

NCC Section J 2019 JV3 Alternative Solution Assessment

Tallawong Station Precinct South Deicorp Projects (Tallawong Station) Pty Ltd

To be built at:

Lot 294 / DP1213279, 2 - 12 Conferta Ave & Lot 293 / DP1213279 1 - 15 Conferta Ave, Rouse Hill, NSW 2155

Attention: Joelle Knouf

Company: Deicorp Projects (Tallawong Station) Pty Ltd

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Appendix

Appendix A: Conditioned Spaces Markup

Appendix B: Insulation Markups

1. Executive Summary

Efficient Living has been engaged by Deicorp Projects (Tallawong Station) Pty Ltd to determine what measures are required for the development at Lot 294 / DP1213279, 2 - 12 Conferta Ave & Lot 293 / DP1213279 1 - 15 Conferta Ave, Rouse Hill, NSW 2155 to meet Section J requirements of the 2019 National Construction Code (NCC) through a JV3 Alternate Solution assessment. This advice covers Section J Parts J1-J8.

The intent of carrying out a JV3 Verification Method is to allow flexibility in achieving the following outcomes:

- More consistency in the glazing specifications;
- Allow 'trade-offs' in improving the building envelope as a system;
- Allow innovation and better interaction of building fabric.

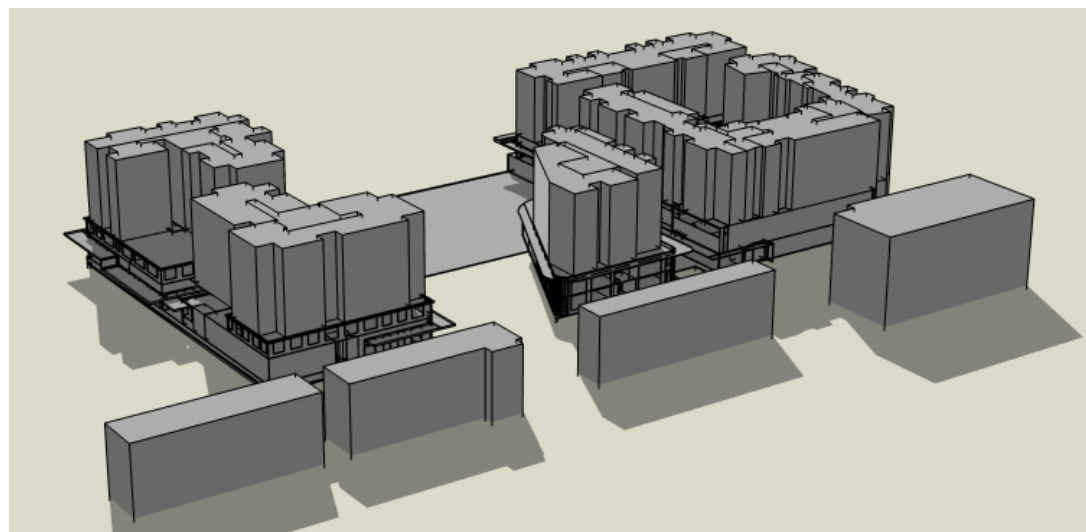
To follow the JV3 Verification Method, annual energy consumption of the proposed building is to be not more than the annual energy consumption of a reference building which complies with all the Deemed-to-Satisfy requirements under the following scenario:

- The proposed building is modelled with proposed fabric and the same services as the reference building.

Reference & Proposed Model Greenhouse Gases Emissions

End Use	Energy source	Reference Model Reference Fabric Reference Services [Tco ₂ /a]	Proposed Model 1 Proposed Fabric Reference Services [Tco ₂ /a]
Cooling	Electricity	644.6	591.5
Heating	Electricity	5.7	8.8
Equipment	Electricity	230.7	230.7
Lighting	Electricity	422.3	422.3
Total	-	1303.3	1253.3
% Improvement over Ref	-		3.84%

The following section provides a summary of the fabric requirements for the development.



1.1. Proposed Building Fabric Performance Requirements

Proposed Building Fabric Performance Requirements

Fabric Element	Required Total System R-Value	Notes
External Walls	R2.30	Maximum absorptance value of 0.6 on outer surface must be achieved. With thermal bridging calculated in accordance with AS/NZS 4859.2
Internal Walls	R1.80	With thermal bridging calculated in accordance with AS/NZS 4859.2
External Floors	Nil	Floor Insulations have been removed in the JV3 model
Roofs	R3.20	External roof colour to a maximum solar absorptance of 0.45 representing a light or medium light colour.

Proposed Building Glazing Performance Requirements

Level	Orientation	Required Total System U-Value	Required Total System SHGC
Display Glazing	All	5.8 (or lower)	0.81 (or lower)
All	All	4.8 (or lower)	0.45 (or lower)

Display Glazing used to display retail goods in a shop or showroom directly adjacent to a walkway or footpath, but not including that used in a café or restaurant.

Mark ups showing locations where insulation should be applied are contained in Appendix B.

The following sections contain a breakdown of the information used to carry out the assessment, as well as details on the Section J performance requirements to be adopted throughout the development.

2. Introduction

Efficient Living has been engaged by Deicorp Projects (Tallawong Station) Pty Ltd to determine what measures are required for the proposal to meet the 2019 National Construction Code (NCC) Section J requirements via *JV3 Alternate Solution Assessment*.

Report Contact

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Architectural Documents

Documents prepared by: Turner Studio: Job No. 18095

Drawing Reference: DA-110-006[S], DA-110-007[S], DA-110-008[S], DA-110-010_03, DA-110-020_03, DA-110-040_03, DA-211-001_03, DA-211-002_03, DA-212-001_03, DA-212-002_03, DA-212-003_03, DA-211-004_03

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Project Address & NCC Climate Zone

The proposal consists of a large residential development, with retail and commercial spaces included located at Lot 294 / DP1213279, 2 - 12 Conferta Ave & Lot 293 / DP1213279 1 - 15 Conferta Ave, Rouse Hill, NSW 2155 therefore being located within NCC Climate Zone 6.

