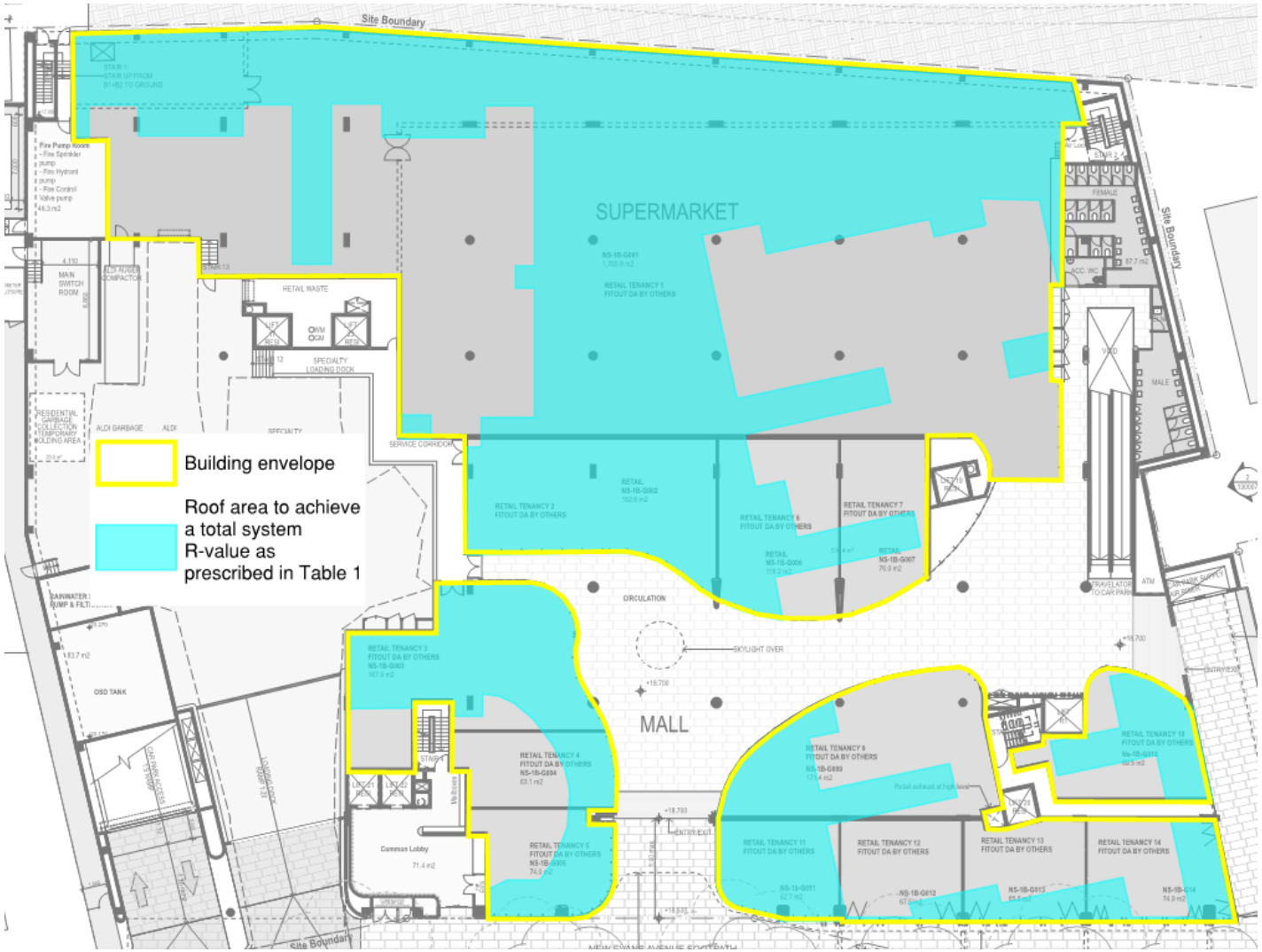
Floor Mark-Up



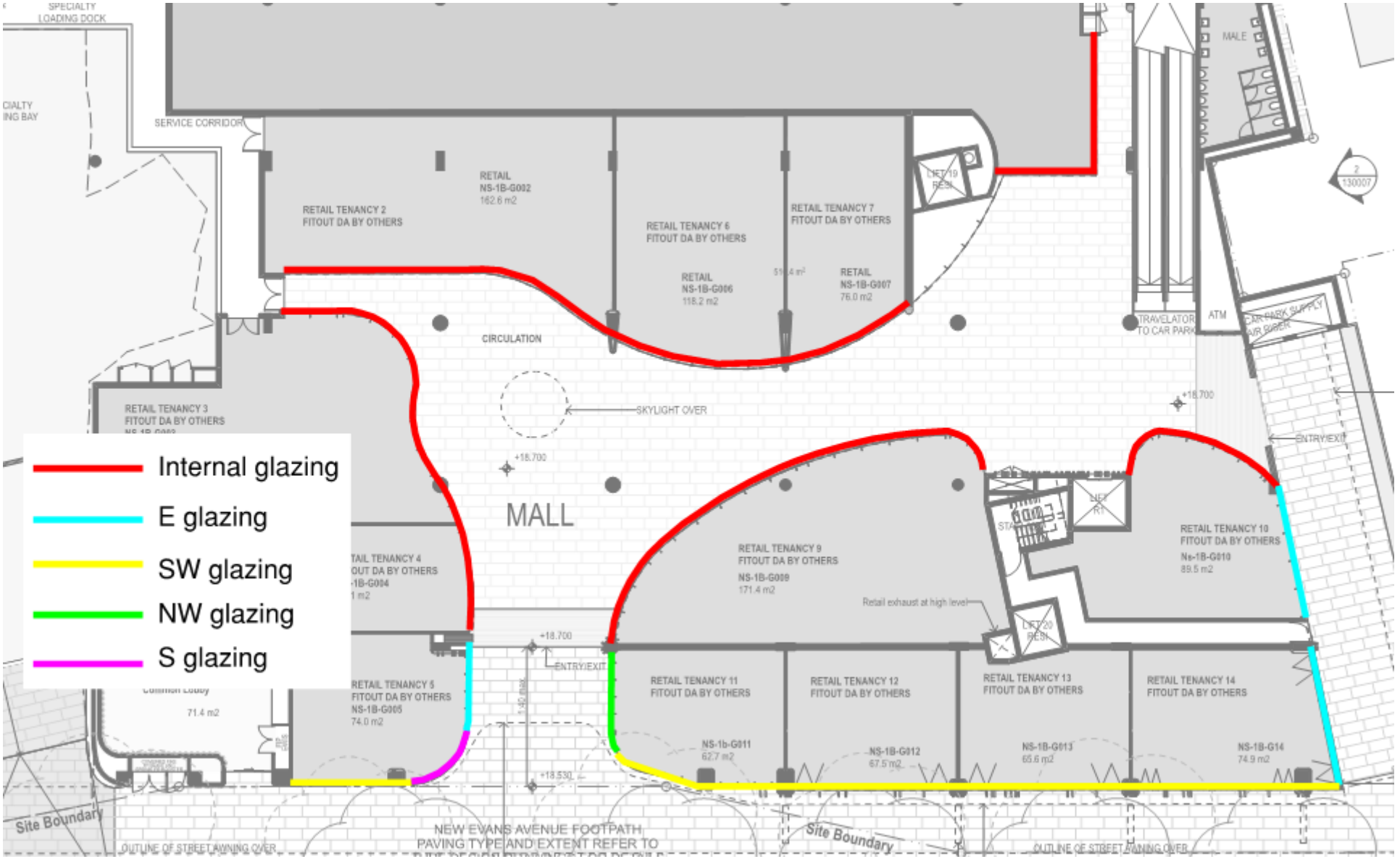
Wall Mark-Up


External wall to achieve a total system R-value of 2.8 m².K/W
Envelope wall to achieve a total system R-value of 1.8 m².K/W
Site Boundary
SUPERMARKET
MALL
CIRCULATION
SKYLIGHT OVER
RETAIL WASTE
SPECIALTY LOADING DOCK
SPECIALTY LOADING BAY
ALDI GARBAGE COLLECTION BAY
ALDI RIGID BAY
SERVICE CORRIDOR
RAINWATER RE-USE PUMP & FILTRATION
OSD TANK
Common Lobby
RETAIL TENANCY 1 FITOUT DA BY OTHERS
RETAIL TENANCY 2 FITOUT DA BY OTHERS
RETAIL TENANCY 3 FITOUT DA BY OTHERS
RETAIL TENANCY 4 FITOUT DA BY OTHERS
RETAIL TENANCY 5 FITOUT DA BY OTHERS
RETAIL TENANCY 6 FITOUT DA BY OTHERS
RETAIL TENANCY 7 FITOUT DA BY OTHERS
RETAIL TENANCY 9 FITOUT DA BY OTHERS
RETAIL TENANCY 10 FITOUT DA BY OTHERS
RETAIL TENANCY 11 FITOUT DA BY OTHERS
