



CITY OF PORT PHILLIP
PORT PHILLIP PLANNING SCHEME

This endorsed document complies with Condition No. 6 in
Planning Permit No: PDPL/00115/2024

122 pages
Date: 18/07/2025

424 St Kilda Road

Sustainability Management Plan

Prepared for: Gurner

Project No: MEL3611
Date: 29 May 2025
Revision: 05



Project: 424 St Kilda Road
Location: 424-426 St Kilda Road
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Project No: MEL3611
Revision: 05
Date: 29 May 2025

Rev	Date	Comment	Author	Signature	Technical Review	Signature	Authorisation & QA	Signature
01	22/02/24	Draft	Anusha Krishnan	AK	Charles Pentney	CP	Joseph Princi	JP
02	04/03/24	TP Issue	Anusha Krishnan	AK	Charles Pentney	CP	Joseph Princi	JP
03	29/04/24	TP RFI Update	Max Anderson	MAX	Anusha Krishnan	AK	Joseph Princi	JP
04	19/03/25	Endorsement	Max Anderson	MAX	Joseph Princi	JP	Joseph Princi	JP
05	29/05/25	Endorsement referral comments	Ahmed Hassan	AH			Joseph Princi	JP

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Executive Summary

The following report provides an overview of the environmentally sustainable development (ESD) strategy for the proposed mixed-use development at 424-426, St Kilda Road within the City of Port Philip.

This report would like to reaffirm 424-426 St Kilda Road's commitment to achieving its sustainability targets as part of the endorsement process.

This report has been written to address the key planning documents and strategies of the City of Port Philip particularly the following:

- > City of Port Philip Council Plan 2021-31
- > Port Philip Council Planning Scheme

The development is committing to the following sustainability outcomes:

- > A certified 4-Star Green Star Buildings rating
- > A minimum NatHERS rating of 6.5-stars for any single apartment.
- > An average NatHERS rating of at least 7.5-stars across the development
- > A Whole of Home (WOH) energy rating \geq 50 using a NatHERS software tool
- > At least a 10% improvement on NCC energy efficiency requirements for non-residential areas of the development
- > Best practice water quality performance objectives as demonstrated with MUSIC modelling and Stormwater Management Plan.

Within the Planning Scheme, Clause 15.01-2L-02 Environmentally Sustainable Development, focuses on achieving best practice in environmentally sustainable development from the design stage through to construction and operation addressing the SDAPP frameworks:

- | | |
|--|--------------------|
| > Construction and Building Management | > Transport |
| > Water Efficiency | > Waste Management |
| > Energy Efficiency | > Urban Ecology |
| > Stormwater Management | > Innovation |
| > Indoor Environment Quality | |

The SMP has subsequently been written to separate each of the sustainability initiatives implemented at 424-426 St Kilda into each of these categories, despite the new Green Star buildings having new reshuffled categories that do not completely align with the traditional SDAPP categories.

A Green Star pathway matrix has been appended to this report to demonstrate the current pathway the project is seeking to achieve a 4-star Green Star Certification. This pathway may change as the design develops, but the commitment to a 4-star Green Star Buildings rating will not.

1. Introduction

The following report provides an overview of the environmentally sustainable development (ESD) strategy for the proposed mixed-use development at 424-426 St Kilda Road, within the municipal boundaries of the City of Port Philip.

The objective of this report is to describe how best practice ESD will be incorporated in the development, including targets and proposed design approaches, and to demonstrate that the development meets or exceeds the standards required by the City of Port Philip Planning Scheme.

1.1 Project Background

The proposed development is located at 424-426 St Kilda Road, consisting of the following:

- > 234 apartments
- > Communal amenities and facilities
- > Office spaces
- > Retail Tenancies

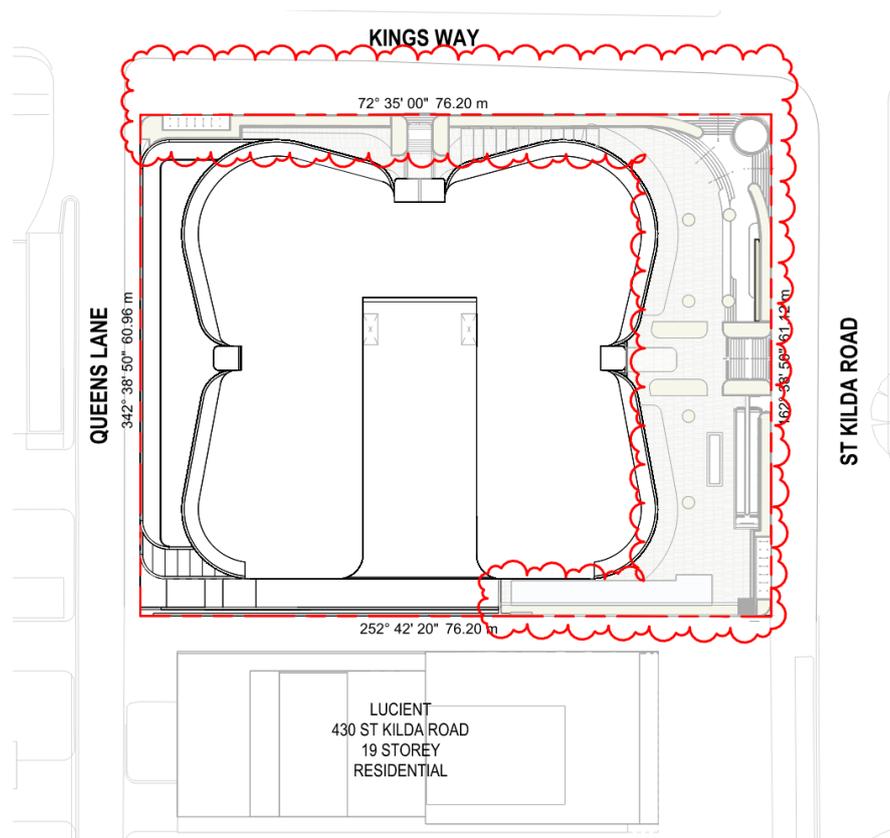


Figure 1 Site location of the proposed development at 424 St Kilda

1.2 Statutory Context

1.2.1 City of Port Phillip

The site is situated on St Kilda Road in the municipal boundaries of the City of Port Phillip. The City of Port Phillip has Policy and objectives relating to ESD which are contained in clause 15.01-2L-02, Environmentally Sustainable Development Policy, of the planning scheme. These policies and objectives have been taken into consideration throughout this assessment and in our advice given to the applicant. These clauses have been considered into the design of the development.

