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# NCC 2022 Section J Deemed-to-Satisfy (DTS) Assessment

## 40 Myoora Road
## H&E Architects

To be built at **40 Myoora Rd, Terrey Hills, NSW 2084**

Attention: Megann Naylor
Company: H&E Architects

**Document Control**

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# Contents



# Appendix

# 1. Executive Summary

The following tables provide a quick reference summary of the building fabric performance requirements for the development. The appendix at the end of this report shows the conditioned area mark-up and locations of required insulation.

Please note: the information in this table shall not relieve the reader of reviewing the performance requirements in the main body of this report.

*Part J1 Building Fabric Performance Requirements*

| Fabric Element | Required Total System R-Value | Notes |
|---|---|---|
| Roofs/ Ceilings | R 3.70 | NCC Section J 2022 DTS provisions limit external roof colour to a maximum solar absorptance of 0.45. **See insulation options in body of report.** |
| External Walls | R 1.40 | With thermal bridging calculated in accordance with AS/NZS 4859.2. NCC Section J 2022 DTS provisions limit external wall colour to a maximum solar absorptance of 0.60. **See insulation options in body of report.** |
| Internal Walls | R 1.40 | With thermal bridging calculated in accordance with AS/NZS 4859.2. **See insulation options in body of report.** |
| Floors to Unconditioned Spaces | R 2.00 | No in-slab heating or cooling is proposed. R3.25 Required to floors with in slab heating/cooling system. **See insulation options in body of report.** |

*Roof Light Performance Requirements*

| Fabric Element | Location | Maximum Total System U-Value | Maximum Total System SHGC | Skylight shaft Insulation |
|---|---|---|---|---|
| Roof Light | Restaurant 02 | 3.90 | 0.29 | R1.40 |

Note: Roof light, for the purpose of Section J, means a skylight, window or the like installed in a roof –

(a) To permit natural light to enter the room below; and
(b) At an angle between 0 and 70 degrees measured from the horizontal plane.

*Part J4D6 Glazing Performance Requirements*

| Level/Location | Orientation | Maximum Total System U-Value | Maximum Total System SHGC |
|---|---|---|---|
| All Levels | All | 5.80 | 0.78 |

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

## 2. Introduction

Efficient Living has been engaged by H&E Architects to determine what measures are required for the proposal to meet the 2022 National Construction Code (NCC) Section J requirements via *Deemed-to-Satisfy Provisions*.

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*Architectural Documents*

Documents prepared by: H&E Architects: Job No. 2725

Drawing Reference: DA1-0000[11], DA1-0100[02], DA1-0110[02], DA1-0200[02], DA1-0201[02], DA1-0400[02], DA1-0401[08], DA1-0410[08], DA1-0500[10], DA1-1010[11], DA1-1011[11], DA1-1013[10], DA1-1022[11], DA1-1023[10], DA1-1024[02], DA1-1200 [02], DA1-1201[02], DA1-3100[08], DA1-3100[08], DA1-4100[10], DA1-4101[10], DA1-4102[09], DA1-4110[10], DA1-4111[10], DA1-4112[09], DA1-4120[10], DA1-4121[10], DA1-4122[09], DA1-4130[09], DA1-9000[09], DA1-9010[08], DA1-9020[03], DA1-9021[02], DA1-9030[02], DA1-9200[05], DA1-9201[05], DA1-9202[05], DA1-9203[05], DA1-9204[05], DA1-9205[05],

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### Project Address & NCC Climate Zone

The proposal consists of a clubhouse and is located at 40 Myoora Rd, Terrey Hills, NSW 2084 - within NCC Climate Zone 5.

### Building Classes

The development compromises three separate restaurant areas with ancillary kitchens/ bars, outdoor dining, on-site car parking, ancillary office premises and extensive landscaped open space including children's play equipment

The following NCC building classifications apply:

- Class 6: Restaurant

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 5 – Temperate |
|---|
| Thermal treatment of the building envelope is beneficial in both hotter and colder weather. In summer, limiting heat gain can reduce the energy consumption of the cooling services. 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 | Comment |
|---|---|
| Part J4 – Building Fabric | Performance requirements outlined in this report will achieve compliance with DTS provisions. |
| Part J5 – Building Sealing | DTS Compliance to be documented by Architect. |
| Part J6 – Air Conditioning and Ventilation | DTS Compliance to be documented by Services Engineer. |
| Part J7 – Artificial lighting and Power | DTS Compliance to be documented by Electrical Engineer. |
| Part J8 – Hot Water Supply and Swimming Pool and Spa Plant | DTS compliance to be documented by Hydraulics Engineer. |
| Part J9 – Energy Monitoring and On-site Distribution Energy Resources | DTS Compliance to be documented by Electrical Engineer. |

## Disclaimer

*This report has been prepared in accordance with the agreed scope of work between Efficient Living and H&E Architects. 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 amendments occur to the documents referenced in this report, this may require an update or else non-compliance with the NCC Section J may result.*

# 3. Section J DTS Requirement Breakdown: Parts J4-J9

The building envelope, for the purposes of the Section J, 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

## 3.1. J4 Building Fabric

The following requirements must be implemented in design:

### J4D3 Thermal Construction - general

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 with ceilings, walls, bulkheads, floors or the like that inherently contribute to the thermal barrier
- must not interfere or affect the sage and effective operation of 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 37 for wall-glazing construction; or
- determined in accordance with Specification 39 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).

### Thermal Bridging

Thermal bridging is an unintended path of heat flow, using a path of least resistance through a building envelope between the outside and inside. Thermal bridges may occur where there is an interruption in the insulation (e.g., areas where insulation cannot be installed due to metal/timber frame members such as joists, studs, noggings, top plate, and bottom plate) or where materials with high thermal conductivity are used.

J4D4 Roof & Ceiling

Insulation should be applied to areas highlighted in Appendix B, to meet the total system R-value noted in the following table:

| Fabric Element | Required Total System R-Value | Notes |
|---|---|---|
| Roofs | R3.70 | External roof colour to a maximum solar absorptance of 0.45 |

The insulation provider / installer is responsible for ensuring that the type and location of insulation is fit for purpose in that; the total system values are achieved, and condensation risk is mitigated. See roof & ceiling indicative build up below:

*Indicative build-up of metal roof with raked ceiling and skillion roof more than 5° pitch*

| Component | R-Value |
|---|---|
| Outdoor air film (7m/s) | 0.03 |
| Metal Roof | 0.00 |
| Air Space (25mm to 50mm) | 0.15 |
| Plasterboard, gypsum (10mm, 880 kg/m$^3$) | 0.06 |
| Indoor air film (still air) | 0.16 |
| Additional insulation required to achieve total system R-value | |
| Insulation option 1: Bulk insulation - thermal bridging assumed at 12% with metal frame. | R2.30 (Bulk Insulation required) + R2.30 Anticon Blanket |
| Insulation option 2: Uninterrupted Anticon Blanket installed (no thermal bridging allowance). | R3.30 Anticon Blanket |

*Indicative build-up of concrete roof with suspended ceiling*

| Component | R-Value |
|---|---|
| Outdoor air film (7m/s) | 0.03 |
| Concrete Roof 200mm | 0.14 |
| Roof airspace (unventilated, non-reflective) | 0.15 |
| Plasterboard, gypsum (10mm, 880 kg/m$^3$) | 0.06 |
| Indoor air film (still air) | 0.16 |
| Additional insulation required to achieve total system R-value | |
| Insulation advice: Assuming uninterrupted rigid board insulation installed under concrete soffit (no thermal bridging allowance). | R3.20(Rigid board R value) |

J4D6 Walls and Glazing

*External Walls*

Insulation should be applied to areas highlighted in Appendix B, to meet the total system R-value noted in the following table:

| Fabric Element | Required Total System R-Value | Notes |
|---|---|---|
| External Walls | R1.40 | With thermal bridging calculated in accordance with AS/NZS 4859.2. |

The insulation provider / installer is responsible for ensuring that the type and location of insulation in all wall types and spandrel systems is fit for purpose in that; the total system values are achieved, and condensation risk is mitigated. See external wall indicative build up below:

*Indicative build-up of clad stud framed external walls*

| Component | R-Value |
|---|---|
| Outdoor air film (7m/s) | 0.03 |
| Metal/ lightweight cladding (assumed negligible R-value) | 0.00 |
| Airspace | 0.16 |
| Plasterboard, gypsum (10mm, 880 kg/m$^3$) | 0.06 |
| Indoor air film (still air) | 0.12 |
| Additional insulation required to achieve total system R-value | |
| Insulation option 1: Bulk insulation - thermal bridging assumed at 12% with metal frame. | R2.30 (Bulk insulation R-value) |
| Insulation option 2: Uninterrupted rigid board insulation (no thermal bridging allowance). | R1.20 (Rigid board R-value) |

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

*Indicative build-up of concrete external walls*

| Component | R-Value |
|---|---|
| Outdoor air film (7m/s) | 0.03 |
| 150mm Concrete Wall | 0.10 |
| Airspace | 0.16 |
| Plasterboard, gypsum (10mm, 880 kg/m$^3$) | 0.06 |
| Indoor air film (still air) | 0.12 |
| Additional insulation required to achieve total system R-value | |
| Insulation option 1: Bulk insulation - thermal bridging assumed at 12% with metal frame. | R1.90 (Bulk insulation R-value) |
| Insulation option 2: Uninterrupted rigid board insulation (no thermal bridging allowance). | R1.10 (Rigid board R-value) |

*Indicative build-up of brick Veneer external wall with steel frame*

| Component | R-Value |
|---|---|
| Outdoor air film (7m/s) | 0.03 |
| Brick 110mm (1950kg/m3) | 0.14 |
| Airspace | 0.16 |
| Plasterboard, gypsum (10mm, 880 kg/m$^3$) | 0.06 |
| Indoor air film (still air) | 0.12 |
| Additional insulation required to achieve total system R-value | |
| Insulation option 1: Bulk insulation - thermal bridging assumed at 12% with metal frame. | R1.70 (Bulk insulation R-value) |
| Insulation option 2: Uninterrupted rigid board insulation (no thermal bridging allowance). | R1.10 (Rigid board R-value) |

*Internal Walls*

Insulation should be applied to areas highlighted in Appendix B, to meet the total system R-value noted in the following table:

| Fabric Element | Required Total System R-Value | Notes |
|---|---|---|
| Internal Walls | R1.40 | With thermal bridging calculated in accordance with AS/NZS 4859.2. |

The insulation provider / installer is responsible for ensuring that the type and location of insulation is fit for purpose in that; the total system values are achieved, and condensation risk is mitigated. See internal wall indicative buildup below:

*Indicative build-up of stud framed internal walls*

| Component | R-Value |
|---|---|
| Indoor air film (still air) | 0.12 |
| Plasterboard, gypsum (10mm, 880 kg/m$^3$) | 0.06 |
| Airspace | 0.16 |
| Plasterboard, gypsum (10mm, 880 kg/m$^3$) | 0.06 |
| Indoor air film (still air) | 0.12 |
| Additional insulation required to achieve total system R-value | |
| Insulation option 1: Bulk insulation - thermal bridging assumed at 12% with metal frame. | R1.70 (Bulk insulation R-value) |

*Indicative build-up of concrete internal walls*

| Component | R-Value |
|---|---|
| Indoor air film (still air) | 0.12 |
| 150mm concrete | 0.10 |
| Airspace | 0.16 |
| Plasterboard, gypsum (10mm, 880 kg/m$^3$) | 0.06 |
| Indoor air film (still air) | 0.12 |
| Additional insulation required to achieve total system R-value | |
| Insulation option 1: Bulk insulation - thermal bridging assumed at 12% with metal frame. | R1.60 (Bulk insulation R-value) |
| Insulation option 2: Assuming uninterrupted rigid board insulation (no thermal bridging allowance). | R1.05 (Rigid board R-value) |

*Glazing Requirements*

For the purposes of Section J, glazing means a transparent or translucent element and its supporting frame located in the envelope and includes a window other than a roof light.

The glazing supplier is responsible for ensuring that the total system values are achieved, and condensation risk is mitigated.

*Part J4D6 Glazing Performance Requirements*

| Level/Location | Orientation | Maximum Total System U-Value | Maximum Total System SHGC |
|---|---|---|---|
| All Levels | All | 5.80 | 0.78 |

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 reassessed to verify compliance with Section J.

J4D7 Floors

Insulation should be applied to areas highlighted in Appendix B, to meet the total system R-value noted in the following table:

| Fabric Element | Required Total System R-Value | Notes |
|---|---|---|
| Floors to Unconditioned Spaces | R2.00 | No in-slab heating or cooling is proposed. R3.25 Required to floors with in slab heating/cooling system. |

The insulation supplier / installer is responsible for ensuring that the type and location of insulation is fit for purpose in that; the total system values are achieved, and condensation risk is mitigated. See floor indicative build-up below:

*Indicative build-up of concrete slab on ground floor*

| Component | R-Value |
|---|---|
| Indoor air film (still air) | 0.12 |
| 150mm concrete | 0.10 |
| A slab-on-ground that does not have an in-slab heating or cooling system is considered to achieve a Total R-Value of R2.0. No additional insulation required to achieve total system R-value. | |

*Indicative build-up of suspended concrete floor*

| Component | R-Value |
|---|---|
| Indoor air film (still air) | 0.12 |
| 150mm concrete | 0.10 |
| Outdoor air film (7m/s) | 0.03 |
| Additional insulation required to achieve total system R-value | |
| Insulation advice: Uninterrupted rigid board insulation (no thermal bridging allowance). | R1.75 (Rigid board R-value) |

## 3.2. J5 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 |
|---|---|
| J5D3 - Chimneys & Flues | Any new chimney or flue of an open solid fuel burning appliance, 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 |
| J5D4 - Roof Lights | There are three options for compliance with J5D4, these are:<br>A roof light required to be sealed, or capable of being sealed, must be constructed with –<br>(i) an imperforate ceiling diffuser or the like installed at the ceiling or internal lining level; or<br>(ii) a weatherproof seal; or<br>(iii) a shutter system readily operated either manually, mechanically or electronically by the occupant.<br>It has been assumed that the proposed skylights will be fitted with weatherproof seals and therefore they will be compliant with J5D4. If however there is no seal provided either option (i) or (iii) will be required. |
| J5D5 - Windows and Doors | The window supplier must provide verification that all glazing is sealed to comply with AS 2047 or J5D5.<br>A seal to restrict air infiltration must be fitted to each edge of a door, openable window or the like forming part of:<br>(i) the envelope of a conditioned space; or<br>(ii) the external fabric of a habitable room or public area in climate zones 4, 5, 6, 7 or 8.<br>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.<br>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.<br>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:<br>(i) where the conditioned space has a floor area of not more than 50 m2; or<br>(ii) where a café, restaurant, open front shop or the like has—<br>(A) a 3 m deep un-conditioned zone between the main entrance, including an open front, and the conditioned space; and<br>(B) at all other entrances to the café, restaurant, open front shop or the like, self-closing doors.<br>A loading dock entrance, if leading to a conditioned space, must be fitted with a rapid roller door or the like. |
| J5D6 - 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. |

| | |
|---|---|
| J5D7<br>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. |
| J5D8<br>Evaporative Coolers | No Proposed Evaporative Coolers. |

## 3.3. J6 Air Conditioning and Ventilation Systems

The project mechanical engineer shall be responsible for ensuring compliance with NCC Section J6 parts J6D1-J6D13.

