APPENDIX I

SECTION J COMPLIANCE INVESTIGATIONS

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Consultant Advice Notice

From	Rayahn Raschke	**Advice No.**	CAN No-01
Project	UNE Tamworth	**Project No.**	SYD2353
Date	27 July 2023	**Pages**	1/3
Subject	NCC2022 Section J Part J4 Advice	**Revision:**	01

Introduction

The following advice note has been prepared to outline the NCC 2022 Section J Part J4 compliance requirements for the subject project at UNE Tamworth. This report has been prepared to support the DA submission accordance with NCC Section J 2022 provisions and has been provided to advise on the proposed Part J4 (Building Fabric) requirements.

This section J DTS advice has been based on the following documents:

> Architectural drawings by Architectus dated 20/07/2023.

> NCC 2022 Volume One – Amendment One

Section J Part J4 Requirements

General Information

Table 1 summarises general project's information that form the basis of this advice.

Table 1 General project information

Building Class	9b – Education building
Climate Zone	4 – hot dry summer, cool winter
Applicable NCC version	NCC 2022
Assessment pathway	JV3 Performance Pathway

Opaque Components

Table 2 lists the thermal performance parameters that must be achieved for the opaque components forming part of the building thermal envelope to achieve compliance with NCC2022 Section J. Please refer to Appendix B for insulation markup.

Table 2 Opaque components' performance requirements

Component	**DTS – Reference Building**		**Proposed Building**	
	R_T (m^2.K/W)	**Solar Absorptance**	**R_T (m^2.K/W)**	**Solar Absorptance**
Roofs / ceilings	3.7	≤0.45	4.5	≤0.45

Walls (Wall<20%)	1.0	NA	2.0	NA
Walls (Wall>20%)	1.4	NA	2.0	NA

Total R-values stated in table 2 must also take into consideration thermal bridging (generally in accordance with AS/NZ4859.2).

Floors

Table 3 lists the thermal performance requirements that must be achieved for the sub-floor and floor slab construction forming part of the building thermal envelope in order to achieve compliance with NCC2022 Section J. The slab-on-ground is considered to achieve a total R-value of 2.0, thus no additional insulation is required in the CSOG.

Table 3 Floor components' performance requirements

Component	DTS – Reference Building R_T (m^2.K/W)	Proposed Building R_T (m^2.K/W)
Floor	2.0	2.0

Translucent Components

Table 4 lists the thermal performance parameters that must be achieve for the translucent components forming part of the building thermal envelope.

Table 4 Translucent components' performance requirements

Component	DTS – Reference Building		Proposed Building	
	U_w (W/m^2.K)	$SHGC_w$	U_w (W/m^2.K)	$SHGC_w$
Windows	3.1	0.45	2.5	0.5

Total U-values and SHGC stated in table 4 correspond to whole system values and must take into consideration thermal bridging in window systems.

Results

The Verification Method J1V3 requires that the estimated annual greenhouse gas emissions of the proposed building must be less than that of the estimated annual greenhouse gas emissions of the reference building regardless of whether it is modelled with DTS services or proposed services.

The following breakdown of results is provided for the reference building and proposed building.

Table 4 Verification Method JV3 results

Model	Lighting (MWh)	Equipment (MWh)	Heating (MWh)	Cooling (MWh)	Fans & Pumps (MWh)	Generated Electricity (MWh)	Annual Greenhouse Gas emissions (kgCO2-e)	% Improvement	Thermal Comfort Achieved	Compliance
DTS	28.8	27.0	109.2	83.0	48.6	-	251,946	-	-	-
Proposed	28.8	27.0	95.2	85.8	48.6	-	242,448	**3.92%**	✓	✓

It is also a requirement under the J1V3 protocols that the proposed building demonstrates an ability to maintain PMV levels between -1 and +1 for 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**. Refer to Appendix C for the thermal comfort results**.

Section J Part J4 & J5 Report

This advice note is not a statement of compliance and cannot be used to obtain a Building Permit. Rather, it provides relevant stakeholders information relating to the performance targets that must be achieved by the building thermal envelope to ensure compliance with Section J Part J4-J5 can be met.