Building Classes

The proposal consists of retail and commercial tenancies on basement floors to level 1. The residential portion of the proposal has not been assessed in this report as it is covered by BASIX. The proposal dictates the following NCC classes are applicable:

- Class 5: Commercial Spaces
- Class 6: Retail, Café and Restaurants
- Class 7a: Carpark

It should be understood that this report is a design report only and confirmation of the final built compliance is outside of the agreed scope of works. This report should be used as reference to ensure final built compliance and if construction is consistent with the referenced plans and specifications contained within this report Section J compliance shall be achieved.

Climate Zone Characteristics

Climate zone 6 – Mild Temperate - Limit Heating in Winter/ Cooling in Summer

Thermal treatment of the building envelope is beneficial in both hotter and colder weather. In summer, limiting heat gain can reduce the desire of occupants to run any cooling services installed. In winter, the building fabric can reduce the heat loss to the outside and can also promote solar heat gains through good orientation and treatment of glazing to offset the conductive heat losses.

Section J Part	DTS	JV3	Comment
Part J1 – Building Fabric	No	Yes	Performance requirements outlined in this report will achieve compliance with DTS provisions.
Part J3 – Building Sealing	Yes	No	DTS Compliance to be documented by Architect
Part J5 – Air Conditioning and Ventilation Systems	Yes	No	DTS Compliance to be documented by Services engineer
Part J6 – Artificial lighting and Power	Yes	No	DTS Compliance to be documented by Electrical Engineer
Part J7 – Hot Water Supply	Yes	No	DTS compliance to be documented by Hydraulics Engineer
Part J8 – Access for Maintenance and Facilities for Monitoring	Yes	No	DTS Compliance to be documented by Electrical engineer

Disclaimer

This report has been prepared in accordance with the agreed scope of works between Efficient Living and Deicorp Projects (Tallawong Station) Pty Ltd. At all times Efficient Living has acted diligently and employed all reasonable care in the preparation of this report. The information contained within is based upon the documents and information, accepted in good faith as being true and accurate, provided by the Client, architects and consultants. Should subsequent amendments occur to the documents referenced this report may require an update or else non-compliance with the NCC Section J may result.

3. JV3 Input Summary

The following tables contain the input data used in the JV3 Reference Model.

Input Data Summary – Reference & Proposed

Input Data Summary	
Building floor Area:	Net conditioned building area assessed: 8,823m ²
<i>Please note the area input in the model is only related to the relevant areas for the energy simulation purpose particularly in respect to the proposed developments. It may not reflect the actual building floor areas of the proposed development.)</i>	
Building Energy Simulation Software Used:	DesignBuilder v6.1.2.009 + EnergyPlus Simulation Engine v8.9.0
Weather Data For Simulation:	Sydney Airport AMO IWECC
Occupant Density (Table D.1.13)	
Type of use	Occupant Density (m ² /person)
Café/ Restaurant/ Meeting Room	1 m ² /person
Retail	3 m ² /person
Childcare Centre	30 m ² /person
Meeting Room	1 m ² /person
Kitchen & WC	10 m ² /person
Office	10 m ² /person
Carpark/Plant room/Storage	30 m ² /person
Internal Heat Gains for Appliances and Equipment (JV (2) Table 2h)	
Application	Internal sensible heat gain rate (W/m ²)
Class 5 – Office	11 W/m ²
Class 6 – Café/Restaurant/Shop	5 W/m ²
Other applications	No load
Internal Heat Gains for Occupants and Hot Meals	
Application	Internal sensible heat gain per person (W)
Café / restaurant	80W sensible heat gain and 80W latent heat gain
Other	75W sensible heat gain and 55W latent heat gain
Maximum Illumination Power Density (Section J - Part J6.2 Table J6.2a)	
Space	Maximum illumination power density (W/m ²)
Meeting room	5 W/m ²
Café	14 W/m ²
Kitchen and food preparation area	4 W/m ²
Control room, switch room, and the like	3 W/m ²

Space	Maximum illumination power density (W/m ²)
Office	4.5 W/m ²
Plantroom	4 W/m ²
Toilet, locker room, staff room or the like	3 W/m ²
Storage area	1.5 W/m ²
System	As detailed HVAC design is not finalised at this stage, a Variable Refrigerant volume (VRF) system (electricity as the energy source for both heating and cooling) is modelled for each zone. Please note compliance with Part J5, NCC shall be confirmed in design by the project mechanical engineer.
Infiltration	0.7 AC per hour when pressurizing plant is not operating. 0.35 AC per hour when pressurizing plant is operating.
Temperature control	For all models, conditioned space temperature falls within the range of 21 °CDB to 24 ° CDB for 98% of the plant operation time.
Assumptions for Building Simulation	
<ul style="list-style-type: none"> All input is established on the base that the information provided is accurate, complete and adequate. All operation profiles are set in accordance with Table 2a to 2g, NCC 2019. Energy consumption of domestic hot water systems and lifts in both of the reference and proposed building models is not modelled. No on-site renewable energy and reclaimed energy process have been modelled for simulation. No facilities for energy monitoring has been modelled for simulation. 	

