

Section J - DTS Memo

Memorandum of: NCC 2022 Section J4 - DTS Compliance

Project Number: 0010443.000

Project Name: Tamworth RAC

Date: 31 May 2024

RE: NCC 2022 Section J4 – Preliminary Evaluation

This memo provides an update of Introba's preliminary assessment of the Section J4 Building Fabric performance for Tamworth RAC. The assessment has been undertaken in line with Section J4 of the NCC 2022.

Table 1 below outlines the summary of the documentation used as the basis of this compliance analysis.

Table 1: Reference Documentation

Document	Date	Issue
Preliminary Architectural Drawing set	23.05.2024	-
Revit Model	25.03.2024	R23

Project Location & Classification

Table 2 provides a summary of the project location and applicable climate zone as defined within the NCC.

Table 2: Project Location & Climate Zone

Address	Local Government Area	Climate Zone
Tamworth, NSW 2340	Tamworth Regional Council	Zone 4 – hot dry summer, cool winter

Table 3 provides a summary of the building classification used for the project.

Table 3: NCC classification & building areas

Level	Space Type(s)	NCC Class
Ground Floor	Sport venue	Class 9b

Building Envelope

A summary of the key performance requirements is provided in Table 4.

Table 4: Summary of Thermal Envelope Parameters

Part	Building Fabric Specifications (Minimum requirements)	Comments
J4D3 - Thermal Construction General	Insulation must be installed in accordance with the requirements of this clause.	- Insulation must be installed in accordance with the requirements of this clause.
J4D4 – Roof and Ceiling	Roofs that form part of the thermal envelope: - Total System R-value $\geq R_t$ 3.7 m²K/W (downward direction of heat flow). - Solar Absorptance of upper surface $\leq$ 0.45.	- Total R-values must account for thermal bridging. - For the solar absorptance requirement, only light colours are allowable under DTS. - Refer to Appendix B for thermal insulation requirement mark-ups.
J4D5 Roof Lights	- Not applicable.	-
J4D6 – External Walls and Glazing	Walls that form part of the thermal envelope: - Total System R-value $\geq R_t$ 1.4 m²K/W Glazing that forms part of the thermal envelope: - Total system U-value $\leq$ 5.8 W/m².K and SHGC $\leq$ 0.31	- Total System R-Value requirement is provided which includes the effects of thermal bridging. - Glazing system performance must be total, including framing and any thermal loss. - External shadings have been considered as per the proposed design. No changes are proposed. - Refer to Appendix A for Façade Calculator. - Refer to Appendix B for thermal insulation requirement mark-ups.
J4D7 – Floors	Floors that form part of the thermal envelope: - Floor without in-slab heating or cooling Total system R-value $\geq$ 2.0 m²K/W (downwards)	- No added thermal insulations are required (in accordance with 'Specification 39 Sub-floor and soil thermal performance' calculations)

Thermal bridges

Total System R-value and Total System U-value calculations under NCC 2022 require detailed thermal bridge analysis in accordance with AS/NZS 4859.2. This has a significant impact on construction methods and detailing. If the thermal bridges are not adequately addressed, the Total system R-value may be greatly lower than the product R-value.

Conclusion

Table 4 lists the NCC 2022 Section J4 Deemed-to-satisfy (DTS) provisions applicable to the Tamworth RAC. The development should be able to achieve compliance requirements with typical façade detailing.

As the design progresses, updates may require verification for compliance at future stages.

Note: This report assesses thermal performance only and does not comment on compliance with combustibility requirements.

If you have any further questions, please do not hesitate to get in touch with us.

Kind Regards,

Koliya Perera

Senior Sustainability Consultant | Introba

Appendix A- Façade Calculator Report



Façade

Report



Calculator

Project Summary

Date
31/05/2024

Name
Koliya Perera

Company
Introba

Position
Senior Sustainability Consultant

Building Name / Address
Tamworth RAC
0

Building State

NSW

Climate Zone
Climate Zone 4 - Hot dry
summer, cool winter

Building Classification
Class 9b - sports venues or
the like

Storeys Above Ground
1

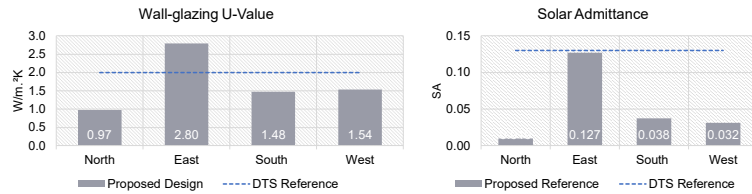
Tool Version
1.2 (June 2020)

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).