RETAIL TENANCY 12 FITOUT DA BY OTHERS
RETAIL TENANCY 13 FITOUT DA BY OTHERS
RETAIL TENANCY 14 FITOUT DA BY OTHERS
NEW EVANS AVENUE FOOTPATH PAVING TYPE AND EXTENT REFER TO TURF DESIGN DRAWINGS FOR DETAILS
OUTLINE OF STREET AWNING OVER

Roof Mark-Up


Site Boundary
SUPERMARKET
MALL
Building envelope
Roof area to achieve a total system R-value as prescribed in Table 1

APPENDIX A-2
GLAZING MARK-UP


Internal glazing
E glazing
SW glazing
NW glazing
S glazing
SPECIALTY LOADING DOCK
SERVICE CORRIDOR
RETAIL TENANCY 2 FITOUT DA BY OTHERS
RETAIL NS-1B-G002 162.6 m2
RETAIL TENANCY 6 FITOUT DA BY OTHERS
RETAIL TENANCY 7 FITOUT DA BY OTHERS
RETAIL NS-1B-G006 118.2 m2
RETAIL NS-1B-G007 76.0 m2
CIRCULATION
RETAIL TENANCY 3 FITOUT DA BY OTHERS
SKYLIGHT OVER
+18.700
MALL
RETAIL TENANCY 9 FITOUT DA BY OTHERS NS-1B-G009 171.4 m2
Retail exhaust at high level