## 3.4. J7 Artificial Lighting and Power

The project electrical engineer shall be responsible for ensuring the design complies with NCC Section J7. A summary of the requirements has been provided below for reference:

<table>
<tr><th>J Part</th><th>Requirements</th></tr>
<tr><td>J7D3<br>Interior Artificial Lighting</td><td>
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 J7D3a.
<br><br>Allowable maximum illumination power density
<table>
<tr><th>Space</th><th>Maximum W/m²</th><th>Space</th><th>Maximum W/m²</th></tr>
<tr><td>Stairways</td><td>2 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>Entry lobby from outside the building</td><td>9 W/m²</td><td>Office</td><td>4.5 W/m²</td></tr>
<tr><td>Kitchen and food preparation areas</td><td>4 W/m²</td><td>Plant areas</td><td>2 W/m²</td></tr>
<tr><td>Toilet, locker room, staff room or the like</td><td>3 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>Control room, switch room or the like – intermittent monitoring</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>Carpark – entry zone (next 4m of travel during day time)</td><td>11.5 W/m²</td><td>Carpark – entry zone (first 20m of travel during night time)</td><td>11.5 W/m²</td></tr>
</table>
If lighting will not comply with the W/m² detailed above an ABCB Lighting calculator can be completed and adjustment factors using control devices or the like considered in order to ensure compliance.
<br><br>These requirements to not apply for:<br>1. Emergency lighting in accordance with Part E4<br>2. Signage and display lighting within cabinets and display cases that are fixed in place.<br>3. A heater where the heater also emits light, such as in bathrooms.
</td></tr>
</table>

| | |
|---|---|
| | 4. Lighting of performances such as theatrical or sporting.<br>5. Lighting installed solely for indoor plant growth on green walls or the like. |
| J7D4<br>Interior Artificial Lighting and Power Control | Artificial lighting of a room or space is to be individually switched or operated or both.<br>These switches or devices must be located in a visible position-<br>• in the room or space being switched; or<br>• in an adjacent room or space from where the lighting being switched is visible<br>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 40 S40C3**, a security card reader or motion detector in accordance with **Specification 40 S40C4.**<br>Other than in a single functional space, lighting controls or switches within each room, cannot operate lighting for an area of more than:<br>(a) 250m² for a space of less than 2000m²; or<br>(b) 1000m² for a space of more than 2000m².<br>Artificial lighting in a fire isolated stairway must be controlled by a motion detector.<br>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 40 S40C5.**<br>Artificial lighting for daytime travel in the first 19m of a car park entry must be controlled by a daylight sensor.<br>These requirements do not apply to emergency lighting in accordance with **Part E4,** or areas with 24-hour occupancy |
| J7D5<br>Interior decorative and display lighting | If installing lighting for the display of artwork / 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.<br>If the display lighting exceeds 1kW in total, then it must have a time switch in accordance with Specification 40.<br>Any window display lighting to be separately switched from other display lighting. |
| J7D6<br>Exterior artificial lighting | 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.<br>If total perimeter lighting load exceeds 100W it must:<br>- use LED luminaires for 90% of the total lighting load; or<br>- be controlled by a motion detector in accordance with **Specification 40 S40C4**<br>Lighting that is used for decorative purposes, such as façade lighting or signage lighting must have a separate time switch in accordance with **Specification 40 S40C3**.<br>*These requirements do not apply to emergency lighting in accordance with **Part E4** |
| J7D7<br>Boiling water and chilled water storage units | Any boiling water or chilled water storage unit must be controlled by a time switch in accordance with Specification S40C3. |
| J7D8<br>Lifts | Lifts must –<br>(a) be configured to ensure artificial lighting and ventilation in the car are turned off when it is unused for 15 minutes; and<br>(b) achieve the idle and standby performance level in Table J7D8a; and<br>(c) achieve -<br>(i) the energy efficiency class in Table J7D8b; or<br>(ii) if a dedicated goods lift, energy efficiency class D in accordance with ISO 25745-2 |

| | |
|---|---|
| J7D9<br>Escalators and moving walkways | No Proposed Escalators. |

## 3.5. J8 Heated Water Supply and Swimming/Spa Pool Plant

The project hydraulic engineer shall be responsible for ensuring the design complies with NCC Section J8. A summary of the requirements has been provided below for reference:

| J Part | Requirements |
|---|---|
| J8D2 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. |
| J8D3 Swimming Pool Heating and Plumbing | No Proposed Swimming Pool. |
| J8D4 Spa Pool Heating and Pumping | No Proposed Spa. |

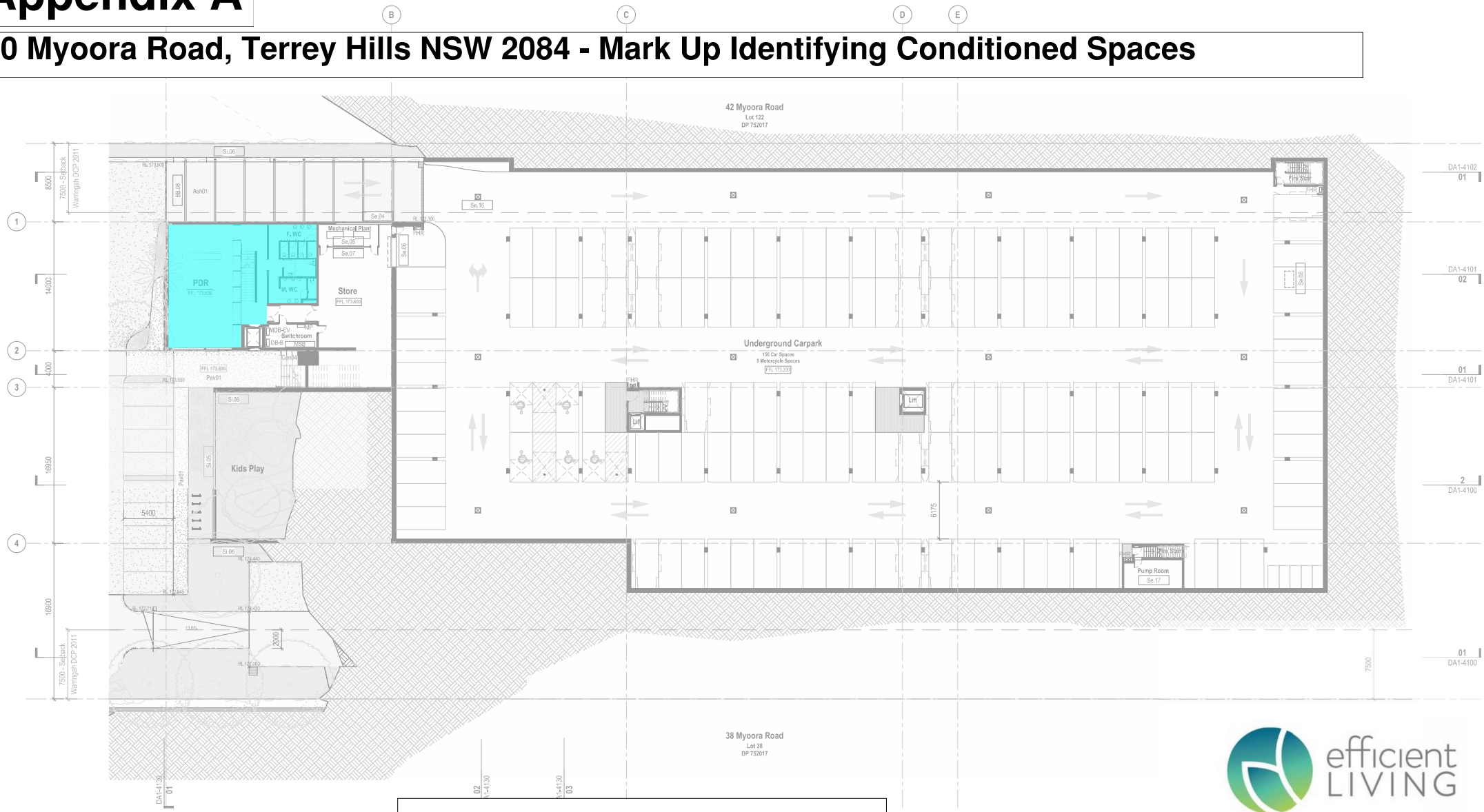
## 3.6. J9 Facilities for Energy Monitoring