Building Fabric Summary – Reference & Proposed Models

Building Fabric Summary – Reference & Proposed Models				
Element		Reference Model (DTS)		Proposed Model
Ceiling		R3.20		R3.20
Solar absorptance of roofs		0.45		0.45
External walls		R1.40		R2.30
Solar absorptance of external walls		0.60		0.60
Internal partition walls forming part of the envelope		R1.40		R1.80
Internal floors forming part of the envelope		R2.00		No insulation
Glazing Area and Shading				
Element		Reference Model (DTS)		Proposed Model
External Glazing		Various inputs in compliance with the facade calculator.		Total system U-value = 4.80 Total system SHGC = 0.45 Display Glazing: Total system U-value = 5.80 Total system SHGC = 0.81
Shading		Shading modelled in accordance with proposed architectural		Shading modelled in accordance with proposed architectural
Model Verification:				
In accordance with JV3 verification, JV3 (d)(i)(D), the space temperature of the reference building must be between 18°C and 25°C for conditioned spaces with transient occupancy and between 21°C and 24°C for all other conditioned spaces for 98% of the plant operating hours. Hence, DesignBuilder v6.1.2.009 + EnergyPlus Simulation Engine v8.9.0 is utilized to determine the percentage of total operation hours per annum that the space temperature was outside the specified set-points. The results are shown below:				
Model	Air temperature (°C) % hours in range	Air temperature (°C) % hours in range	Air temperature (°C) % hours in range	Total operation hours per annum outside 21°C – 24°C
	< 21°C	21°C – 24°C	< 24°C	%
Reference	0	100	0	0
Proposed	0	100	0	0
PMV	PMV % of hours of operation in range	PMV % of hours of operation in range	PMV % of hours of operation in range	Total operation hours per annum outside PMV -1 to 1
	< -1	-1 to 1	< 1	%
Proposed	0	100	0	0

4. Section J Requirement Breakdown: Parts J1-J8

Envelope for the purpose of the Section J report means the parts of the building fabric that separate a conditioned space or habitable room from-

- (a) the exterior of the building; or
- (b) a non-conditioned space including
 - (i) the floor of a rooftop plant room, lift machine room or the like; and
 - (ii) the floor above a carpark or warehouse; and
 - (iii) the common wall with a carpark, warehouse or the like

4.1. J1 Building Fabric

The following requirements must be implemented in design:

J1.2 Thermal Construction

Insulation must be installed in compliance with AS/NZS 4859.1

- adjoining insulation must abut / overlap and butt up against studs, joists, noggins, etc where the insulation must be against the member;
- it must form a continuous barrier & must not interfere with services or fittings.

Reflective insulation must be installed with:

- the necessary airspace to achieve the required R-Value between the reflective side of the insulation and the building lining or cladding;
- the reflective insulation closely fitted against any penetration, door or window opening;
- the reflective insulation adequately supported by framing members;
- each adjoining sheet must either overlap not less than 50mm or be taped together.

Bulk insulation must 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.
- in a ceiling, where there is no bulk insulation or reflective insulation in the wall beneath, it overlaps the wall by not less than 50mm.

The required Total R-Value and Total System U-Value, including allowance for thermal bridging, must be;

- calculated in accordance with AS/NZS 4859.2 for a roof or floor; or
- determined in accordance with Specification J1.5a for wall-glazing construction; or
- determined in accordance with Specification J1.6 or Section 3.5 of CIBSE Guide A for soil or sub-floor spaces.

Total System Values;

- The required total wall-glazing system U-Value must achieve an average U2.0 across the entire system, which must account for thermal losses due to thermal bridging as per J1.2(e).

J1.3 Roof & Ceiling

Insulation should be applied to areas highlighted in Appendix B, according to the values contained in the following table:

Concrete roof - Required R3.20 Total System

Component	R-Value
Outdoor air film (7m/s)	0.04
300mm Concrete	0.20
Additional insulation required assuming uninterrupted insulation	<u>2.60</u>
Roof airspace (unventilated, non-reflective) min	0.18
Plasterboard, gypsum (10mm, 880 kg/m ³)	0.06
Indoor air film (still air)	0.12
Total System R-Value	3.20

The Insulation provider / installer is responsible to ensure the type and location of insulation is fit for purpose in that; the total system values are achieved and condensation risk is mitigated.

J1.3(c) Loss of insulation through ceiling penetrations

No loss of insulation through ceiling penetrations calculations have been completed regarding the insulation build ups outlined in previous pages. It is therefore assumed that any lighting installed will not impact on the required ceiling/roof insulation.

J1.4 Roof Lights

There are no roof lights proposed to conditioned commercial space

J1.5 Walls and Glazing

The total System U-Value of the wall-glazing construction must not be greater than U2.0, this is achieved when the insulation levels and performance shown in this section are met or surpassed.

External Walls

Insulation should be applied to areas highlighted in Appendix B, according to the values contained in the following tables:

Thermal Bridging assumed at 10% (areas where insulation cannot be installed due to framework) all steel/metal framing to have thermal break of R0.2 or greater.

Indicative Build-up of Pre Cast Concrete External Envelope Walls - Required 2.30 Total System

Component	R-Value
Outdoor air film (7m/s)	0.04
150 mm minimum solid reinforced concrete	0.10
Additional insulation required assuming 10% Thermally broken steel frame area Or Additional insulation required assuming uninterrupted insulation	<u>3.30</u> <u>1.98</u>
Plasterboard, gypsum (10mm, 880 kg/m ³)	0.06
Indoor air film (still air)	0.12
Total System R-Value	2.30

Indicative Build-up of Concrete Block External Envelope Walls - Required 2.30 Total System

Component	R-Value
Outdoor air film (7m/s)	0.04
190mm reinforced concrete block	0.13
Additional insulation required assuming 10% Thermally broken steel frame area Or Additional insulation required assuming uninterrupted insulation	<u>3.23</u> <u>1.95</u>
Plasterboard, gypsum (10mm, 880 kg/m ³)	0.06
Indoor air film (still air)	0.12
Total System R-Value	2.30

Indicative Build-up of Clad Stud Framed External Envelope Walls - Required 2.30 Total System

Component	R-Value
Outdoor air film (7m/s)	0.04
Metal cladding*	0.00
Additional insulation required assuming 10% Thermally broken steel frame area Or Additional insulation required assuming uninterrupted insulation	<u>3.54</u> <u>2.08</u>
Plasterboard, gypsum (10mm, 880 kg/m ³)	0.06
Indoor air film (still air)	0.12
Total System R-Value	2.30

*The likely range of these product R-Values for lightweight cladding is minimal (0.00 – 0.03). Metal cladding has been used in the calculation so a consistent insulation can specified to all walls and compliance is ensured for all proposed cladding materials.