A Section J Part J4-J5 Report will be developed based on 'For Building Permit' or 'For Construction' documentation which as a minimum must include:

- Site Plan
- Floor Plans
- Elevations
- Sections
- Wall Type Schedule and Wall Set-out Plan
- Windows and Doors Schedule

Rayahn Raschke
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A.1 Appendix A – Façade Calculator

Façade

Report

Calculator

Project Summary

Date
26/07/2023

Name
Rayahn Raschke

Company
ADP Consulting

Position
Sustainability Consultant

Building Name / Address
UNE Tamworth
0

Building State
NSW

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

Building Classification
Class 9b - schools

Storeys Above Ground
4

Tool Version
1.2 (June 2020)

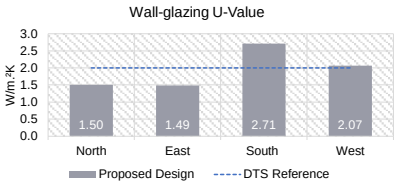
The summary below provides an overview of where compliance has been achieved for Specification J1.5a - Calculation of U-Value and solar admittance - Method 1 (Single Aspect) and Method 2 (Multiple Apects).

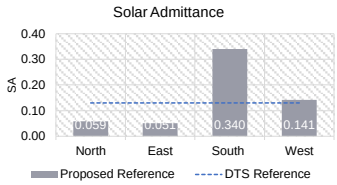
Compliant Solution =
Non-Compliant Solution =

	Method 1				Method 2
	North	East	South	West	All
Wall-glazing U-Value (W/m².K)	1.50	1.49	2.71	2.07	1.98
Solar Admittance	0.06	0.05	0.34	0.14	
AC Energy Value					394