1.2.2 15.01-2L-02 Policy Basis

Port Phillip City Council is committed to make Port Phillip a more sustainable place to live, work and play. Developing to meet appropriate environmental design standards is critical to achieving this commitment. This policy aims to integrate environmental sustainability into land use planning, new developments, and redevelopment of existing infrastructure.

This policy provides a framework for early consideration of environmental sustainability at the building design stage to achieve the following efficiencies and benefits:

- > Easier compliance with building requirements through passive design
- > Reduction of costs over the life of the building
- > Improved affordability over the longer term through reduced running costs
- > Improved amenity and liveability
- > More environmentally sustainable urban form and
- > Integrated water management

If environmentally sustainable design is not considered at the time of planning approval, the ability to achieve environmentally sustainable development may be compromised by the time these matters are considered as part of a building approval. In addition, there may be difficulties or extra costs associated with retrofitting the development to implement environmentally sustainable design principles.

This policy does not prescribe performance outcomes. The policy enables the provision of information and provides decision guidelines which will assist in the assessment of whether development meets environmentally sustainable development objectives.

This policy complements a range of non-statutory measures aimed at encouraging environmentally sustainable development. These measures include educating residents and applicants, assisting applicants to use Environmentally Sustainable Development (ESD) tools, leading by example with Council projects, promotion of exemplary private projects and promotion of use of materials with favourable life cycle impacts.

15.01-2L-02 Environmentally Sustainable Development Objectives

Energy efficiency

- > To improve the efficient use of energy, by ensuring development demonstrates design potential for ESD initiatives at the planning stage.
- > To reduce total operating greenhouse gas emissions.
- > To reduce energy peak demand through design measures (e.g., appropriate building orientation, shading to glazed surfaces, optimise glazing to exposed surfaces, space allocation for solar panels and external heating and cooling systems).

Water resources

- > To improve water efficiency through design measures (e.g., water-efficient fixtures, appliances, equipment, irrigation, and landscaping).
- > To reduce total operating potable water use.
- > To encourage the collection and reuse of stormwater.
- > To encourage the appropriate use of alternative water sources (e.g., greywater).

Indoor Environment Quality

To achieve a healthy indoor environment quality for the well-being of building occupants, including the provision of fresh air intake, cross ventilation, and natural daylight.

- > To achieve thermal comfort levels with minimised need for mechanical heating, ventilation and cooling.
- > To reduce indoor air pollutants by encouraging the use of materials with low toxic chemicals.
- > To reduce reliance on mechanical heating, ventilation, cooling, and lighting systems.
- > To minimise noise levels and noise transfer within and between buildings and associated external areas.

Stormwater Management

- > To reduce the impact of stormwater run-off.
- > To improve the water quality of stormwater run-off.
- > To achieve best practice stormwater quality outcomes.
- > To incorporate the use of water sensitive urban design, including stormwater re-use.

Transport

- > To ensure that the built environment is designed to promote the use of walking, cycling and public transport, in that order.
- > To minimise car dependency.
- > To promote the use of low emissions vehicle technologies and supporting infrastructure.

Waste management

- > To promote waste avoidance, reuse and recycling during the design, construction, and operation stages of development.
- > To ensure durability and long-term reusability of building materials.
- > To ensure sufficient space is allocated for future changes in waste management needs, including (Where possible) composting and green waste facilities.

Urban Ecology

- > To protect and enhance biodiversity within the municipality.
- > To provide environmentally sustainable landscapes and natural habitats, and minimise the urban heat island effect.
- > To encourage the retention of significant trees.



- > To encourage the planting of indigenous vegetation
- > To encourage the provision of space for productive gardens, particularly in larger residential developments.

Policy Guidelines

It is policy that applications for the types of development listed in Table 1 be accompanied by information which demonstrates how relevant policy objectives will be achieved.

Table 1: ESD information required

Type of Development	Application Requirements	Example Tools
Development of 10 or more dwellings or a building used for accommodation other than dwellings with GFA of more than 1000 square metres	> Sustainable management Plan (SMP)	> Green Star > BESS
	> Green Travel Plan	> MUSIC / STORM

This sustainable management plan has been developed to align with the City of Port Philip objectives. The project will be certifying the development to a 4-star Green Star Buildings Rating. The new Green Star tool not only lifts the bar in terms of energy and water efficiency, in order to address energy efficiency objectives, but includes an enhanced focus on social sustainability.

1.3 Sustainability Targets

The project targets to implement the following sustainability targets, in line with the identified policy requirements, statutory requirements and project brief:

- > A certified 4-Star Green Star Buildings rating
- > A minimum NatHERS rating of 6.5-stars for any single apartment.
- > An average NatHERS rating of at least 7.5-stars across the development
- > A Whole of Home (WHO) energy rating \geq 50 using a NatHERS software tool
- > At least a 10% improvement on NCC energy efficiency requirements for non-residential areas of the development
- > Best practice water quality performance objectives as demonstrated with MUSIC modelling and Stormwater Management Plan.

1.4 Green Star Buildings



In October 2020, the Green Building Council of Australia (GBCA) released the latest Green Star methodology – termed ‘Green Star Buildings’. This will replace the Design and As Built tool, with registrations no longer available to projects after December 2021.

Green Star Buildings is seen as the latest standard in sustainability best practice, with its aim to meet international carbon emission reduction targets and deliver ‘net zero’ building impact outcomes. It also provides a pathway for building owners to address carbon emissions over time. It has been developed to rate the design and construction of any building, and aims to:

- > Deliver a new definition of a sustainable buildings
- > Meet the Paris Agreement targets
- > Respond to sustainability megatrends such as resilience and human health and wellbeing in buildings
- > Drive opportunities for supply chain transformation
- > Create clear expectations for new buildings

Green Star Buildings features eight new categories representing the issues that will define the next decade of the built environment. All Green Star buildings are required to meet the minimum expectations within each category to achieve a Green Star rating.