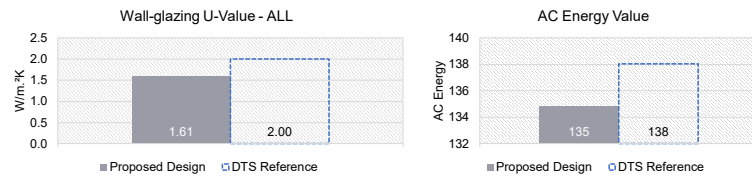
Compliant Solution =
Non-Compliant Solution =

	Method 1				Method 2
	North	East	South	West	All
Wall-glazing U-Value (W/m².K)	0.97	2.80	1.48	1.54	1.61
Solar Admittance	0.01	0.13	0.04	0.03	
AC Energy Value					135

Method 1



Method 2



Project Details

	North	East	South	West
Glazing Area (m²)	44.5	252.9	145.9	127.3
Glazing to Façade Ratio	5%	41%	15%	16%
Glazing References	GL1 GL2	GL1	GL1 GL2	GL1 GL2 GL3
Glazing System Types	0	0	0	0
Glass Types	0	0	0	0
Frame Types	0	0	0	0
Average Glazing U-Value (W/m².K)	5.80	5.80	5.80	5.80
Average Glazing SHGC	0.20	0.31	0.31	0.31
Shading Systems	Horizontal	Horizontal	Horizontal	Horizontal
Wall Area (m²)	823.6	364.5	825.2	658.2
Wall Types	Wall	Wall	Wall	Wall
Methodology	Wall			
Wall Construction	R1.4 Ext Wall R1.4 Int Wall	R1.4 Ext Wall	R1.4 Ext Wall	R1.4 Ext Wall
Wall Thickness	0	0	0	0
Average Wall R-value (m².K/W)	1.40	1.40	1.40	1.40
Solar Absorptance	0.9	0.9	0.9	0.9