RETAIL TENANCY 10 FITOUT DA BY OTHERS Ns-1B-G010 89.5 m2
ENTRY/EXIT
RETAIL TENANCY 5 FITOUT DA BY OTHERS NS-1B-G005 74.0 m2
RETAIL TENANCY 11 FITOUT DA BY OTHERS
RETAIL TENANCY 12 FITOUT DA BY OTHERS
RETAIL TENANCY 13 FITOUT DA BY OTHERS
RETAIL TENANCY 14 FITOUT DA BY OTHERS
NS-1b-G011 62.7 m2
NS-1B-G012 67.5 m2
NS-1B-G013 65.6 m2
NS-1B-G14 74.9 m2
TRAVELATOR TO CAR PARK
ATM
MALE
Site Boundary
NEW EVANS AVENUE FOOTPATH
PAVING TYPE AND EXTENT REFER TO
OUTLINE OF STREET AWNING OVER

APPENDIX A-3
GLAZING CALCULATOR

NCC VOLUME ONE GLAZING CALCULATOR (first issued with NCC 2014)

HELP

Building name/description: **Eastlakes Town Centre - North Site**

Application: **other**

Climate zone: **5**

Storey: **GF**

Facade areas

	N	NE	E	SE	S	SW	W	NW	internal
Option A			110m²		13.8m²	226m²		34m²	523m²
Option B									n/a
Glazing area (A)			92.9m²		13.8m²	198m²		30m²	478m²