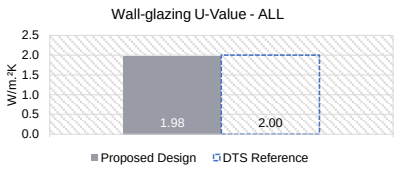
Compliance Pathway

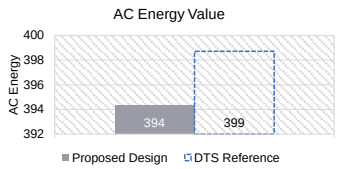
Method 1





Method 2





Project Details

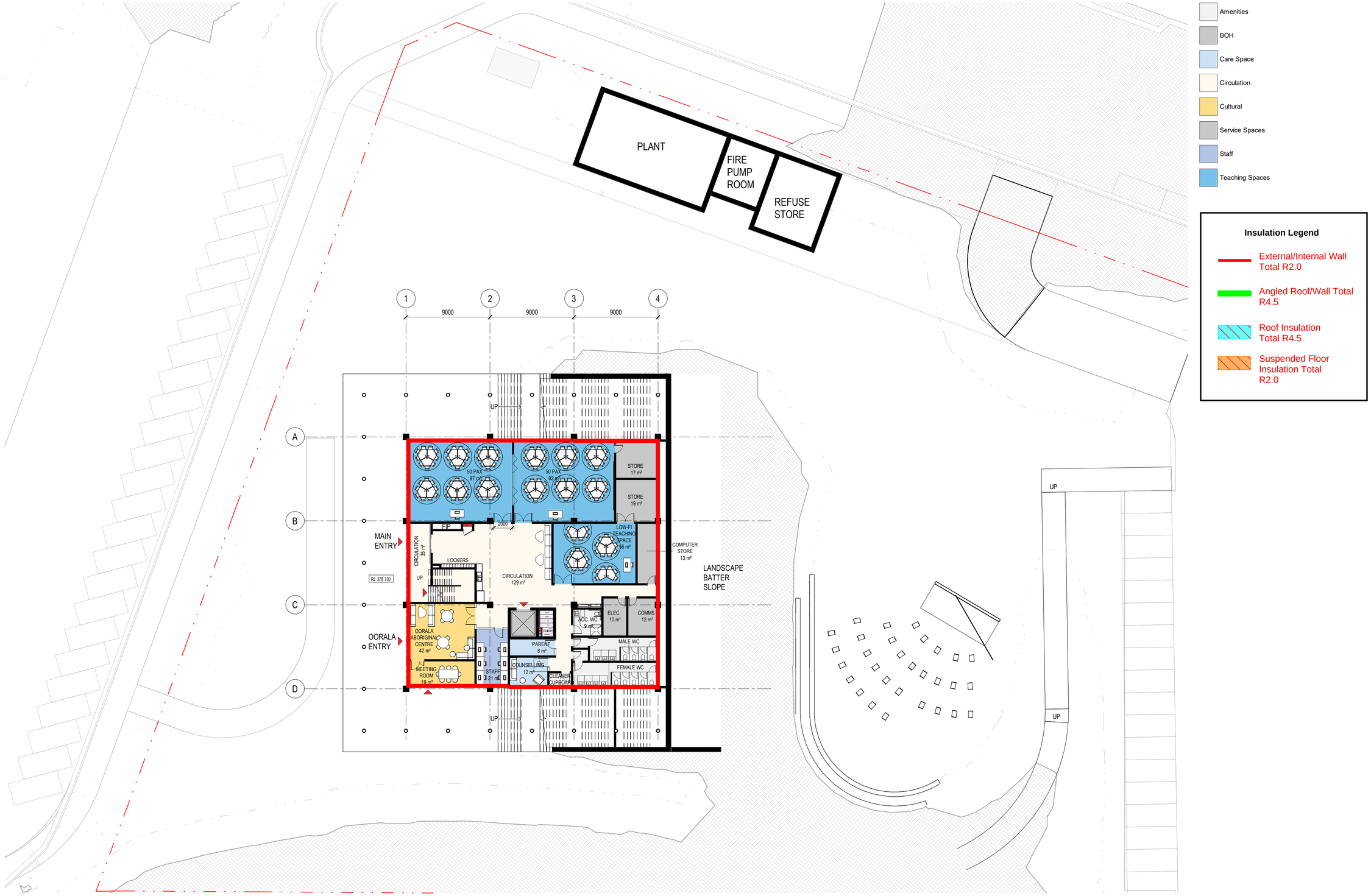
	North	East	South	West
Glazing Area (m²)	141.74	105.5	490.9	193.4
Glazing to Façade Ratio	25%	27%	83%	51%
Glazing References	#NAME?	#NAME?	#NAME?	#NAME?
Glazing System Types	#NAME?	#NAME?	#NAME?	#NAME?
Glass Types	#NAME?	#NAME?	#NAME?	#NAME?
Frame Types	#NAME?	#NAME?	#NAME?	#NAME?
Average Glazing U-Value (W/m².K)	3.10	3.10	3.10	3.10
Average Glazing SHGC	0.45	0.45	0.45	0.45
Shading Systems	#NAME?	#NAME?	#NAME?	#NAME?
Wall Area (m²)	426	284	101.1	186
Wall Types	#NAME?	#NAME?	#NAME?	#NAME?
Methodology	Wall			
Wall Construction	#NAME?	#NAME?	#NAME?	#NAME?
Wall Thickness	#NAME?	#NAME?	#NAME?	#NAME?
Average Wall R-value (m².K/W)	1.03	1.13	1.22	1.01
Solar Absorptance				

A.2 Appendix B – PMV analysis results

The following table illustrates the results of the thermal comfort analysis based on the nominated functional areas. The results demonstrate that the thermal comfort requirements of the JV3 protocols are achieved.