The Insulation provider / installer is responsible to ensure the type and location of insulation in all above mentioned wall types is fit for purpose in that; the total system values are achieved and condensation risk is mitigated.

Thermal Breaks - Walls

External walls that have a metal frame are to have a thermal break installed.

Internal Walls

Insulation should be applied to areas highlighted in Appendix B, according to the values contained in the following tables:

Indicative Build-up of Clad Stud Framed Internal Envelope Walls - Required 1.80 Total System

Component	R-Value
Indoor air film (still air)	0.12
Plasterboard, gypsum (10mm, 880 kg/m ³)	0.06
Additional insulation required assuming 10% Thermally broken steel frame area Or Additional insulation required assuming uninterrupted insulation	<u>2.15</u> <u>1.44</u>
Plasterboard, gypsum (10mm, 880 kg/m ³)	0.06
Indoor air film (still air)	0.12
Total System R-Value	1.80

Indicative Build-up of Pre cast Concrete Internal Envelope Walls - Required 1.80 Total System

Component	R-Value
Indoor air film (still air)	0.12
150 mm minimum solid reinforced concrete	0.10
Additional insulation required assuming 10% Thermally broken steel frame area Or Additional insulation required assuming uninterrupted insulation	<u>2.05</u> <u>1.40</u>
Plasterboard, gypsum (10mm, 880 kg/m ³)	0.06
Indoor air film (still air)	0.12
Total System R-Value	1.80

Indicative Build-up of Concrete Internal Envelope Walls - Required 1.80 Total System

Component	R-Value
Indoor air film (still air)	0.12
190mm reinforced concrete block	0.13
Additional insulation required assuming 10% Thermally broken steel frame area Or Additional insulation required assuming uninterrupted insulation	<u>2.00</u> <u>1.37</u>
Plasterboard, gypsum (10mm, 880 kg/m ³)	0.06
Indoor air film (still air)	0.12
Total System R-Value	1.80

Glazing Requirements

Glazing has been assessed using the NCC Facade Calculator 2019. Please note the performance requirements shown in the table below are total system values, including the frame and glass.

Part J1.5 Total System Glazing Performance Requirements

Level	Orientation	Required Total System U-Value	Required Total System SHGC
Display Glazing	All	5.80	0.81
All	All	4.80	0.45

All awnings and shading structures to be installed as per plans and elevations referenced. Should there be any changes to the glazing or shading configuration, the new layouts will need to be re-assessed to verify compliance with Section J.

J1.6 Floors

Insulation should be applied to areas highlighted in Appendix B, according to the values contained in the following table:

Indicative Build-up of Suspended Concrete floor - Required 2.00 Total System

Component	R-Value
Indoor air film (still air)	0.16
Floor covering	0.01
Solid Concrete (200mm, 2400 Kg/m ³)	0.14
Additional insulation required assuming uninterrupted insulation	<u>1.65</u>
Outdoor air film (7m/s)	0.04
Total System R-Value	2.00

The R-Value of the concrete is directly related to the thickness of the slab, with a thicker slab having a higher R-Value. As such, all floor areas will comply with the requirements for J1.6 with the above levels of insulation.

For example other thicknesses have the following R-Values:

200mm – R0.14, 250mm- R0.17, 300mm – R0.21; 500mm – R0.35; 600mm – R0.42; 900mm – R0.62

These values can be exchanged with the value for 150mm if applicable (e.g. transfer slab or similar) and as a result the level of insulation may be reduced.

4.2. J3 Building Sealing

The following requirements relating to building sealing must be achieved in design. The below requirements shall be verified, if required, by the architect or builder.

J Part	Requirement
J3.2 - Chimneys & Flues	Any new exhaust fans, located within conditioned areas indicated in the project reference, must be fitted with a sealing device such as a self-closing damper or the like
J3.3 - Roof Lights	No Roof Lights to commercial areas.
J3.4 - Windows and Doors	<p>The window supplier must provide verification that all glazing is sealed to comply with AS 2047 or BCA J3.4.</p> <p>A seal to restrict air infiltration must be fitted to each edge of a door, openable window or the like forming part of:</p> <ul style="list-style-type: none"> (i) the envelope of a conditioned space; or (ii) the external fabric of a habitable room or public area in climate zones 4, 5, 6, 7 or 8. <p>All doors forming part of the buildings thermal envelope must have a draft protection device installed to the bottom edge. All other edges of a window or door forming part of the building's thermal envelope.</p> <p>The above requirements do not apply to a window complying with AS 2047 or any fire or smoke door, roller shutter doors/grilles or security doors installed for out of hours security.</p> <p>An entrance to a building, if leading to a conditioned space must have an airlock, self-closing door, revolving door or the like, other than:</p> <ul style="list-style-type: none"> (i) where the conditioned space has a floor area of not more than 50 m²; or (ii) where a café, restaurant, open front shop or the like has— <ul style="list-style-type: none"> (a) a 3 m deep un-conditioned zone between the main entrance, including an open front, and the conditioned space; and (b) at all other entrances to the café, restaurant, open front shop or the like, self-closing doors. (c) A loading dock entrance, if leading to a conditioned space, must be fitted with a rapid roller door or the like.
J3.5 - Exhaust Fans	Any exhaust fans, located within conditioned areas indicated in the project reference, must be fitted with a sealing device such as a self-closing damper or the like.
J3.6 Roof, Walls & Floors	Construction forming elements of the envelope or external fabric must be enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions or sealed by caulking, skirting, architraves, cornices or the like.
J3.7 Evaporative Coolers	<p>An evaporative cooler must be fitted with a self-closing damper or the like when serving—</p> <ul style="list-style-type: none"> (a) a heated space; or (b) a habitable room or a public area of a building in climate zones 4, 5, 6, 7 or 8

4.3. J5 Air Conditioning and Ventilation Systems

The project mechanical engineer shall be responsible for ensuring compliance with NCC Section J5 parts J5.1-J5.12.