Number of rows preferred in table below: **25** *(as currently displayed)*

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS								SHADING		CALCULATED OUTCOMES OK (if inputs are valid)					
Glazing element		Facing sector		Size			Performance		P&H or device		Shading		Multipliers		Size	Outcomes
ID	Description (optional)	Option A facades	Option B facades	Height (m)	Width (m)	Area (m²)	Total System U-Value (AFRC)	Total System SHGC (AFRC)	P (m)	H (m)	P/H	G (m)	Heating (S_W)	Cooling (S_C)	Area used (m²)	Element share of % of allowance used
1	Fruit and Veg - Int	internal		4.65	18.10		2.9	0.40			2.00	0.00	0.64	0.54	84.17	18% of 90%
2	Deli - Int	internal		4.65	9.00		2.9	0.40			2.00	0.00	0.64	0.54	41.85	9% of 90%
3	Seafood - Int	internal		4.65	6.90		2.9	0.40			2.00	0.00	0.64	0.54	32.09	7% of 90%
4	Pharmacy - Int	internal		4.65	25.50		2.9	0.40			2.00	0.00	0.64	0.54	#####	25% of 90%
5	Post - Int	internal		4.65	9.00		2.9	0.40			2.00	0.00	0.64	0.54	41.85	9% of 90%
6											ROW SKIPPED (OK if intentional)					
7	Post - E	E		4.70	6.50		2.9	0.40	3.400	4.200	0.81	-0.50	0.42	0.49	30.55	36% of 100%
8	Cafe - E	E		4.70	7.40		2.9	0.40	3.400	4.200	0.81	-0.50	0.42	0.49	34.78	41% of 100%
9											ROW SKIPPED (OK if intentional)					
10	Café G14 - SW	SW		5.00	9.40		2.9	0.40	4.000	4.200	0.95	-0.80	0.61	0.52	47.00	23% of 92%
11	Café G13 - SW	SW		5.00	8.20		2.9	0.40	4.000	4.200	0.95	-0.80	0.61	0.52	41.00	20% of 92%
12	Café G12 - SW	SW		5.00	8.20		2.9	0.40	4.000	5.000	0.80	0.00	0.66	0.57	41.00	21% of 92%
13	Café G11 - SW	SW		5.00	7.30		2.9	0.40	4.000	4.200	0.95	-0.80	0.61	0.52	36.50	18% of 92%
14											ROW SKIPPED (OK if intentional)					
15	Café G11 - NW	NW		5.00	6.00		2.9	0.40	7.600	5.000	1.52	0.00	0.00	0.25	30.00	100% of 55%
											ROW SKIPPED (OK if intentional)					
	Supermarket - Int	internal		4.65	12.60		2.9	0.40			2.00	0.00	0.64	0.54	58.59	12% of 90%
18	RT3 - Int	internal		4.65	16.10		2.9	0.40			2.00	0.00	0.64	0.54	74.87	16% of 90%
19	RT4 - Int	internal		4.65	5.60		2.9	0.40			2.00	0.00	0.64	0.54	26.04	5% of 90%
20											ROW SKIPPED (OK if intentional)					
21	RT5 - SW	SW		5.30	6.20		2.9	0.40	3.600	5.300	0.68	0.00	0.71	0.61	32.86	17% of 92%
22											ROW SKIPPED (OK if intentional)					
##	RT5 - S	S		5.30	2.60		2.9	0.40	4.000	5.000	0.80	-0.30	0.77	0.68	13.78	100% of 98%
24											ROW SKIPPED (OK if intentional)					
##	RT5 - E	E		5.30	5.20		2.9	0.40	7.600	5.000	1.52	-0.30	0.03	0.31	27.56	23% of 100%

IMPORTANT NOTICE AND DISCLAIMER IN RESPECT OF THE GLAZING CALCULATOR

if inputs are valid

The Glazing Calculator has been developed by the ABCB to assist in developing a better understanding of glazing energy efficiency parameters. While the ABCB believes that the Glazing Calculator, if used correctly, will produce accurate results, it is provided "as is" and without any representation or warranty of any kind, including that it is fit for any purpose or of merchantable quality, or functions as intended or at all. Your use of the Glazing Calculator is entirely at your own risk and the ABCB accepts no liability of any kind.