The project electrical engineer shall be responsible for ensuring the design complies with NCC Section J9. A summary of the requirements has been provided below for reference:

| J Part | Requirements |
|---|---|
| J9D3<br>Facilities for Energy Monitoring | The development floor area is over 500m$^2$ but under 2500m$^2$, therefore must have an energy meter configured to record the time-of-use consumption of gas and electricity. |
| J9D4<br>Facilities for Electric Vehicle Charging Equipment | A carpark must be provided with electrical distribution boards dedicated to electric vehicle charging:<br>(a) in accordance with Table J9D4 in each storey of the carpark; and<br>(b) labelled to indicate use for electric vehicle charging equipment.<br>Electrical distribution boards dedicated to serving electric vehicle charging in a carpark must:<br>(a) be fitted with a charging control system with the ability to manage and schedule charging of electric vehicles in response to total building demand; and<br>(b) when associated with a Class 5 to 9 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 9:00 am to 5:00 pm daily; and<br>(c) be sized to support the future installation of a 7 kW (32 A) type 2 electric vehicle charger in:<br>(i) 20% of car parking spaces associated with a Class 3, 7b, 8 or 9 building; and<br>(d) contain space of at least 36 mm width of DIN rail per outgoing circuit for individual sub-circuit electricity metering to record electricity use of electric vehicle charging equipment; and<br>(e) be labelled to indicate the use of the space required by (f) is for the future installation of metering equipment. |
| J9D5<br>Facilities for Solar Photovoltaic and Battery Systems | The main electrical switchboard of a building must:<br>(a) contain at least two empty three-phase circuit breaker slots and four DIN rail spaces labelled to indicate the use of each space for—<br>(i) solar photovoltaic system; and<br>(ii) a battery system; and<br>(b) be sized to accommodate the installation of solar photovoltaic panels producing their maximum electrical output on at least 20% of the building roof area.<br>At least 20% of the roof area of a building must be left clear for the installation of solar photovoltaic panels, except for buildings:<br>(a) with installed solar photovoltaic panels on:<br>(i) at least 20% of the roof area; or<br>(ii) an equivalent generation capacity elsewhere on-site; or<br>(b) where 100% of the roof area is shaded for more than 70% of daylight hours; or<br>(c) with a roof area of not more than 55 m2; or<br>(d) where more than 50% of the roof area is used as a terrace, carpark, roof garden, roof light or the like. |

# Appendix A

## 40 Myoora Road, Terrey Hills NSW 2084 - Mark Up Identifying Conditioned Spaces




Conditioned Spaces -

efficient LIVING

### DA Legend

UNO the general extent and location of alterations or additions, including demolition is indicated accordingly:

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- Area of proposed demolition
- Neighbouring Light Industrial Buildings
- Neighbouring Residential Buildings
- Subject to final layout this area is to comply with Australian Standard 4674-2004: Design, construction and fit out of food premises. Refer to DA1-1200.

**For Development Approval**



| Rev | Date | Amendments |
|---|---|---|
| 01 | 25.09.23 | Preliminary Issue for Information |
| 02 | 10.10.23 | Issue for Information |
| 03 | 16.10.23 | Issue for Information |
| 04 | 27.10.23 | Issue for Information |
| 05 | 31.10.23 | Issue for Information |
| 06 | 19.03.24 | Consultant Issue |
| 07 | 02.04.24 | Issue for Information: Pre-DA Meeting |
| 08 | 03.05.24 | Issued for Landscape Coordination |

| Rev | Date | Amendments |
|---|---|---|
| 09 | 21.06.24 | Issue for Information: Design and Sustainability Advisory Panel |
| 10 | 26.07.24 | Issue for Information |
| 11 | 14.08.24 | Issue for Information |


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PO Box 490 Darlinghurst NSW 1300
Humphrey & Edwards Pty Ltd | ABN 89656838227
Nominated Architect: Glenn Cunnington #6416


Project: 40 Myoora Road

Client: Gardoxi P/L (Norwest)

Location: 40 Myoora Road, Terrey Hills NSW 2084

Drawing: General Arrangement Plan - Basement & Restaurant 01

| | | | |
|---|---|---|---|
| Scale @ A1 | 1:200 | Drawn by | Checked by |
| Scale @ A3 | 1:400 | | |
| Project Start Date | Issue Date | Sheet Issue Date | 14/08/24 |
| Project # | 2725 | | |
| Drawing # | DA1-1011 | Rev | 11 |

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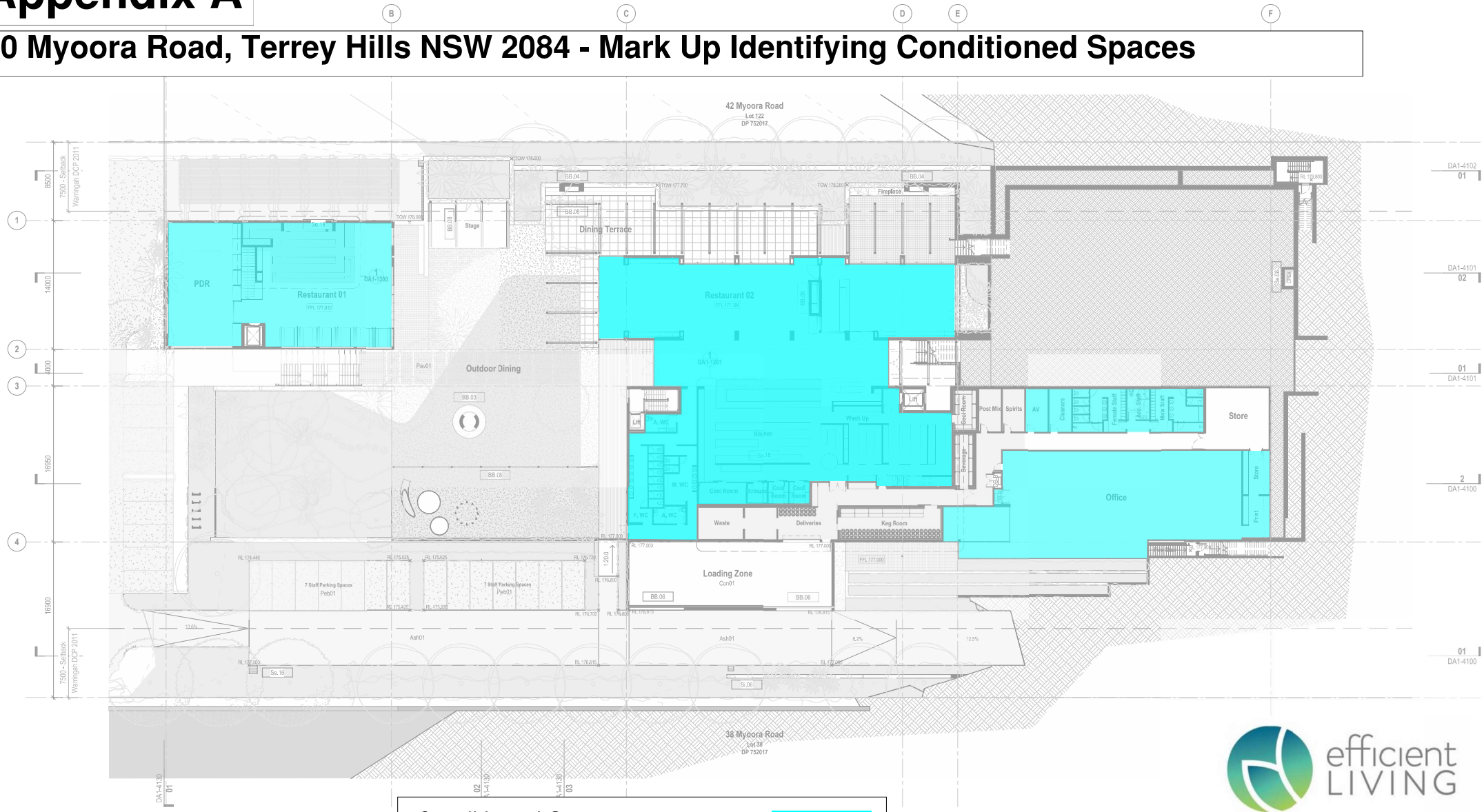
# Appendix A

## 40 Myoora Road, Terrey Hills NSW 2084 - Mark Up Identifying Conditioned Spaces




Conditioned Spaces -

efficient LIVING

### DA Legend

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**For Development Approval**

**General Notes**

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This drawing is only to be used by the stated Client in the stated location for the purpose it was created. Do not use this drawing for construction unless designated.