Location	PMV <= -1.00	PMV >-1.00 to <=1.00	PMV > 1.00	Floor Area (m^2) (Real)	Compliance
GF_Teaching Space 1	0	100%	0	96.3	✔
Teaching Space 2	0	100%	0	98.6	✔
Kitchenette	0	100%	0	19.2	✔
Stairs	0	100%	0	63.0	✔
Teaching Space 3	0	100%	0	77.6	✔
Hallway/Circulation	0	100%	0	100.8	✔
Entrance	0	99%	1	19.0	✔
Lab	0	100%	0	151.7	✔
Lab ctrl room	0	100%	0	16.1	✔
Study Space	0	100%	0	66.8	✔
Lab OSCE	0	100%	0	93.7	✔
Study Space	0	100%	0	66.8	✔
Lab Prep	0	100%	0	15.7	✔
Hallway Lev01	0	100%	0	39.9	✔
Teaching Space	0	100%	0	66.6	✔
Flexi Space	0	100%	0	19.4	✔
Staff room	0	100%	0	36.4	✔
SRI Room	0	100%	0	85.5	✔
Space	0	100%	0	17.5	✔
Double height void	0	100%	0	116.0	✔
study space	0	100%	0	66.8	✔
study Space	0	100%	0	66.8	✔
Double height void	0	100%	0	116.0	✔
Flax space	0	100%	0	33.6	✔
Staff space	0	100%	0	235.8	✔
Study Space	0	100%	0	66.8	✔
Study Space	0	100%	0	66.8	✔
L2_Teaching Space	0	100%	0	125.0	✔
Total Compliant area				**100%**	✔

A.3 Appendix C – Insulation Markup



ROOMS - Department

- Amenities
- BOH
- Care Space
- Circulation
- Cultural
- Service Spaces
- Staff
- Teaching Spaces

Insulation Legend

- External/Internal Wall Total R2.0
- Angled Roof/Wall Total R4.5
- Roof Insulation Total R4.5
- Suspended Floor Insulation Total R2.0

Nominated Architect
Ray Brown, NSWARB 6359

0 2 4 6 10 m

Do not scale drawings. Verify all dimensions on site

issue	amendment	date

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checked	scale
NE	1 : 200 @A1
drawn	project no
LJ	220518.00