4.4. J6 Artificial Lighting and Power

The project electrical engineer shall be responsible for ensuring the design complies with NCC Section J6. A summary of the requirements has been provided below for reference:

J Part	Requirements																																												
J6.2 Interior Artificial Lighting	<p>The design illumination power load must not exceed the sum of the allowances obtained by multiplying the area of each space by the maximum illumination power density in Table J6.2a.</p> <p>Allowable maximum illumination power density</p> <table><tr><th>Space</th><th>Maximum W/m²</th><th>Space</th><th>Maximum W/m²</th></tr><tr><td>Retail, whose purpose is the sale of objects</td><td>14 W/m²</td><td>Restaurant, café, bar and space for the serving and consumption of food and drink</td><td>14 W/m²</td></tr><tr><td>Stairways</td><td>2 W/m²</td><td>Office</td><td>4.5 W/m²</td></tr><tr><td>Entry lobby from outside the building</td><td>9 W/m²</td><td>Board room or conference room</td><td>5 W/m²</td></tr><tr><td>Health-care examination room</td><td>4.5 W/m²</td><td>Lift cars</td><td>3 W/m²</td></tr><tr><td>Kitchen and food preparation areas</td><td>3 W/m²</td><td>Carpark – entry zone (first 15m of travel during day time)</td><td>11.5 W/m²</td></tr><tr><td>Toilet, locker room, staff room or the like</td><td>2 W/m²</td><td>Corridors</td><td>5 W/m²</td></tr><tr><td>Carpark - general</td><td>2 W/m²</td><td>Storage/service/cleaners room and the like</td><td>1.5 W/m²</td></tr><tr><td>Plant areas</td><td>11.5 W/m²</td><td>Carpark – entry zone (next 4m of travel during day time)</td><td>2.5 W/m²</td></tr><tr><td>Carpark – entry zone (first 20m of travel during night time)</td><td>2.5 W/m²</td><td>Common rooms, spaces and corridors in a Class 2 building</td><td>4.5 W/m²</td></tr><tr><td>Childcare</td><td>4.5 W/m²</td><td>Control room, switch room or the like – intermittent monitoring</td><td>3 W/m²</td></tr></table> <p>If lighting will not comply with the W/m² detailed above an ABCB Lighting calculator can be completed and adjustment factors through the use of control devices or the like considered in order to ensure compliance.</p> <p>No loss of insulation through ceiling penetrations has been completed in regards to the ceiling where roof is above. It is therefore assumed that any lighting installed will not impact on the ceiling/roof insulation. If ceiling/roof insulation is impacted by the installation on new lighting a loss of insulation calculation will need to be completed.</p> <p>These requirements to not apply for:</p> <ol style="list-style-type: none">Emergency lighting in accordance with Part E4Signage and display lighting within cabinets and display cases that are fixed in place.A heater where the heater also emits light, such as in bathrooms.Lighting of performances such as theatrical or sporting.Lighting installed solely for indoor plant growth on green walls or the like.	Space	Maximum W/m ²	Space	Maximum W/m ²	Retail, whose purpose is the sale of objects	14 W/m ²	Restaurant, café, bar and space for the serving and consumption of food and drink	14 W/m ²	Stairways	2 W/m ²	Office	4.5 W/m ²	Entry lobby from outside the building	9 W/m ²	Board room or conference room	5 W/m ²	Health-care examination room	4.5 W/m ²	Lift cars	3 W/m ²	Kitchen and food preparation areas	3 W/m ²	Carpark – entry zone (first 15m of travel during day time)	11.5 W/m ²	Toilet, locker room, staff room or the like	2 W/m ²	Corridors	5 W/m ²	Carpark - general	2 W/m ²	Storage/service/cleaners room and the like	1.5 W/m ²	Plant areas	11.5 W/m ²	Carpark – entry zone (next 4m of travel during day time)	2.5 W/m ²	Carpark – entry zone (first 20m of travel during night time)	2.5 W/m ²	Common rooms, spaces and corridors in a Class 2 building	4.5 W/m ²	Childcare	4.5 W/m ²	Control room, switch room or the like – intermittent monitoring	3 W/m ²
Space	Maximum W/m ²	Space	Maximum W/m ²																																										
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Entry lobby from outside the building	9 W/m ²	Board room or conference room	5 W/m ²																																										
Health-care examination room	4.5 W/m ²	Lift cars	3 W/m ²																																										
Kitchen and food preparation areas	3 W/m ²	Carpark – entry zone (first 15m of travel during day time)	11.5 W/m ²																																										
Toilet, locker room, staff room or the like	2 W/m ²	Corridors	5 W/m ²																																										
Carpark - general	2 W/m ²	Storage/service/cleaners room and the like	1.5 W/m ²																																										
Plant areas	11.5 W/m ²	Carpark – entry zone (next 4m of travel during day time)	2.5 W/m ²																																										
Carpark – entry zone (first 20m of travel during night time)	2.5 W/m ²	Common rooms, spaces and corridors in a Class 2 building	4.5 W/m ²																																										
Childcare	4.5 W/m ²	Control room, switch room or the like – intermittent monitoring	3 W/m ²																																										