Green Star has also realigned its point scoring benchmarks to the following:

- > **4-star** – Best Practice – 15 points
- > **5-star** – Australian Excellence – 35 points
- > **6-star** – World Leadership – 70 points

1.4.1 Green Star on 424 St Kilda Road

As part of the CPP Planning Scheme requirements, the development is required to demonstrate considerations in each of the elements of the SDAPP framework. The project will greatly exceed this by implementing the latest Green Star Buildings assessment tool to a 4 Star level. This rating tool provides a much more holistic approach to sustainable development, not only raising the bar in expectations of energy and water efficiency but applying a much greater focus on social sustainability, through elements of placemaking and designing for inclusion.

1.4.1.1 Green Star Pathway

A summary of the Green Star Buildings credits targeted has been highlighted below:

Credit	Total points targeted	Total points available
Responsible	4	17
Industry Development	1	1
Responsible Construction	1	1
Verification and Handover	1	1
Responsible Resource Management (Operational Waste)	Complies	0
Responsible Procurement	0	1
Responsible Structure	0	5
Responsible Envelope	0	4
Responsible Systems	0	2
Responsible Finishes	1	2
Healthy	7	14
Clean Air	Complies	2
Light Quality	Complies	4
Acoustic Comfort	2	2
Exposure to Toxins	2	2
Amenity and Comfort	2	2
Connection to Nature	1	2
Resilient	1	8
Climate Change Resilience	0	1
Operations Resilience	0	2
Community Resilience	0	1
Heat Resilience	1	1
Grid Resilience	0	3
Positive	0	30
Upfront Carbon Emissions	Complies	6
Energy Use	Complies	6
Energy Source	Complies	6
Other Carbon Emissions	0	4
Water Use	Complies	6
Life Cycle Impacts	0	2

Credit	Total points targeted	Total points available
Places	2	8
Movement and Place	0	3
Enjoyable Places	0	2
Contribution to Place	2	2
Culture, Heritage and Identity	0	1
People	3	9
Inclusive Construction Practices	1	1
Indigenous Inclusion	0	2
Procurement and Workforce Inclusion	0	3
Design for Inclusion	2	3
Nature	2	14
Impacts to Nature	Complies	2
Biodiversity Enhancement	0	4
Nature Connectivity	0	2
Nature Stewardship	0	2
Waterway Protection	2	4
Leadership	0	10
Market Transformation	0	5
Leadership Challenges	0	5
Total Points Targeted	17	100
Green Star Rating	4-star (minimum 15 points)	

This summary provides the current strategic pathway the project team is pursuing to achieve a 4-star Green Star Buildings rating. This pathway will be subject to change as the design develops but the commitment to a 4-star Green Star Buildings rating will remain constant.

2. ESD Initiatives

The following section provides details of the ESD initiatives which have been deemed suitable for the project. The key objectives outlined in City of Port Philips planning scheme have been addressed by considering the Sustainable Design Assessment in the Planning Process (SDAPP) categories and benchmarking against the Green Star strategies outlined below.

- > Construction and Building Management
- > Operational Waste Management
- > Water Efficiency
- > Resilience
- > Indoor Environment Quality
- > Energy Efficiency
- > Transport
- > Building Materials
- > Urban Ecology
- > Stormwater

2.1 Construction Management

2.1.1 Environmental Management System



The builder or head contractor (responsible party) must have a formalised systematic and methodical approach to planning, implementing and auditing in place during construction.

The head contractor must have an Environmental Management System (EMS) certified to a recognised standard such as AS/NZS ISO 14001, BS 7750 or the European Community's EMAS.

The EMS can be stand-alone or part of an integrated management system and must be valid for the duration of construction activities.

2.1.2 Project Specific Environmental Management Plan

The Environmental Management Plan (EMP) must be project specific and cover the scope of construction activities. It must be implemented from the start of construction and include all works within the project scope.

2.1.3 Construction Waste Diversion

The project will divert at least 90% of its construction waste from landfill through a waste contractor that recycles and reuses waste. The waste contractor must follow the Green Star Construction and Demolition Waste Reporting Criteria when processing, measuring and reporting on waste collection and diversion from landfill.

2.1.4 On-site Sustainability Training

The head contractor must provide the following training to 95% of all contractors and subcontractors present on site for at least three days regarding information on the sustainable building certification(s) sought, including:

- > the sustainability attributes of the building and their benefits;
- > the value of certification; and

- > the role site worker(s) play in delivering a sustainable building.

A register must be kept as part of the induction process in order to keep records of participation in the training.

2.1.5 Inclusive Construction Practises

2.1.5.1 Facilities and equipment

The head contractor will ensure the following is provided, or available, on-site:

- > Separate gender inclusive bathroom facilities and changing amenities with a high degree of privacy; and
- > Diverse gender-specific fit-for-purpose personal protective equipment (PPE) for diverse body sizes and types.

2.1.5.2 Anti-discrimination

The head contractor will:

- > Implement policies to address issues of discrimination, racism, and bullying on-site;
- > Introduce on-site redress procedures for any relevant breaches, and corrective measures to be put in place should any incident be identified;
- > Empower a diverse lead team to manage these policies on-site, and
- > Provide training to all contractors and sub-contractors on these policies (as per below).

2.1.5.3 Mental health and wellbeing

The head contractor must provide the following training to 95% of all contractors and subcontractors present on site for at least three days:

- > Information on drug and alcohol awareness and mental health; and
- > Information on policies implemented on discrimination, racism, and bullying on site.



2.2 Building Management

2.2.1 Metering and Monitoring

The building must have accessible energy and water metering for all common uses, major uses, and major sources.

The meters must be connected to a monitoring system capable of capturing and processing the data produced by the meters.

The meters and monitoring systems must:

- > Provide continual information (up to 1-hour interval readings);
- > Be commissioned and validated per the most current 'Validating Non-Utility Meters for NABERS Ratings' protocol, or National Measurement Institute (NMI) standards;
- > Be capable of identifying inaccuracies in the meter network and producing alerts. Inaccuracies are defined as those over meter tolerances based on their metering accuracy class (e.g. 'Class 1' meters shall not have inaccuracies of more than 1% due to metering accuracy class); and
- > Be sufficient to support future achievement of a NABERS rating.