project

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Tamworth Central Campus

drawing

GA - GROUND LEVEL

drawing no. | issue

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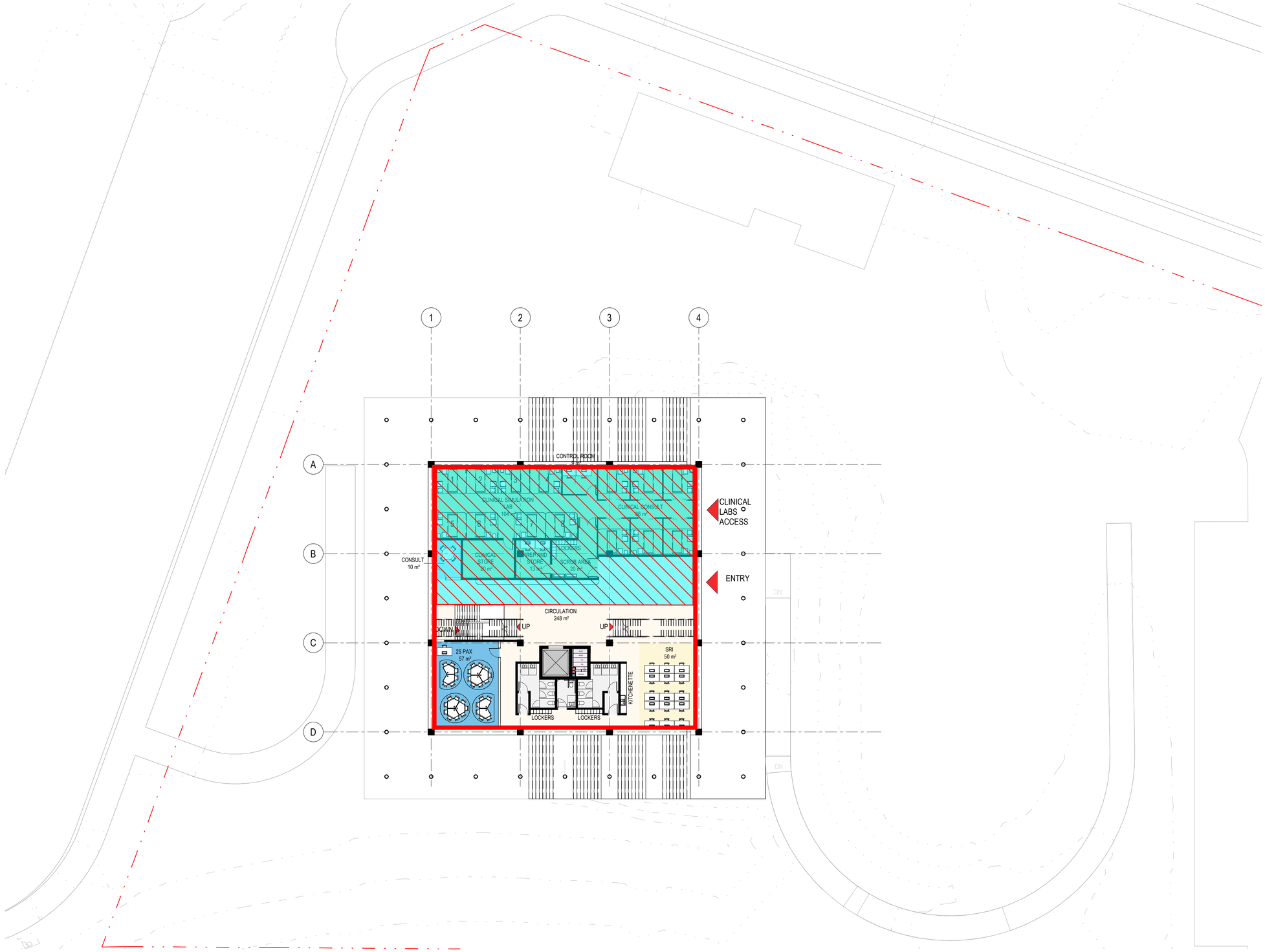

ROOMS - Department

- Amenities
- Care Space
- Circulation
- Clinical
- Lift
- Service Spaces
- Student Breakout
- Teaching Spaces

Insulation Legend

- External/Internal Wall Total R2.0
- Angled Roof/Wall Total R4.5
- Roof Insulation Total R4.5
- Suspended Floor Insulation Total R2.0

Nominated Architect
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0 2 4 6 10 m

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LJ	220518.00

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drawing

GA - LEVEL 01

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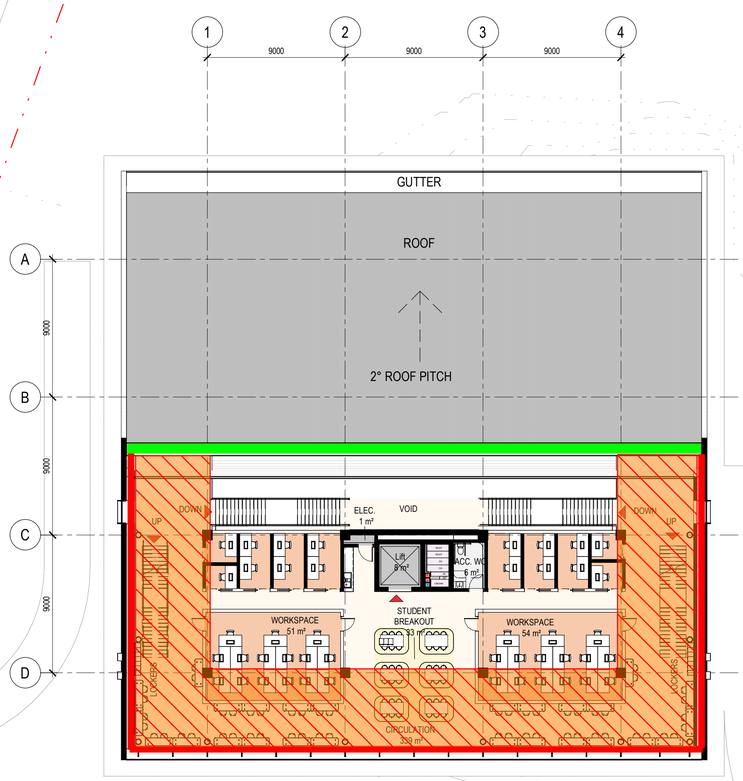
ROOMS - Department