| Rev | Date | Amendments |
|---|---|---|
| 01 | 26.09.23 | Preliminary Issue for Information |
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| 08 | 21.05.24 | Issue for Information: Design and Sustainability Advisory Panel |
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Humphrey & Edwards Pty Ltd | ABN 89656838227
Nominated Architect: Glenn Cunnington #6416


Project: 40 Myoora Road
Client: Gardoxi P/L (Norwest)
Location: 40 Myoora Road, Terrey Hills NSW 2084
Drawing: General Arrangement Plan - Restaurant 01 & 02

Scale @ A1: 1:200 | Drawn by | Checked by
Scale @ A3: 1:400
Project Start Date: Issue Date | Sheet Issue Date: 14/08/24
Project #: 2725
Drawing #: DA1-1013 | Rev: 10

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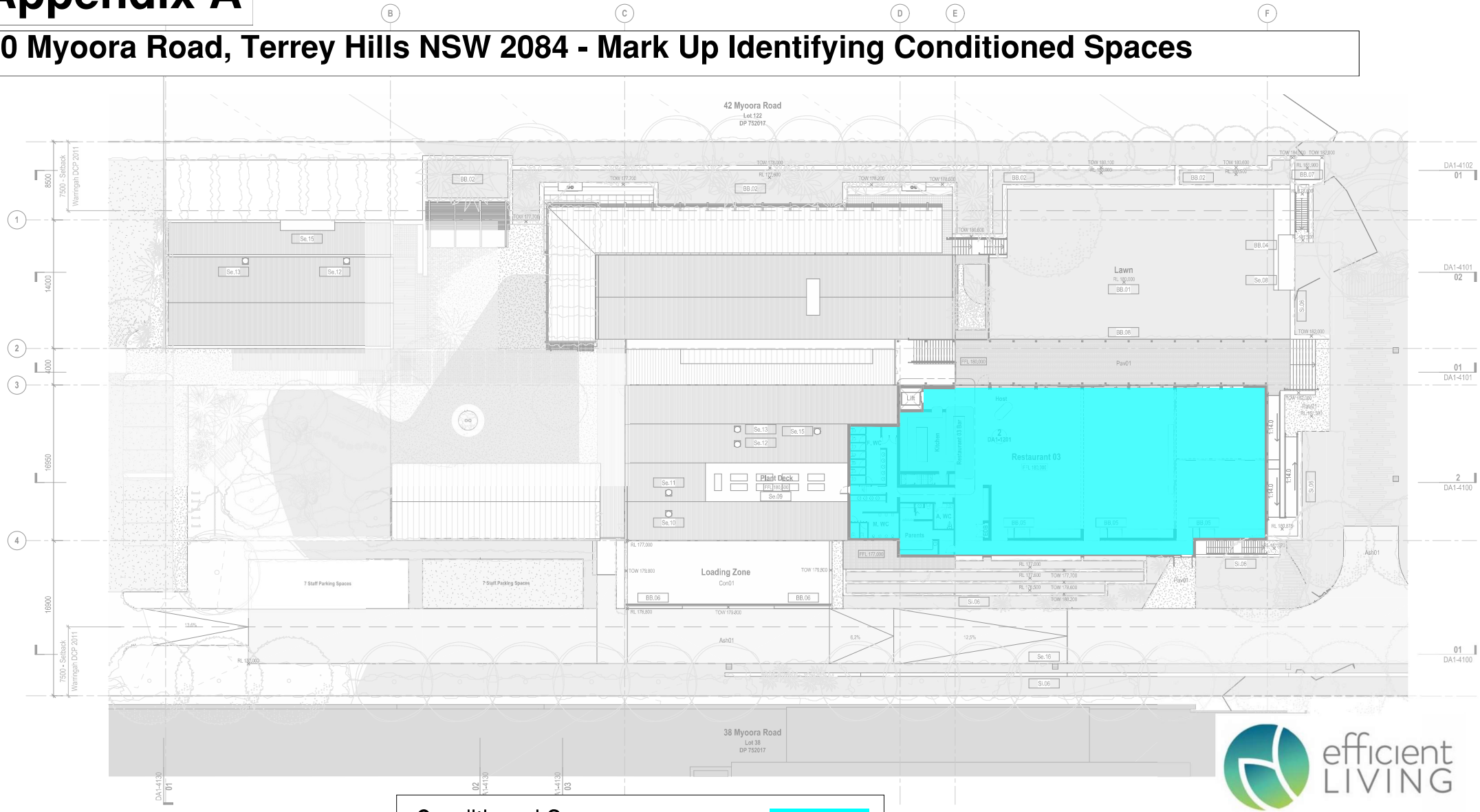
# Appendix A

## 40 Myoora Road, Terrey Hills NSW 2084 - Mark Up Identifying Conditioned Spaces




Conditioned Spaces -

efficient LIVING

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**For Development Approval**



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Humphrey & Edwards Pty Ltd | ABN 89056838227
Nominated Architect: Glenn Cunnington #5416


Project: 40 Myoora Road

Client: Gardoxi P/L (Norwest)

Location: 40 Myoora Road, Terrey Hills NSW 2084

Drawing: General Arrangement Plan - Restaurant 03

| | | | |
|---|---|---|---|
| Scale @ A1 | 1:200 | Drawn by | Checked by |
| Scale @ A3 | 1:400 | | |
| Project Start Date | Issue Date | Sheet Issue Date | 14/08/24 |
| Project # | 2725 | | |
| Drawing # | DA1-1022 | Rev | 11 |

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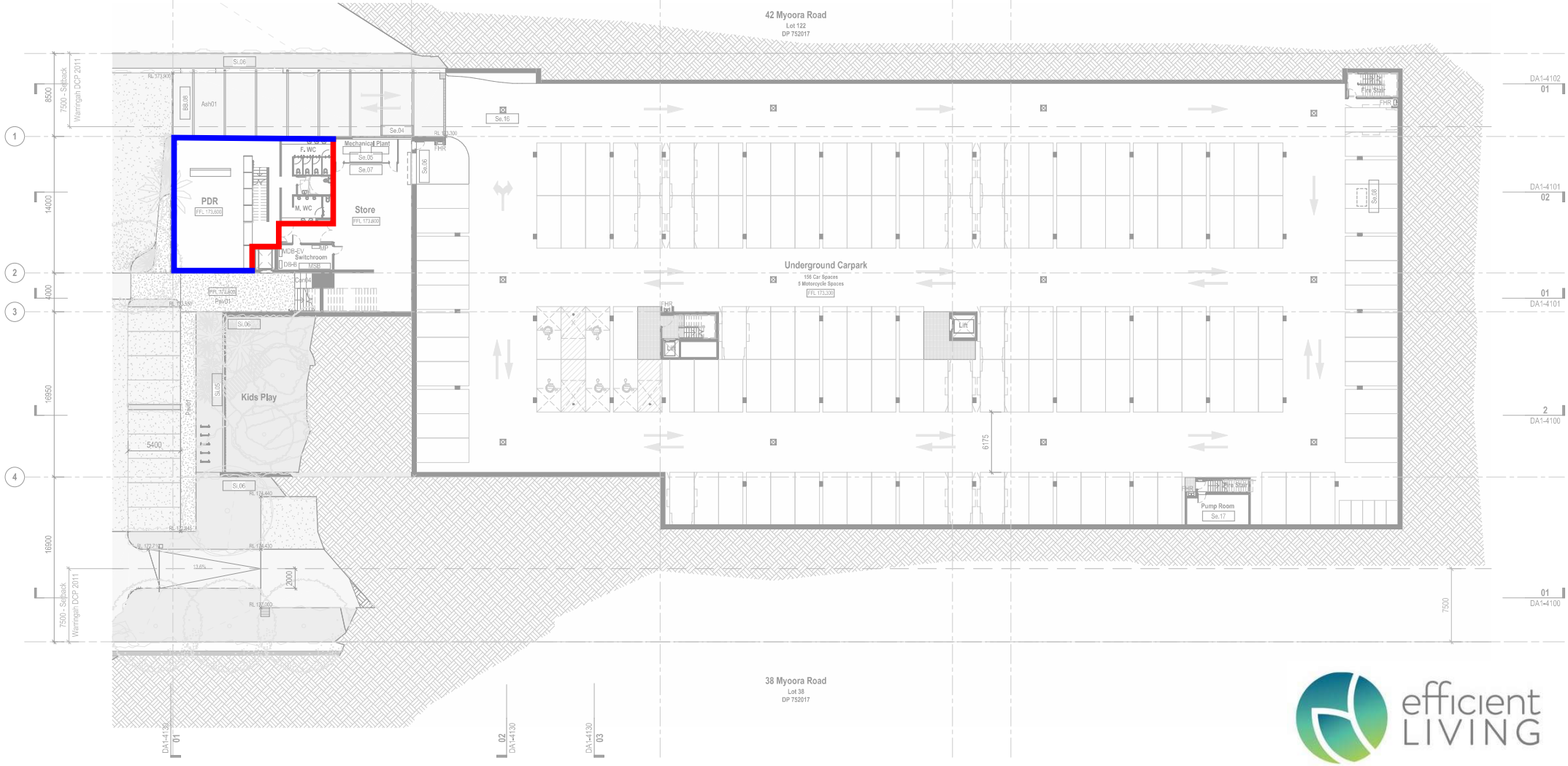
# Appendix B