2.2.1.1 Energy Metering

Energy metering should include but not be limited to:

- > Each individual apartment
- > Each separate non-residential tenancy
- > Residential common area lighting
- > Residential common area heating, cooling and ventilation
- > Vertical transport
- > Photovoltaic system supply
- > Any source of demand greater than 5% of the building's total energy use
- > Any source of demand greater than 100kW

2.2.1.2 Water Metering

Separate water meters will be provided to monitor each of the following distinct uses:

- > Each individual apartment
- > Irrigation
- > Rainwater tank supply
- > Common area amenities
- > Each non-residential tenancy
- > Any source of demand greater than 10% of the project's total water use

2.2.2 Commissioning and Tuning

2.2.2.1 Services and Maintainability Review

Before construction, the project team must conduct a services and maintainability review of the building. The review must include the head contractor, the owner's representative, the commissioning agents, the design consultant and the facilities manager, where possible.

The review must address the following:

- > Commissionability;
- > Controllability;
- > Maintainability;
- > Operability; and
- > Safety of all systems.

The services and maintainability review and its outcomes must be summarised in a 'Service and Maintainability Report'. It must be signed off by all involved parties.

2.2.2.2 Building Commissioning

During construction and before practical completion, all building systems will be commissioned per a recognised commissioning standard (CIBSE or ASHRAE commissioning guides). A commissioning specification will be included in the construction documentation listing requirements for each system.

A commissioning plan will be developed prior to practical completion.

2.2.2.3 Airtightness

Airtightness will be considered as part of the commissioning process during the following stages:

- > Schematic design: review of design including an air barrier system schematic;
- > Design Development: review for tightness including air barrier continuity on building plans, sections and details. Scope of work and necessary coordination between trades and responsibilities must be considered;
- > Construction: A plan for stages of commissioning for air tightness must be defined and included in the project timeline; and
- > The building must undertake an airtightness test in accordance with AS/NZS ISO 9972:2015 Thermal performance of buildings determination of air permeability of buildings - Fan pressurisation method.

2.2.2.4 Building Tuning

Following practical completion, full re-commissioning will be undertaken 12 months with monthly monitoring undertaken and outcomes reported including a quarterly tuning process.

2.2.3 Building information

2.2.3.1 Operations and maintenance information

The project team must provide operations and maintenance information for all nominated building systems to Gurner.

2.2.3.2 Building log book

The project team must develop a building log book to present to Gurner upon completion of the project. The building log book must:

- > Be developed in line with CIBSE TM31: Building Log Book Toolkit;
- > Cover all nominated building systems; and
- > Include links or references to all relevant operations and maintenance information.

2.2.3.3 Building user information interface

The building user information must provided in a form that is; updatable, relevant and available to all stakeholders. Examples of such interfaces include:

- > Online mobile apps
- > Websites
- > High traffic areas kiosks

2.3 Operational Waste Management

A specialist waste plan will be developed for the project.



2.3.1 Waste Separation

Storage and collection facilities will be provided for the following waste streams.

- > General waste going to landfill;
- > Recycling streams to be collected by the building’s waste collection service, including:
 - paper and cardboard
 - glass, and
 - plastic; and
- > One other waste stream representing at least 1% of the total annual operational waste (by volume) of the building. This may include collecting any of the following waste types: organics, e-waste, batteries etc.

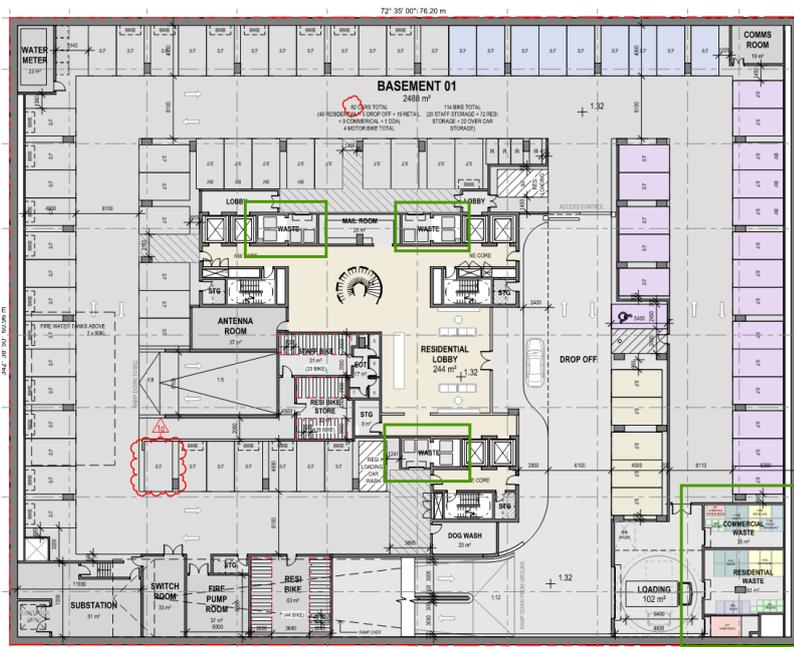
Any other single waste stream (except food waste) that represents more than 5% of total annual operational waste (by volume) will also be accounted for.

2.3.2 Waste Storage Areas

Waste storage areas are provided for on:

- > Basement 1

Figure 2 Waste collection areas on Basement 1



2.3.3 Sign-off by waste specialist and/or contractor

A waste specialist and/or contractor must sign-off on the designs to confirm they are adequately sized and located for the safe and convenient storage and collection of the waste streams identified.

2.4 Water Efficiency



2.4.1 Potable Water Use Reduction

The project is targeting a 15% reduction in potable water usage when compared to a reference building. These reduction targets will be achieved through the strategies outlined below.

2.4.2 Rainwater harvesting

A rainwater harvesting and reuse system will be employed throughout the whole development. A rainwater harvesting strategy will be developed to capture rainwater from non-trafficable surfaces and reuse for the following uses:

- > Toilet flushing
- > Landscaping

2.4.3 Water efficient fittings and fixtures

The project will include best practice water efficient fixtures and fittings across the development including the following WELS ratings;

- > Showers: 4 Stars (6 L/min or lower)
- > Toilets: 4 Stars
- > Taps: 5 Stars
- > Urinals: 6 Stars
- > Dishwashers: 5 Stars
- > Washing Machines: 6 Stars

2.4.4 Landscape irrigation

All landscape areas in the development will be irrigated using subsurface drip type irrigation systems.