- Amenities
- Bookable Workspace
- Circulation
- Clinical
- Lift
- Service Spaces
- Student Breakout

Insulation Legend

- External/Internal Wall Total R2.0
- Angled Roof/Wall Total R4.5
- Roof Insulation Total R4.5
- Suspended Floor Insulation Total R2.0



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0 2 4 6 10 lm

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NE	1 : 200 @A1
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drawing
GA - LEVEL 02

drawing no. **DA1003**

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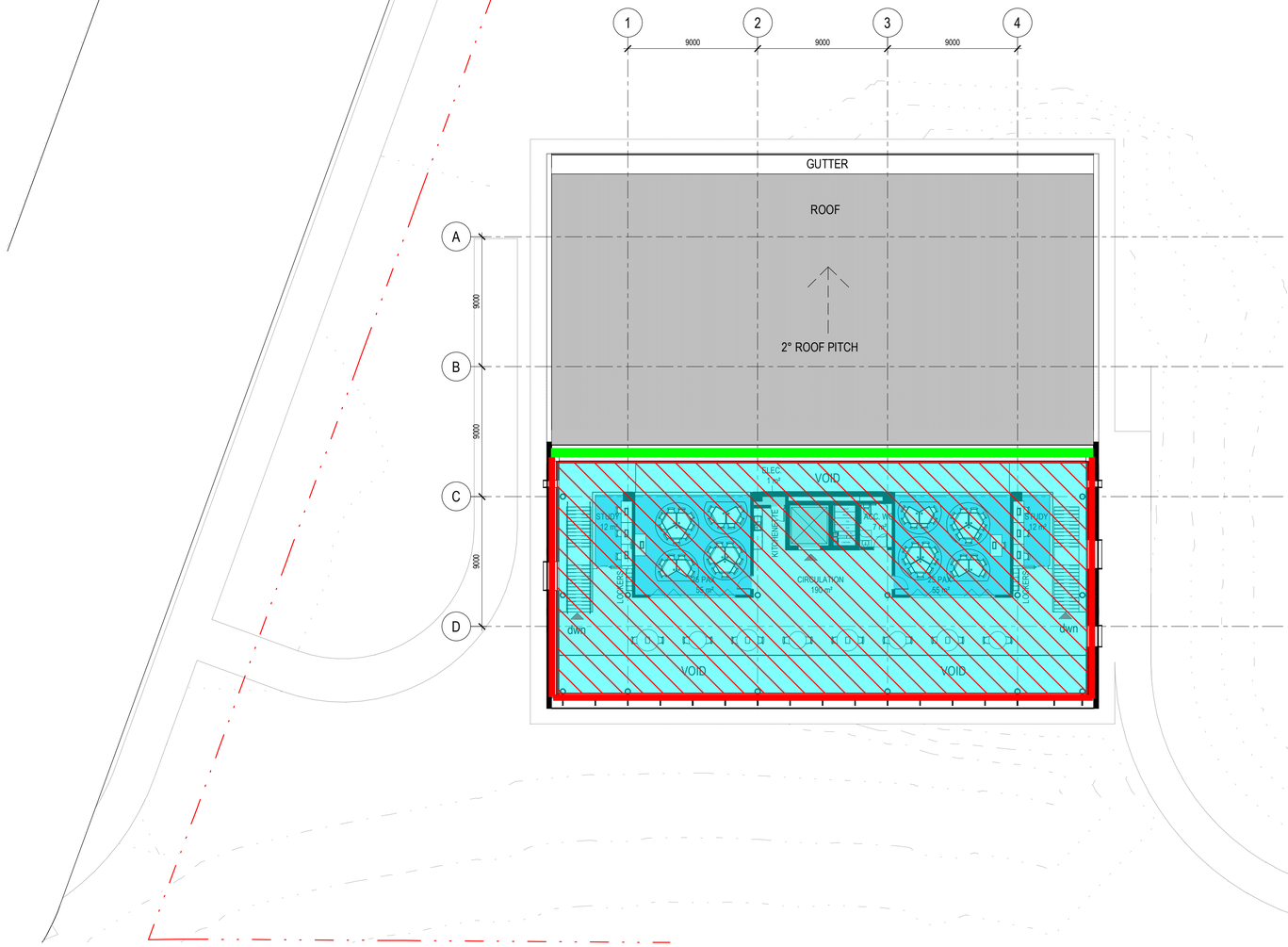
ROOMS - Department