## 40 Myoora Road, Terrey Hills NSW 2084 - Mark Up Identifying Required Insulation




## Insulation Placement

**Ext Wall $R_t$1.40 -**

**Int Wall $R_t$1.40 -**

**Roof/Ceiling $R_t$3.70 -**

**Floor $R_t$2.00 -**

**For required insulation R-value refer to the report body**

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### DA Legend

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**For Development Approval**

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www.h-e.com.au
PO Box 490 Darlinghurst NSW 1300


Project: 40 Myoora Road

Client:

Location: 40 Myoora Road, Terrey Hills NSW 2084

Drawing: General Arrangement Plan - Basement & Restaurant 01

| | | | |
|---|---|---|---|
| Scale @ A1 | 1:200 | Drawn by | Checked by |
| Scale @ A3 | 1:400 | | |
| Project Start Date | Issue Date | Sheet Issue Date | 14/08/24 |
| Project # | 2725 | | |
| Drawing # | DA1-1011 | Rev | 11 |

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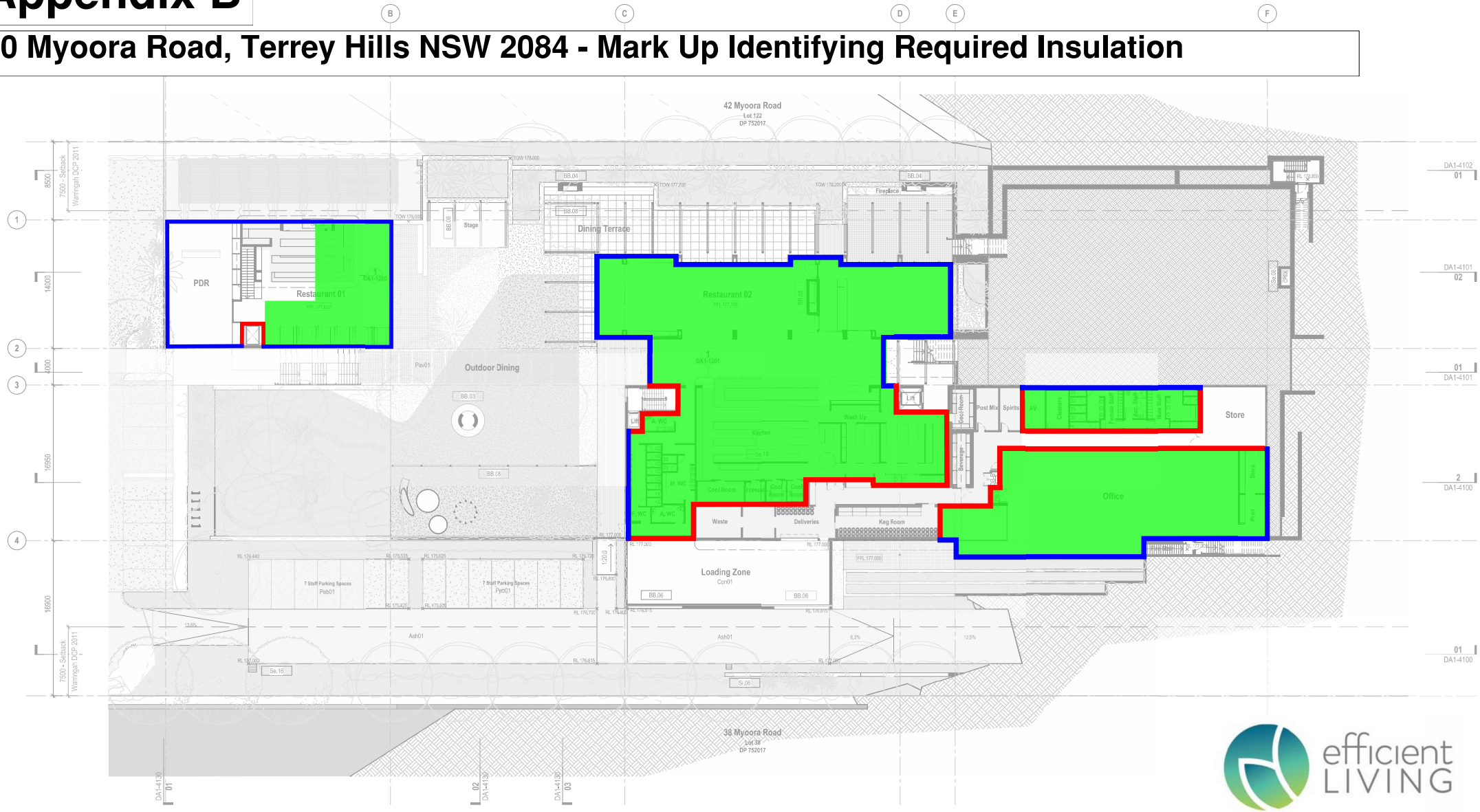
# Appendix B

## 40 Myoora Road, Terrey Hills NSW 2084 - Mark Up Identifying Required Insulation

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## Insulation Placement

**Ext Wall $R_t$1.40 -**

**Int Wall $R_t$1.40 -**

**Roof/Ceiling $R_t$3.70 -**

**Floor $R_t$2.00 -**

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PO Box 490 Darlinghurst NSW 1300


Project: 40 Myoora Road

Client:

Location: 40 Myoora Road, Terrey Hills NSW 2084

Drawing: General Arrangement Plan - Restaurant 01 & 02

| | | | |
|---|---|---|---|
| Scale @ A1 | 1:200 | Drawn by | Checked by |
| Scale @ A3 | 1:400 | | |
| Project Start Date | Issue Date | Sheet Issue Date | 14/08/24 |
| Project # | 2725 | | |
| Drawing # | DA1-1013 | Rev | 10 |