2.4.5 Fire systems

The building fire testing water will be collected and recycled back into the fire protection services water tanks on Ground Level.

A target of 80% of fire test water will be captured during the system testing.

2.5 Resilience

2.5.1 Heat Resilience



At least 75% of the site will be comprised of one of the following strategies to mitigate the heat island effect:

- > Vegetation;
- > Green roofs;
- > Roofing materials, including shading structures, having the following:
 - For roof pitched $<15^{\circ}$ – a three-year SRI of minimum 64; or
 - For roof pitched $>15^{\circ}$ – a three-year SRI of minimum 34.
- > Unshaded hard-scaping elements with a three-year SRI of minimum 34 or an initial SRI of minimum 39;
- > Hardscaping elements shaded by overhanging vegetation; and
- > Water bodies and/or water courses.

The area of the site that is shaded by permanent structures (e.g., part of a car park to the south of a tall building) at noon local time at the summer solstice are also deemed compliant.



2.6 Indoor Environment Quality

2.6.1 Clean Air

2.6.1.1 Ventilation System Attributes

2.6.1.1.1 Separation from pollutants

The building ventilation systems must be designed to comply with ASHRAE Standard 62.1:2013 or AS 1668:2012 (whichever is greater) regarding minimum separation distances between pollution sources and outdoor air intakes. Windows, doors, openings, vents, grilles, and skylights are all considered outdoor air intakes for purposes of this credit and must be modelled taking into account their free area.

2.6.1.1.2 Cleaning ductwork

All new and existing ductwork that serves the building must be cleaned prior to occupation in accordance with a recognised Standard.

This includes all ductwork in the base building that serves the building from the air handling unit(s) to the supply vents. If no ductwork exists, these requirements are deemed to be met.

This requirement shall be captured in the Head Contractors' Environmental Management Plan.

2.6.1.2 Provision of Outdoor Air

- > The apartments will be naturally ventilated in accordance with AS 1668.4:2012.
- > Residential amenity areas and non-residential tenancies will be supplied with a 50% increase on the outdoor air volumes specified in AS1668.2:2012.

2.6.1.3 Exhaust or elimination of pollutants

Specified sources of pollutants will be exhausted directly to the outside of the project in accordance with a recognised Standard, and/or physically separated from occupants.

2.6.1.3.1 Residential Kitchens

Residential kitchens will be provided with a rangehood that either exhausts directly to the outside or recirculating rangehoods will have a filter capable of removing pollutants associated with cooking.

2.6.1.3.2 Non-dwelling areas

Residential amenity areas, restaurant tenancies and building management office areas will either have pollutants removed or exhausted. Examples of pollutants include those associated with cooking and photocopying.



2.6.2 Light Quality

2.6.2.1 Lighting Comfort

Lighting within the building will meet the following criteria:

- > All lighting will be flicker-free;
- > Light sources must have a minimum Colour Rendering Index (CRI) average R1 to R8 of 85 or higher, and have a CRI R9 of 50 or higher;
- > Light sources will meet best practice illuminance levels for each task within each space type with a maintained illuminance that meets the levels recommended in AS/NZS 1680.1:2006 series applicable to the project type and including maintenance;
- > The maintained Illuminance values will achieve a uniformity of no less than that specified in Table 3.2 of AS/NZS 1680.1:2006, with a maintenance factor method as defined in AS/NZS 1680.4.; and
- > All light sources will have a minimum of 3 MacAdam Ellipses.

2.6.2.2 Artificial Glare Reduction

A combination of anti-glare light fittings and smart luminaire design will mitigate glare from artificial light sources.

2.6.3 Natural Light

2.6.3.1 Daylight Strategy

This Minimum Expectation aims to ensure the building is providing daylight access to building occupants through solutions that exceed the typical relevant federal, state, or local regulations.

The project team is required to show how the building's design:

- > Maximises the number of occupants that are in or near daylit areas during their daily activities for all building types
- > Ensures regularly occupied areas are in reasonable proximity to glazed façades, windows, or skylights
- > Controls or mitigates external glare in the daylit spaces
- > Maximises daylight to spaces that prioritise learning, healing, and living:
 - For apartments, how in 95% of all apartments, the living rooms and all bedrooms have access to a view and daylight.

2.6.3.2 Daylight Modelling

A selection of 9 unique floor plates have been used to conduct a daylight assessment, totalling to 389 spaces being assessed.

Note that as part of the project's 4 Star Green Star Buildings Pathway, Daylight is not a point targeted by this project. However, this daylight modelling and the further information in *Appendix C - Preliminary Daylight Modelling Report* will still compare the results of the building to the requirements of the point, as Green Star Buildings as a whole reflects industry leading sustainable practice, and the most up to date benchmark for measuring daylight.

2.6.3.2.1 Key Assumptions



Currently, the building is expecting to use visible light transmittance (VLT) 50% glass on the façade that faces externally, and VLT 75% glass on the façade that faces internally into the light well of the building. A sample floor markup can be found below; façade areas in green use VLT 50% glass, façade areas in orange use VLT 75% glass. Note that the VLT of the glazing may be further adjusted through the design development and procurement process.

Figure 3 Area markup of visible light transmittance (VLT) 50% glass (Green) vs VLT 75% glass (Orange)

2.6.3.2.2 Results

Table 2: Daylight Autonomy Results

Total Assessed Floor Area (m ²)	Total Compliant area (m ²)	Total Percentage Compliance (sda%)
5476.63	5166.72	94%

Table 3: Daylight Autonomy Compliant Rooms

Total Compliant Rooms	Total Non Compliant Rooms	Total Room Percentage Compliance
372	17	95.6%

Overall the residential components of the building achieve a total daylight autonomy compliance of 94%. This means that for 80% of daylight hours, 94% of commonly occupied residential area achieve high levels of daylight.