- Amenities
- Circulation
- Lift
- Service Spaces
- Teaching Spaces

Insulation Legend

- External/Internal Wall Total R2.0
- Angled Roof/Wall Total R4.5
- Roof Insulation Total R4.5
- Suspended Floor Insulation Total R2.0



Nominated Architect
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0 2 4 6 10 m

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checked	scale
NE	1 : 200 @A1
drawn	project no
LJ	220518.00

project

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drawing

GA - LEVEL 03

drawing no. **DA1004**

issue

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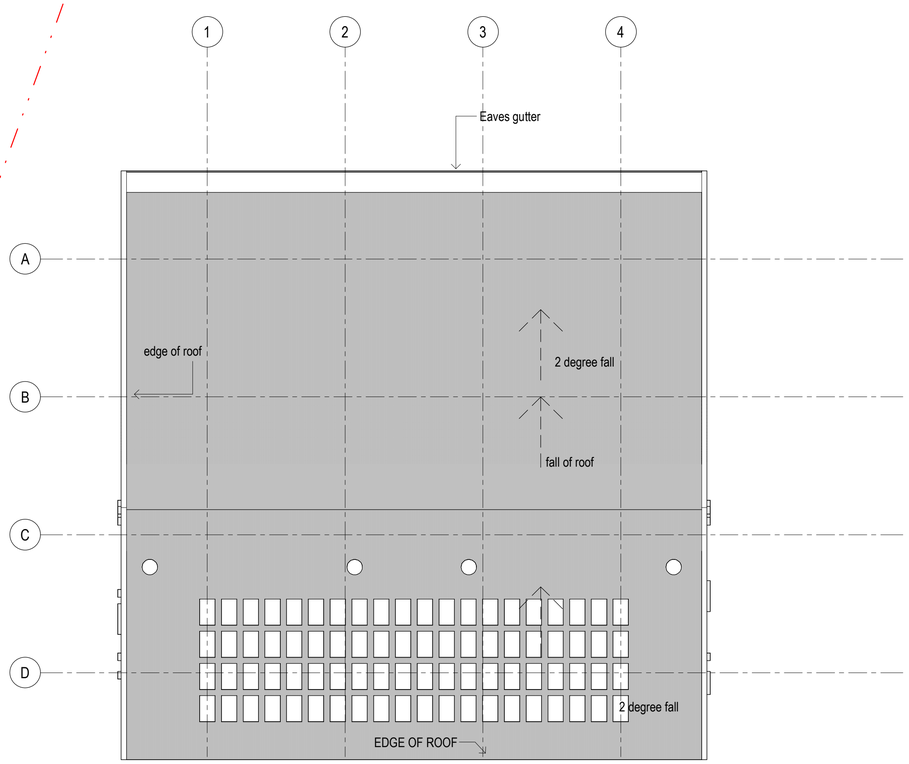

Nominated Architect
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0 2 4 6 10 m

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issue	amendment	date

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checked NE

scale 1 : 200 @A1

drawn LJ

project no 220518.00

0 1.3 2.6 3.8 5 6.3 12.5 m

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project

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Tamworth Central Campus

drawing

GA - ROOF

drawing no. **DA1005**

issue

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