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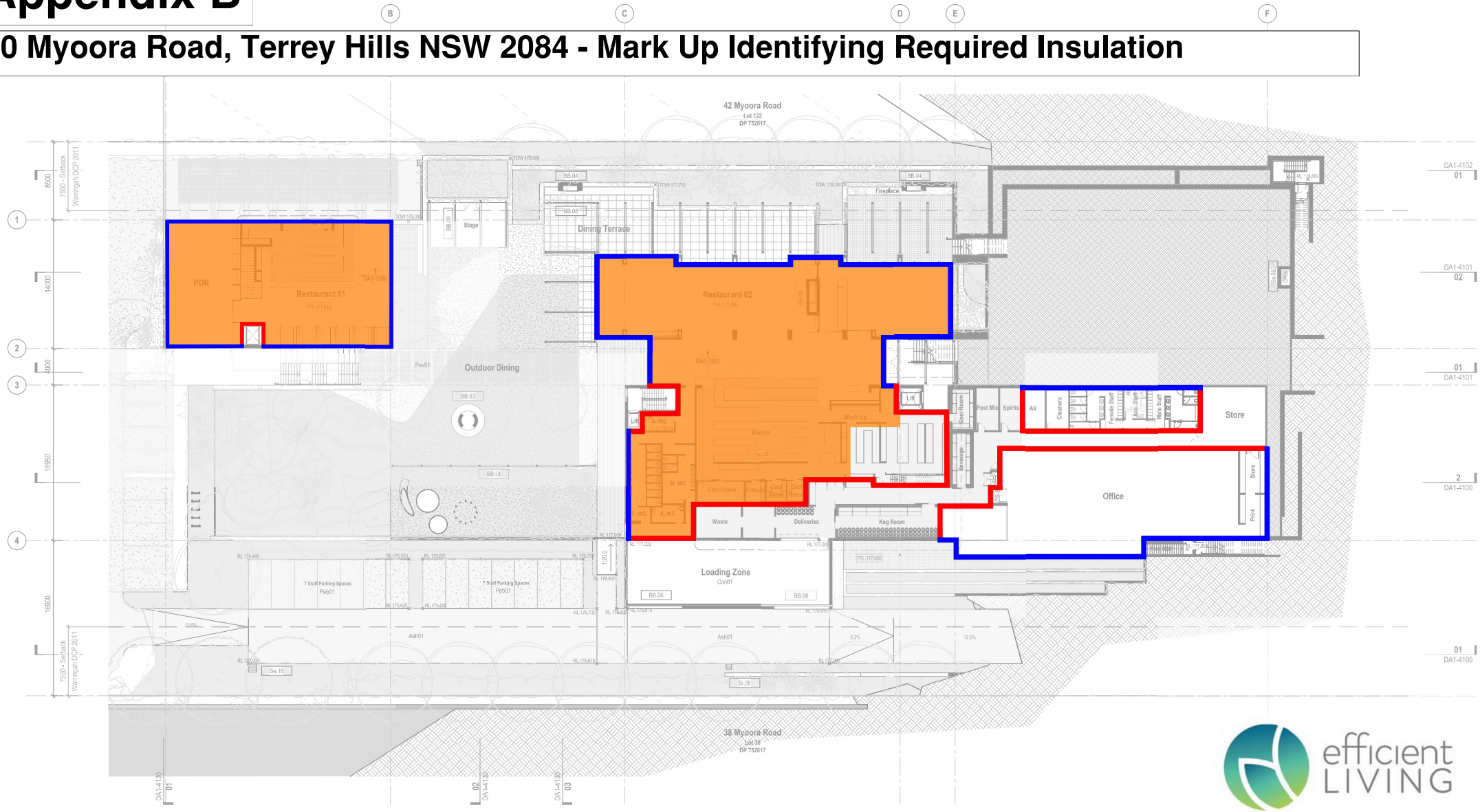
# Appendix B

## 40 Myoora Road, Terrey Hills NSW 2084 - Mark Up Identifying Required Insulation

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## Insulation Placement

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Project: 40 Myoora Road

Location: 40 Myoora Road, Terrey Hills NSW 2084

Client:

Drawing: General Arrangement Plan - Restaurant 01 & 02

| | | | |
|---|---|---|---|
| Scale @ A1 | 1:200 | Drawn by | Checked by |
| Scale @ A3 | 1:400 | | |
| Project Start Date | Issue Date | Sheet Issue Date | 14/08/24 |
| Project # | 2725 | | |
| Drawing # | DA1-1013 | Rev | 10 |

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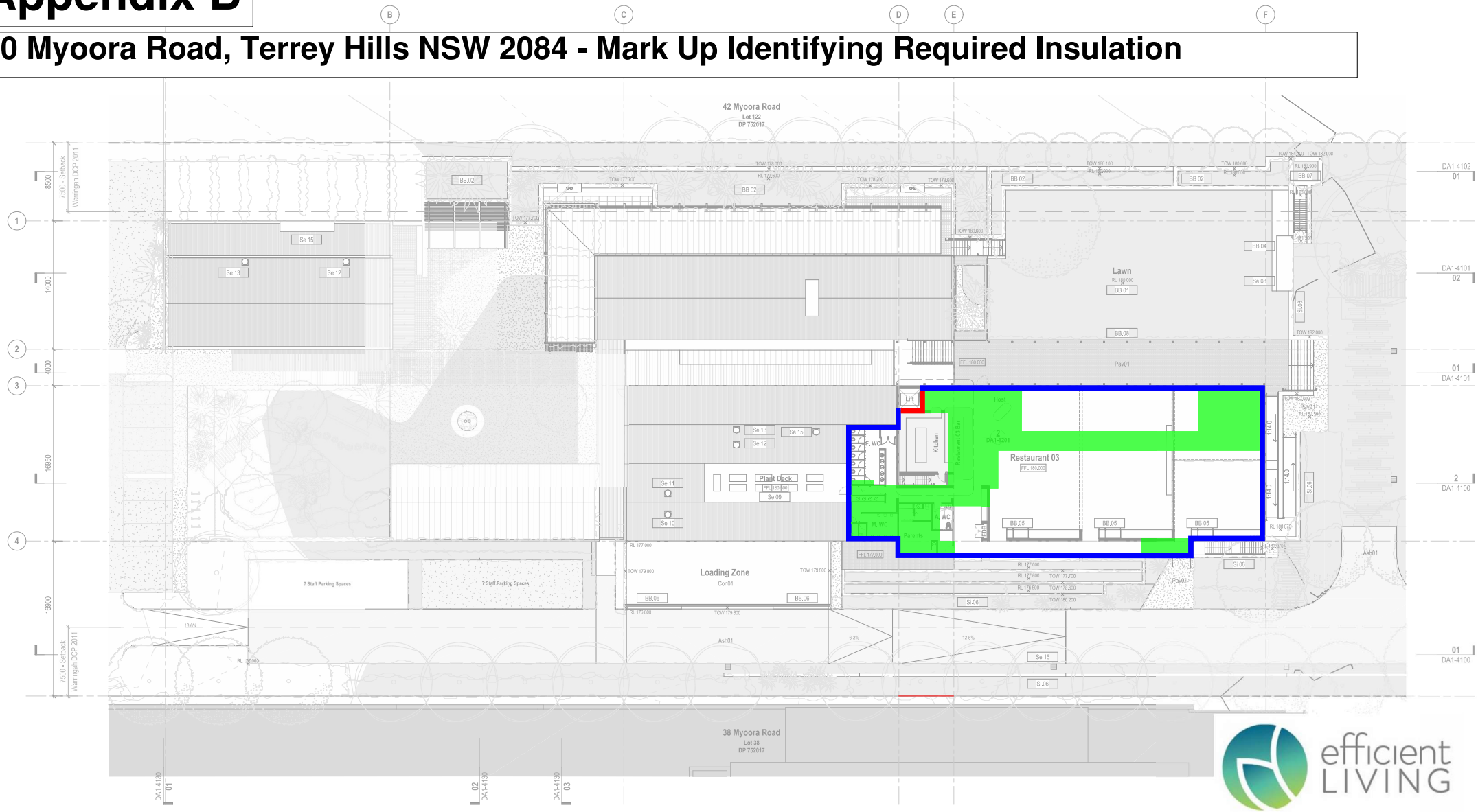
# Appendix B

## 40 Myoora Road, Terrey Hills NSW 2084 - Mark Up Identifying Required Insulation




## Insulation Placement

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Int Wall $R_t$1.40 -

Roof/Ceiling $R_t$3.70 -

Floor $R_t$2.00 -

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For Development Approval

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Project: 40 Myoora Road

Client:

Location: 40 Myoora Road, Terrey Hills NSW 2084

Drawing: General Arrangement Plan - Restaurant 03

| | |
|---|---|
| Scale @ A1 | 1:200 |
| Scale @ A3 | 1:400 |
| Drawn by | |
| Checked by | |
| Project Start Date | Issue Date |
| Sheet Issue Date | 14/08/24 |
| Project # | 2725 |
| Drawing # | DA1-1022 |
| Rev | 11 |