As this project is using the standards of Green Star Buildings as its benchmark, it is important to note that typically there would be a 20% minimum daylight area compliance in any assessed room/space. While this project acknowledges that some rooms do not meet this minimum, it is noted that a vast majority of the development achieves high levels of daylight otherwise (as seen in tables 2 and 3 above).

The daylight report has been included in Appendix B for further information

2.6.3.3 Glare Prevention

Glare reduction will be achieved to all facades through a combination of blinds, screens and fixed devices.

2.6.4 Indoor pollutants

Indoor pollutants in the project will be reduced through;

- > Reduced Volatile Organic Compounds (VOCs) in all paints, carpets, adhesives and sealants
- > Low and no formaldehyde content in all engineered wood products including particleboard, plywood, veneer, MDF and decorative overlaid wood panels.

2.6.4.1 Indoor testing

Indoor testing will be undertaken to verify that indoor pollutants are at satisfactory limits:

Element Concentration	Element Concentration
TVOC	0.27 ppm
Formaldehyde	0.02 ppm

At least 6 floors must be sampled.



2.7 Energy Efficiency

2.7.1 Net Zero in Operations (Zero Carbon Action Plan)

The project is aspirational to achieving a Zero Carbon Action Plan through the following initiatives and strategies:

- > Minimising operational energy consumption through efficient façade and high-efficiency building systems.
- > Installing all electric infrastructure
- > No fossil fuels will be used onsite.

2.7.2 Operational energy

2.7.2.1 NatHERS Ratings

The development will be committing to the following NatHERS star ratings:

- > 6.5-star minimum for any individual apartment
- > An average of at least 7.5-stars thermal rating across the development
- > A Whole of Home (WOH) energy rating ≥ 50 using a NatHERS software tool

Further, no unit is to exceed the maximum cooling load of 30 MJ/m²

To demonstrate the expected performance outcome, a significant sample of the building has been modelled to predict the average NatHERS rating of all the apartments. Typical low rise, medium rise and high-rise units, and a variety of bedroom quantities have been modelled to ensure no apartment will be rated below the minimum requirement.

The preliminary sample set of 17 apartments achieves the following results:

Table 4: NatHERS test exercise results

	Heating Load (MJ/m ² per annum)	Cooling Load (MJ/m ² per annum)	Star Rating
Minimum	2.3	5.8	6.8
Maximum	35.2	29.8	9.8
Average	14.0	19.6	8.5

Note that the general performance of the building is liable to change as the design evolves. Refer to *Appendix B - NatHERS Report* for more information

2.7.2.2 Non-Residential Areas

All non-residential areas will use 10% less energy compared to a reference building. A reference building is defined as a building modelled to Section J requirement of the NCC 2022. It must be demonstrated that the proposed building complies with the DTS requirements of NCC 2022 Section J.

- > The performance of wall-glazing constructions and display windows (J1.5) must comply with the total system R value, total system U value and system SHGC requirements, inclusive of thermal bridging effects.
- > The performance of fan systems (J5.4), pump systems (J5.7), refrigerant chillers (J5.10) and heat rejection equipment (J5.12) must comply with the applicable efficiency requirements.
- > The performance of artificial lighting systems (J6.2) must comply with the overall lighting efficiency requirements.

2.7.3 Lighting Efficiency and Controls

2.7.3.1 Power Density

The lighting power density is reduced by at least 10% below the maximum lighting power density in Table J6.2a. Applies to all areas of the building.

2.7.3.2 Independent Switching

Independent Light switching will be provided in each room of the SOU. In open plan, each functional area will be separately switched.

2.7.3.3 Dynamic Lighting Controls

All common areas accessible by residents will be provided with automated lighting control system(s), such as occupant detection and daylight adjustment.

2.7.4 Ventilation and Air Conditioning

2.7.4.1 Dwellings and Non-Residential Spaces

- > Installation of efficient mechanical system in compliance with energy efficiency requirements outlined in NCC Parts J3 to J8
- > Proposed mechanical system to be finalised in progressed stage of design.

2.7.5 Domestic Hot Water

2.7.5.1 Dwellings

The relevant fixtures and water-using appliances installed within the project's scope must, at a minimum, meet the following WELS ratings to reduce Domestic Hot Water energy use:

Table 5: Fixture WELS Ratings

Fixture Type	WELS rating
Showers	3 Stars with a maximum flow rate of 9L/min
Taps – kitchen	4 Stars with a maximum flow rate of 7.5L/min

Taps – hand wash basins

5 Stars with a maximum flow rate of 6L/min

2.7.6 Appliances and Equipment

All appliances installed have a minimum Energy Star rating of 1-star below the maximum Energy Star rating available for that appliance. Below is a summary of appliances and the minimum star rating requirement:

- > Refrigerators/freezers – 5-stars
- > Dishwashers – 3.5-stars
- > Clothes washers – 4.5-stars
- > Clothes dryers – 9-stars

This requirement only applies to installed appliances.

2.7.7 Cooktops

High efficiency induction cooktops will be installed in residential kitchens.

2.7.8 Renewable Energy

- > PV layout to be finalised, however will meet the requirements of NCC 2022

2.7.9 Vertical Transport

Lifts will be specified such that the energy associated with lift machinery or other vertical transportation complies with the following conditions:

- > The minimum lift energy efficiency is class A or B in accordance with ISO 25745-2; and
- > The lift idle and standby energy performance level is 1 in accordance with ISO 25745-2.



2.8 Transport

2.8.1 Access to public transport & walkability

The proposed development, located at 424 St Kilda obtains a Walkscore of 88 'Very Walkable', meaning the access to shops and amenities is very good and daily errands do not require the use of a car. The site also has a public transit score of 93 meaning access to world class public transport facilities.