Appendix B – Thermal Envelope Markups

Notes

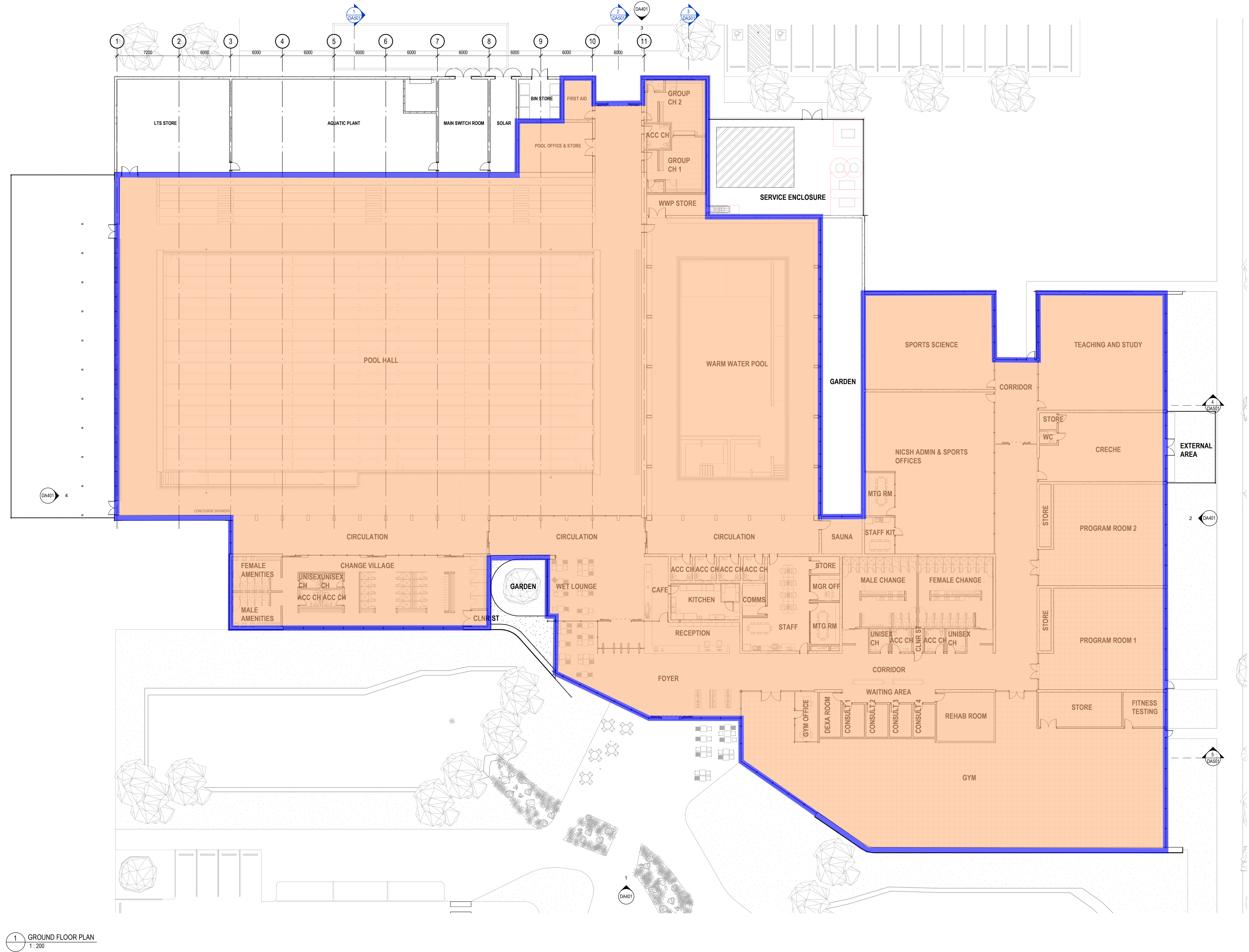
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- NOTES
- REFER TO STRUCTURAL ENGINEERS DOCUMENTATION FOR FULL DETAILS ON CONCRETE PROFILES AND STRUCTURAL SCENING.
 - REFER TO SERVICE ENGINEERS DOCUMENTATION FOR CONFIRMATION OF ALL SERVICE PENETRATION SIZES, REQUIREMENTS AND SETOUTS. PENETRATION SIZES LESS THAN 100mm DIAMETER NOT SHOWN FOR CLARITY.
- WALL SCHEDULE
- CXX REINFORCED PRECAST CONCRETE
- MXX CONCRETE BLOCKWORK
- PXX PARTITION WALL
- LEGEND
- WINDOW CODE (WINDOW NUMBER & ROOM NUMBER)
- DOOR CODE (DOOR NUMBER OVER ROOM NUMBER)
- EXTENT OF EXISTING BUILDING, NOT PART OF THIS SCOPE
- STEP IN SLAB, REFER TO DRAWINGS FOR ASSOCIATED LEVELS
- ROLL-UP ROLL-UP
- COL COLUMN
- PI FIRE HYDRANT (REFER ENG. DOCUMENTATION)
- FIR FIRE HOSE REEL (REFER ENG. DOCUMENTATION)
- F EXT FIRE EXTINGUISHER (REFER ENG. DOCUMENTATION)
- FBB FLOOR SERVICES BOX
- RWH RAIN WATER HEAD
- RSL ROOF SKYLIGHT



1 GROUND FLOOR PLAN
1:200

Thermal Envelope Markup - Section J4

Introba - 2024.05.31

Key Building Fabric

- Wall-glazing to comply
- Roof to comply

REV	DESCRIPTION	DATE	APP
1	CLIENT		

CO.OP

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PROJECT

Tamworth RAC

PROJECT NUMBER

100358

DRAWING

GROUND FLOOR
PLAN

SCALE As indicated @ A4

DRAWN BY Author

PRELIMINARY
NOT TO BE USED DURING CONSTRUCTION

DRAWING NO. REVISION

DATE PRINTED: 23/05/2024 10:02:00 AM

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