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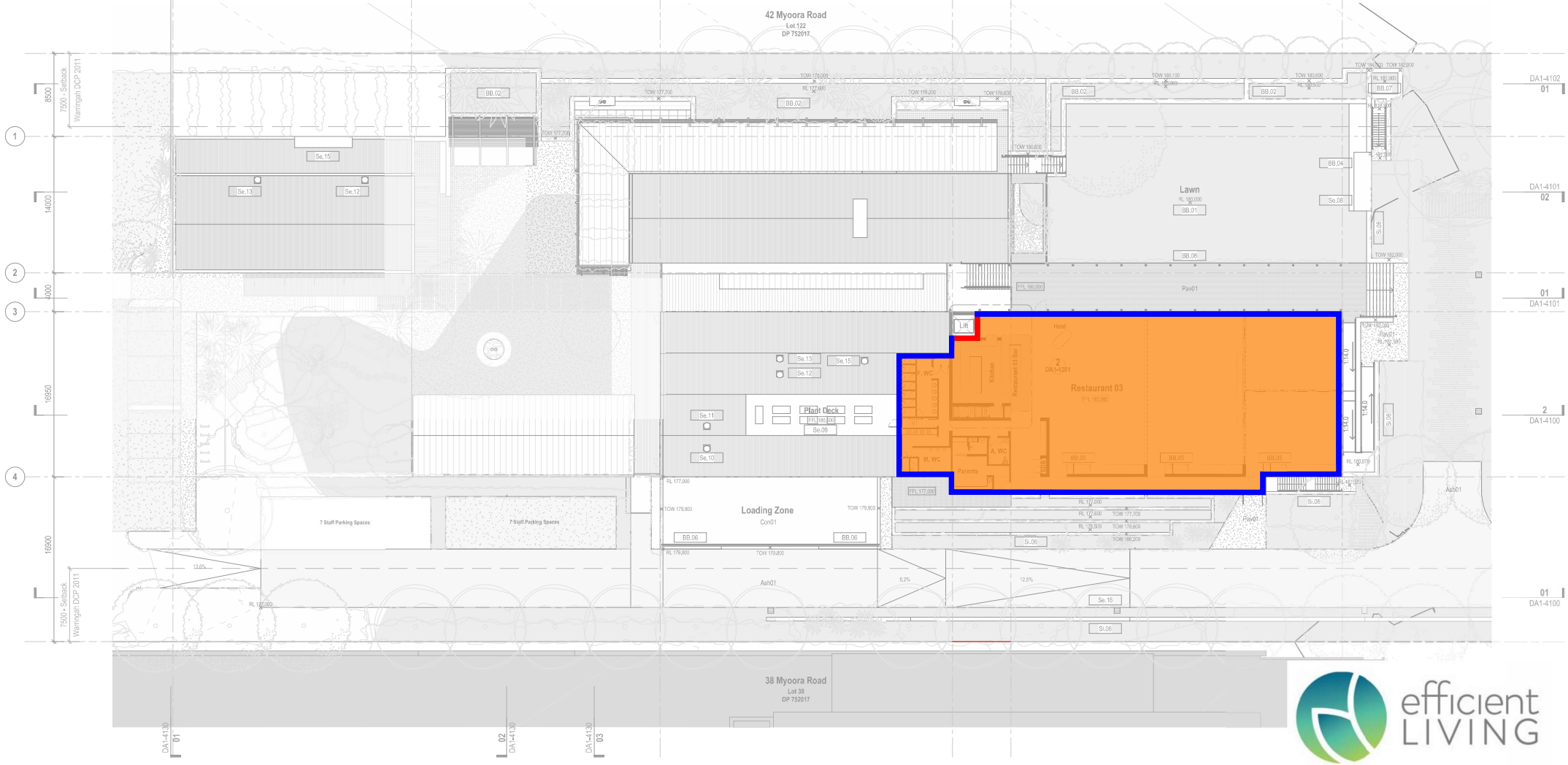
# Appendix B

## 40 Myoora Road, Terrey Hills NSW 2084 - Mark Up Identifying Required Insulation

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## Insulation Placement

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**Roof/Ceiling $R_t$3.70 -**

**Floor $R_t$2.00 -**

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www.h-e.com.au
PO Box 490 Darlinghurst NSW 1300


Project: 40 Myoora Road

Client:

Location: 40 Myoora Road, Terrey Hills NSW 2084

Drawing: General Arrangement Plan - Restaurant 03

| | |
|---|---|
| Scale @ A1 | 1:200 |
| Scale @ A3 | 1:400 |
| Drawn by | |
| Checked by | |
| Project Start Date | Issue Date |
| Sheet Issue Date | 14/08/24 |
| Project # | 2725 |
| Drawing # | DA1-1022 |
| Rev | 11 |

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# Appendix B

## 40 Myoora Road, Terrey Hills NSW 2084 - Mark Up Identifying Required Insulation


## Insulation Placement

**Ext Wall $R_t$1.40 -**

**Int Wall $R_t$1.40 -**

**Roof/Ceiling $R_t$3.70 -**

**Floor $R_t$2.00 -**

**For required insulation R-value refer to the report body**

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Project: 40 Myoora Road

Client:

Location: 40 Myoora Road, Terrey Hills NSW 2084

Drawing: North West - Proposed Sections - Sheet 02

| | | | |
|---|---|---|---|
| Scale @ A1 | 1:200 | Drawn by | Checked by |
| Scale @ A3 | 1:400 | | |
| Project Start Date | Issue Date | Sheet Issue Date | 14/08/24 |
| Project # | 2725 | | |
| Drawing # | DA1-4111 | Rev | 10 |

14/08/2024 4:29:45 PM

## Appendix C - Façade Calculations

# Façade
Report

Calculator

### Project Summary

**Date**
19/08/2024

**Name**
Amin

**Company**
Efficient Living Pty Ltd

**Position**
Sustainability Consultant

**Building Name / Address**
40 Myoora Road, Terrey Hills NSW 2084 NSW 2084

**Building State**
NSW

**Climate Zone**
Climate Zone 5 - Warm temperate

**Building Classification**
Class 9b - churches, chapels or the like

**Storeys Above Ground**
2

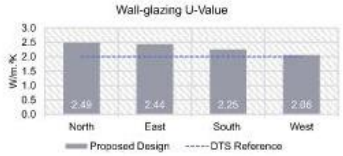
**Tool Version**
1.2 (June 2020)

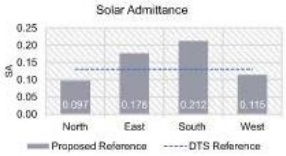
The summary below provides an overview of where compliance has been achieved for Specification J1.5a - Calculation of U-Value and solar admittance - Method 1 (Single Aspect) and Method 2 (Multiple Apects).

Compliant Solution =
Non-Compliant Solution =

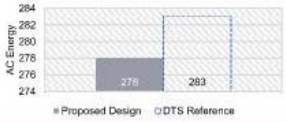
| | Method 1 North | Method 1 East | Method 1 South | Method 1 West | Method 2 All |
|---|---|---|---|---|---|
| Wall-glazing U-Value (W/m².K) | 2.49 | 2.44 | 2.25 | 2.06 | 2.33 |
| Solar Admittance | 0.10 | 0.18 | 0.21 | 0.11 | |
| AC Energy | | | | | 278 |

Method 1




Method 2


### Project Details

| | North | East | South | West |
|---|---|---|---|---|
| Glazing Area (m²) | 169.87 | 63.795 | 86.53 | 69.07 |
| Glazing to Façade Ratio | 35% | 34% | 30% | 26% |
| Glazing References | W1 W2 W3 W4 | W1 W2 W3 W4 | W1 W2 W3 | W1 W2 W3 W4 |
| 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 | 0.77 | 0.77 | 0.77 | 0.77 |
| Shading Systems | Device Horizontal | Device Horizontal | Device Horizontal | Device Horizontal |
| Wall Area (m²) | 316.8 | 124.395 | 200.731 | 192.12 |
| Wall Types | Wall | Wall | Wall | Wall |
| Methodology | Wall | | | |
| Wall Construction | r1.4 | r1.4 | r1.4 | r1.4 |
| Wall Thickness | 100 | 100 | 100 | 100 |
| Average Wall R-value (m².K/W) | 1.40 | 1.40 | 1.40 | 1.40 |
| Solar Absorptance | 0.6 | 0.6 | 0.6 | 0.6 |