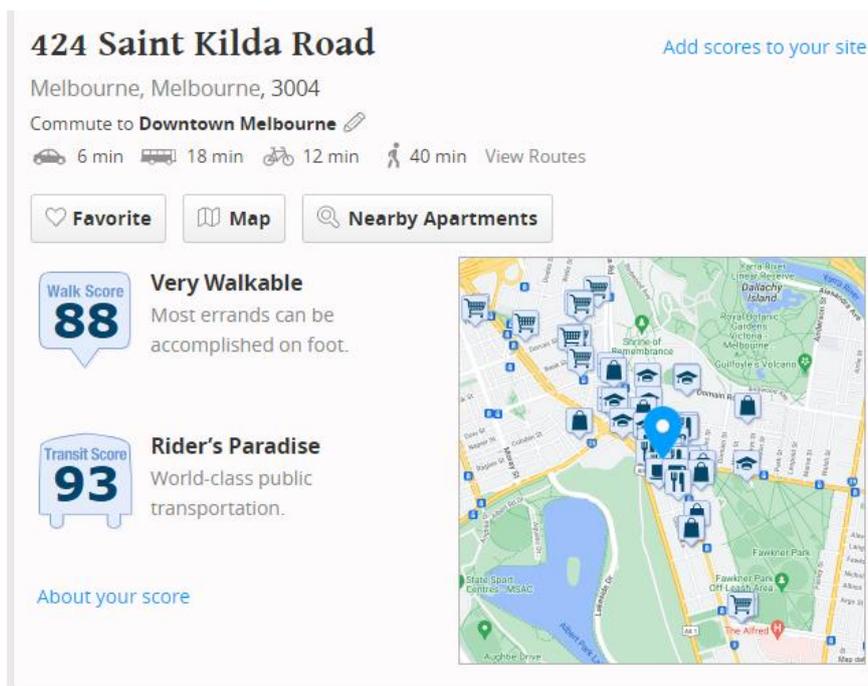


Figure 4 Project walk score and transit score

2.8.2 Bicycle storage

The proposed development contains 72 residential bike parks, 20 staff bike parks and 30 Visitor bicycle bike parks. The residential and staff bike parking spaces are in secure bike parking rooms. End of trip facilities are also provided for the staff bicycle parking spaces, which includes access to showers, lockers and change rooms for building staff.

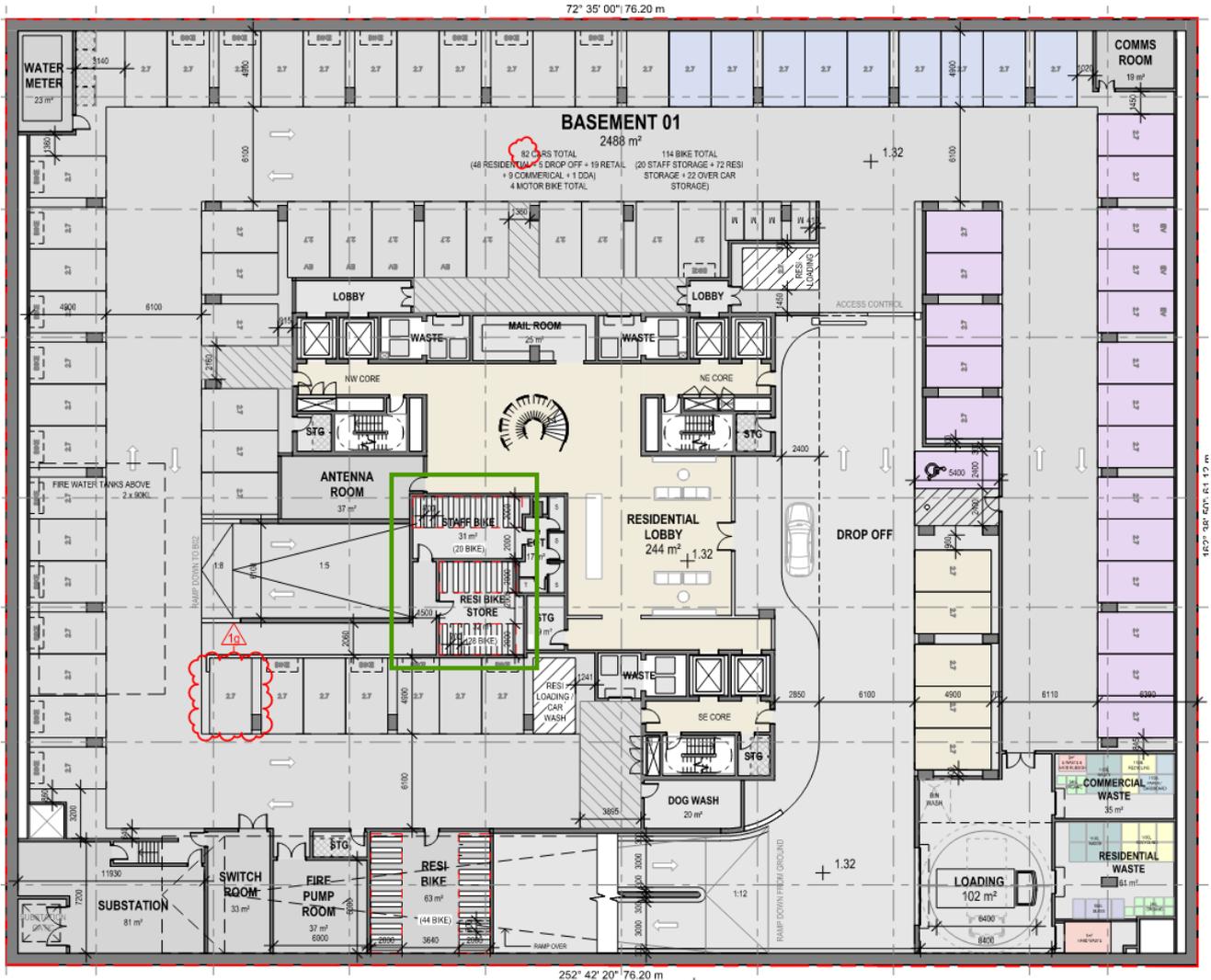


Figure 5 Bike parking facilities on Ground



2.9 Building Materials

2.9.1 Embodied Carbon Reduction

The project will be seeking at least a 10% reduction in upfront carbon emissions through the following initiatives and strategies:

- > Reduction of concrete and steel compared to standard practice building
- > Use of supplementary cementitious materials in cement mixes.
- > Investigation of low-carbon cladding materials such as:
 - Timber
 - Recycled or Recyclable materials
- > Investigation of low-carbon internal finishes
 - Minimising plaster
 - Timber finishes
- > The upfront carbon assessment for the project will be undertaken early in the design process to determine reduction in upfront carbon through design efficiencies and better material selection. The reference project will be established in line with the *Green Star Upfront Carbon Emissions Calculation Guide – interim*.