<p>J6.3</p> <p>Interior Artificial Lighting and Power Control</p>	<p>Artificial lighting of a room or space is to be individually switched or operated or both.</p> <p>These switches or devices must be located in a visible position-</p> <ul style="list-style-type: none"> • in the room or space being switched; or • in an adjacent room or space from where the lighting being switched is visible <p>Sole-occupancy units, except for those rooms specifically for people with a disability or the aged, are to have an occupant sensing device such as a card reader, motion detector in accordance with Specification J6 or the like installed to cut power to lighting, air-conditioner and exhaust fans when these rooms are unoccupied. This requirement is only applicable to sole-occupancy units. Further advice can be given on suitable devices if desired.</p> <p>Other than a space where a sudden loss of light would result in an unsafe situation, any non-residential building that exceeds 250m² will require 95% of light fittings to be controlled by either a time switch in accordance with Specification J6, a security card reader or motion detector in accordance with Specification J6.</p> <p>Other than in a single functional space, lighting controls or switches within each room, cannot operate lighting for an area of more than:</p> <ul style="list-style-type: none"> (a) 250m² for a space of less than 2000m²; or (b) 1000m² for a space of more than 2000m²; <p>Artificial lighting in a fire isolated stairway must be controlled by a motion detector.</p> <p>Artificial lighting in a foyer, corridor and other circulation spaces with more than 250W within a single zone and adjacent to windows must be controlled by a daylight sensor and lighting controls in accordance with Specification J6.</p> <p>Artificial lighting for daytime travel in the first 19m of a car park entry must be controlled by a daylight sensor.</p> <p>These requirements do not apply to emergency lighting in accordance with Part E4, or areas with 24 hour occupancy</p>
<p>J6.4</p> <p>Interior decorative and display lighting</p>	<p>If installing lighting for the display of art work / photographs or the like, it must be controlled by a manual switch and operated separately from other artificial lighting. This display lighting can be combined on one switch if the operating times for the display lighting are the same in a number of areas.</p> <p>If the display lighting exceeds 1kW in total then it must have a time switch in accordance with Specification J6.</p> <p>Any window display lighting to be separately switched from other display lighting.</p>
<p>J6.5</p> <p>Artificial lighting around the perimeter of a building</p>	<p>If installing artificial lighting around the perimeter of the building, it is to be controlled by a daylight sensor or time switch with pre-programmable times.</p> <p>If total perimeter lighting load exceeds 100W it must:</p> <ul style="list-style-type: none"> • use LED luminaires for 90% of the total lighting load; or • be controlled by a motion detector in accordance with Specification J6* <p>Lighting that is used for decorative purposes, such as façade lighting or signage lighting must have a separate time switch in accordance with Specification J6.</p> <p>*these requirements do not apply to emergency lighting in accordance with Part E4</p>
<p>J6.6</p> <p>Boiling water and chilled water storage units</p>	<p>Any boiling water or chilled water storage unit must be controlled by a time switch in accordance with Specification J6.</p>

J6.7 Lifts	<p>Lifts must –</p> <ul style="list-style-type: none"> (a) be configured to ensure artificial lighting and ventilation in the car are turned off when it is unused for 15 minutes; and (b) achieve the idle and standby performance level in Table 6.7a; and (c) achieve - <ul style="list-style-type: none"> (i) the energy efficiency class in Table 6.7b; or (ii) if a dedicated goods lift, energy efficiency class D in accordance with ISO 25745-2
J6.8 Escalators and moving walkways	<p>Escalators and moving walkways must have the ability to slow to between 0.2m/s and 0.05m/s when unused for more than 15 minutes.</p>

4.5. J7 Heated Water Supply and Swimming/Spa Pool Plant

The project hydraulic engineer shall be responsible for ensuring the design complies with NCC Section J6. A summary of the requirements has been provided below for reference:

J Part	Requirements
J7.2 Hot water Supply	Any new heated water supply system for food preparation must be designed and installed in accordance with Part B2 of NCC Volume Three – Plumbing Code of Australia.
J7.3 Swimming Pool Heating and Plumbing	No Swimming Pool
J7.4 Spa Pool Heating and Pumping	No proposed spa

4.6. J8 Facilities for Energy Monitoring

The project electrical engineer shall be responsible for ensuring the design complies with NCC Section J6. A summary of the requirements has been provided below for reference:

J Part	Requirements
J8.3 Facilities for Energy Monitoring	<p>The developments floor area is over 2500m², therefore must have the facility to individually record the energy consumption of:</p> <ul style="list-style-type: none"> (i) air-conditioning plant including where appropriate, heating plant, cooling plant and air handling fans; and (ii) artificial lighting; and (iii) appliance power; and (iv) central hot water supply; and (v) internal transport devices including lifts, escalators and travelators where there is more than one serving the building; and (vi) other ancillary plant.

Appendix A

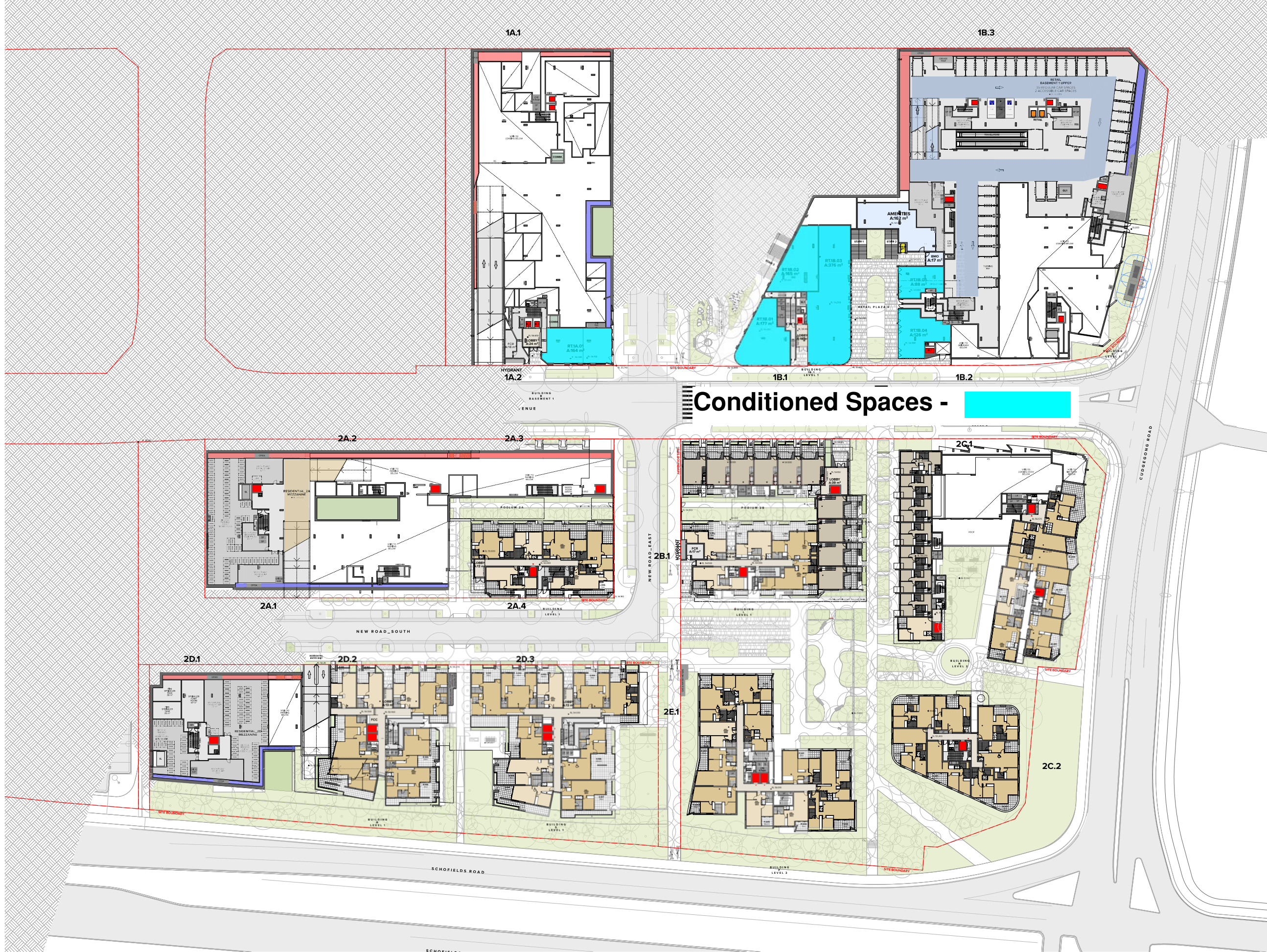
Tallawong Precinct - Mark Up Identifying Conditioned Spaces

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DLCS Quality Standard Company: 80-801-2015, Registration Number: 20475
Nominated Architect: Nicholas Turner: 8885, ANR 81-054-081-911

KEY PLAN

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Project Title
Tallawong Station Precinct South
1-15 & 2-12 Conforta Avenue Rouse Hill NSW 2155

Drawing Title

GA Plans Overall
Mezzanines, Level 01 & 02

Scale	Project No.	18095	Drawn by	TURNER	North
1:500 @A1, 50% @A3	Dwg No.	DA-110-010	Rev	03	↑
Status	Draft Development Application				

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Appendix A

Tallawong Precinct - Mark Up Identifying Conditioned Spaces

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DLCS Quality Endorsed Company ISO 9001:2015, Registration Number 20475
Newcastle Architect Number 6665, ARIA 80 064 061 911

KEY PLAN

LEGEND

NATHERS Thermal Comfort Inclusions

Glazing Doors/Windows

Group A - window + blind + casement window + hinged glazed doors

U-value: 4.50 (equal to or lower than) SHGC: 0.47 (0.50)

Group B - sliding door/window + fixed glazing + louvre windows

U-value: 4.50 (equal to or lower than) SHGC: 0.53 (0.50)

Group C - window + blind + casement window + hinged glazed doors

U-value: 2.8 (equal to or lower than) SHGC: 0.44 (0.50)

Group D - sliding door/window + fixed glazing + louvre windows

U-value: 2.8 (equal to or lower than) SHGC: 0.51 (0.50)

Given values are ATRC total window system values (glass and frame)

Roof

Concrete roof, no insulation

External Colour

Medium colour modelled

Ceiling

Plasterboard ceiling with R1.5 insulation (insulation only value) where balconies are above

Plasterboard ceiling with R2.5 insulation (insulation only value) where balconies are above as per assessor certificate

Plasterboard ceiling with R3.5 insulation (insulation only value) to soffits of concrete where roof is over

Plasterboard ceiling, no insulation where neighbouring units are above

Ceiling Penetrations

Overlights 1 per 2m²

External Wall

Cavity brick internally lined plasterboard on studs with R2.0 insulation required (insulation only value)

Cavity brick internally lined plasterboard on studs with R2.0 insulation required (insulation only value) as per assessor certificate

External Colour

Default colour modelled

Walls/Partitions

100mm precast panels with plasterboard lining on both sides to walls adjacent to neighbours, no insulation required

100mm precast panels with plasterboard lining on both sides to walls adjacent to hallways

Minimum 200mm concrete with facing channel and plasterboard lining to all walls adjacent to lift shafts and fire stairs

100mm precast panels with plasterboard lining to services

Walls within dwellings

Plasterboard on studs - no insulation

Floors

Concrete with a minimum R1.2 insulation (insulation only value) required to units with garage below

Concrete with a minimum R2.2 insulation (insulation only value) required to units where open subfloor is below

Concrete between levels, no insulation required

Floor coverings

Default floor coverings

External Shading

Shading as per stamped documentation

Default floor coverings

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Project Title

Tallawong Station Precinct South
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Drawing Title

GA Plans Overall
Level 01,02 & 03

Scale	Project No.	18095	Drawn by	North
1:500, 1:151 @A1, 50% @A3			TURNER	↑
Status	Dwg No.	03	Rev	03
Draft Development Application	DA-110-020			

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Appendix A

Tallawong Precinct - Mark Up Identifying Conditioned Spaces

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DLCS Quality Endorsed Company: ISO 9001:2015, Registration Number 25475
Nominated Architect: Nicholas Turner: 6665, ABN 66 666 666 666

KEY PLAN

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Tallawong Station Precinct South
1-15 & 2-12 Conforta Avenue Rouse Hill NSW 2155

Drawing Title
GA Plans Overall
Level 02,03,04 & 05

Scale	Project No.	18095	Drawn by	TURNER	North
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Appendix B

Tallawong Precinct - Mark Up Identifying Areas of Required Insulation

Insulation Requirements

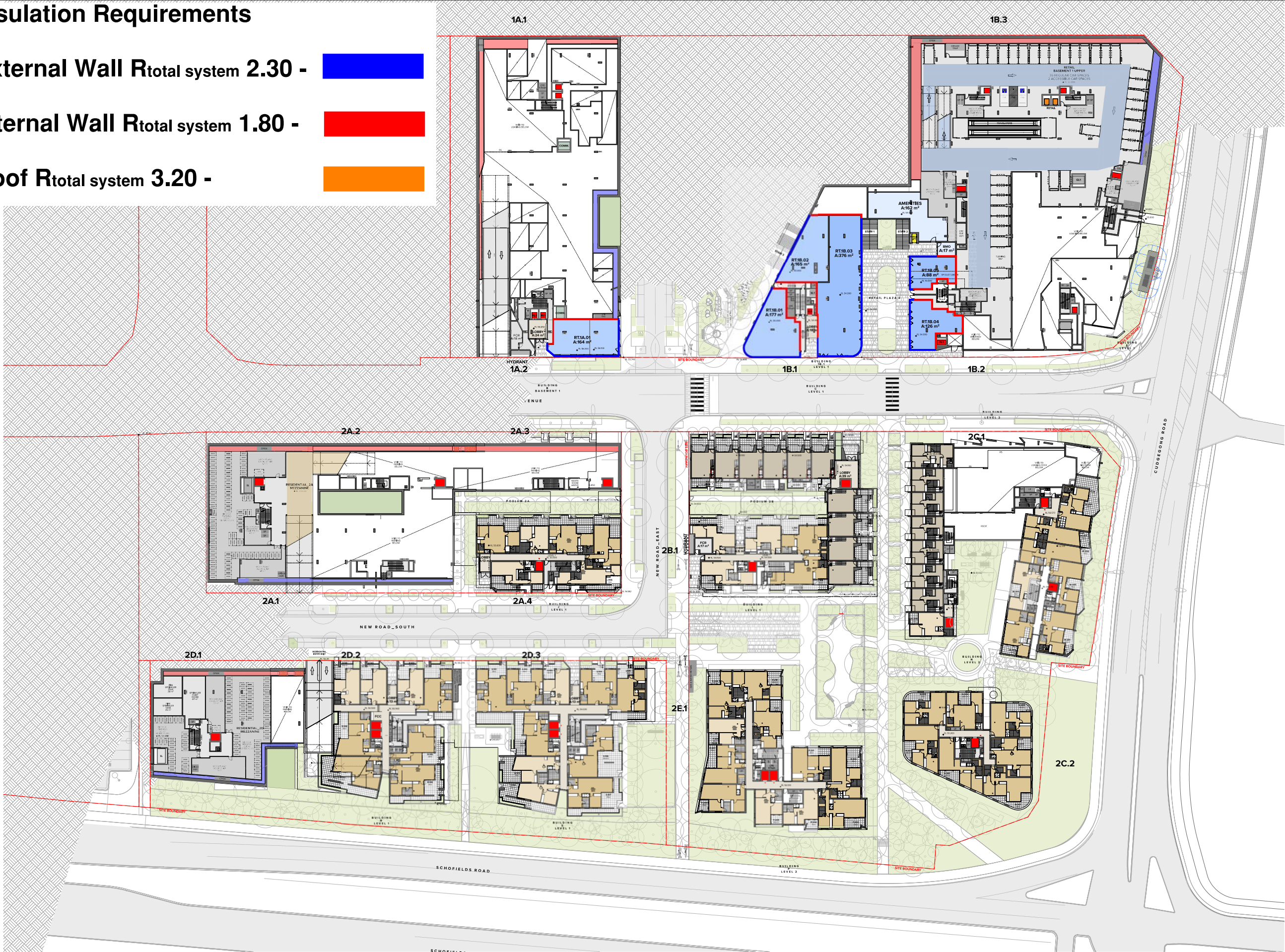
External Wall R_{total} system 2.30 -



Internal Wall R_{total} system 1.80 -



Roof R_{total} system 3.20 -



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DLCS Quality Endorsed Company: RD 8001 2016, Registration Number 20476
Nominated Architect: Nicholas Turner: 8665, ARIA 86 064 911

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1:500 @A1, 50% @A3
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Appendix B

Tallawong Precinct - Mark Up Identifying Areas of Required Insulation

Insulation Requirements

External Wall R_{total} system 2.30 - 

Internal Wall R_{total} system 1.80 - 

Roof R_{total} system 3.20 - 



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DLS Quality Extension Company 850 801 2015, Registration Number 25475
Nominated Architect: Nicholas Turner 8665, ABN 85 865 086 911

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