2.9.2 Concrete

2.9.2.1 Portland Cement Replacement

Supplementary cementitious materials will be utilised on the project to lower the carbon intensity of concrete used on the project. Cement mixes will consist of at least 20% supplementary cementitious materials. This percentage will be increased in non-structural elements such as precast concrete walls.

2.9.2.2 Water Reduction

The mix water for all concrete used in the project will contain at least 50% captured or reclaimed water (measured across all concrete mixes in the project).

2.9.2.3 Aggregate Reduction

The project will seek to minimise the amount of virgin materials used for aggregates by ensuring either:

- > At least 40% of coarse aggregate in the concrete will be crushed slag aggregate or another alternative materials (measured by mass across all concrete mixes in the project)

OR

- > At least 25% of fine aggregate (sand) inputs in the concrete will be manufactured sand or other alternative materials (measured by mass across all concrete mixes in the project).

2.9.3 Steel

2.9.3.1 Reinforcing Steel Reduction

The structural engineers design will reduce, when compared to a BAU scenario, the requirement for reinforcing steel through intelligent design.

2.9.3.2 Responsible Steel Sourcing

The steel maker must have the following:

- > A currently valid and certified ISO 14001 Environmental Management System (EMS) in place, and
- > a current membership with the World Steel Association's (WSA) Climate Action Programme (CAP)

2.9.4 Sustainable timber

The building's timber is to be certified by a forest certification scheme that meets the GBCA's 'Essential' criteria for forest certification e.g. PEFC or FSC timber.

2.9.5 PVC

Cables, pipes, flooring and blinds in a project will be selected to be either:

- > Do not contain PVC and have an Environmental Product Declaration (EPD); or
- > Meet Best Practice Guidelines for PVC.

2.10 Urban Ecology



2.10.1 Site Ecological Value

The existing site location demonstrates that land clearing is not required on any of the following as part of the construction works for the new development:

- > Old-growth Forest
- > Prime agricultural land
- > Any wetland listed as being of 'High National Importance'
- > Aspects considered 'Matters of National Environmental Significance' listed under the Environmental Protection and Biodiversity Conservation Act (1999)



Figure 6 Aerial photograph of current site conditions

2.10.2 Light pollution

2.10.2.1 Light pollution to neighbouring bodies

The project team must demonstrate that all outdoor lighting on the project complies with AS 4282:1997 Control of the obtrusive effects of outdoor lighting.

The conditions apply to all boundaries, apart from boundaries with roads. The boundary shall be taken as the site boundary, with no setback and no consideration of the location of adjacent buildings (i.e. worst-case scenario).

The following values from Table 2.1 of AS 4282:1997 must be applied:

- > For Class 2 buildings (residential), the compliance is for columns 4 and 5 as per Table 2.1 of AS 4282:1997; or
- > For Class 3 to 9 buildings (non-residential), the compliance is as per column 3 as per Table 2.1 of AS 4282:1997.

The system must comply with both pre- and post-curfew requirements.

2.10.2.2 Light pollution to night sky

It must be demonstrated that one of the following specified reductions in light pollution has been achieved by the project.

- > Control of Upward Light Output Ratio (ULOR); or
- > Control of Direct Illuminance.

This covers all external lighting of a project. In addition to other types of external lighting, for the purposes of this credit, luminaires inside glazed atria and those on the uppermost (uncovered) deck of an outdoor car park are considered external.

2.10.3 Contribution to Place

The project team must provide an urban context report and public realm interface design that outlines the urban context of the development and the design responses. The report must include:

- > Urban context analysis:
 - Assessment and analysis of the local setting and wider urban context. This must include physical, social, cultural, and economic factors
 - Outline any planned changes to the local area (for example if located in a growth zone) and the project's design response to those changes. This may include Local or State Government's vision for the area
 - Identify any local challenges which the building can help to address
- > Design responses:
 - Demonstration of the design responses to the urban context analysis
 - Demonstration that the public space is contributing positively to the proposed urban context

2.10.4 Connection to Nature

2.10.4.1 Views

At least 60% of regularly occupied areas must have a clear line of sight to a high quality internal or external view. All floor areas within 8m from a compliant view meet this credit criterion.

2.10.4.2 Plants & Nature-inspired Design

2.10.4.2.1 Plants

Indoor plants must be provided in regularly occupied areas. One or more plants in pots with a soil surface area totalling at least 500cm² for every 15m² of the regularly occupied spaces is required.

An ongoing maintenance plan must be established to ensure plant health is maintained. The contract must include:

- > A 2-year contract with a plant maintenance contractor to enact the plan
- > A schedule of plants within the nominated space
- > Service intervals
- > Policy regarding the maintenance of soil moisture, pH, nutrients, and pests
- > Diseased plant replacement policy
- > Cutting back of old growth; plants changed if needed
- > Cleaning requirements and commitments

2.10.4.2.2 Nature-inspired design

Five additional nature-inspired design interventions must be provided in alignment with the following principles:

- > Elements that provide multiple natural sensory experiences
- > Elements that reflect natural and cultural patterns and forms
- > Using natural materials
- > Large scale and holistically incorporated natural motifs and art

Project teams must provide a narrative against a set of design principles to show how the project's ambition for nature inspired design has been embedded from design concept stage.

2.11 Stormwater



2.11.1 Stormwater Targets

Table 3 below outlines the council requirements for stormwater pollution targets, in line with the Best Practise Environmental Guidelines (BPEG). The project will aim to improve on these by targeting the relevant Green Star credit for stormwater volume and pollution reduction targets, as outlined below.

Table 6: Pollution Reduction Targets

Pollutant	Council requirements	Green Star Requirements
Total Suspended Solids (TSS)	80%	85%
Gross Pollutants (GP)	70%	90%
Total Nitrogen (TN)	45%	45%
Total Phosphorus (TP)	45%	65%

2.11.2 Site Layout Plan

Figure 7 below demonstrates the different catchment areas and surfaces across the site. Note that the design of the building, and the following catchment areas may change as the design continues to develop over time.

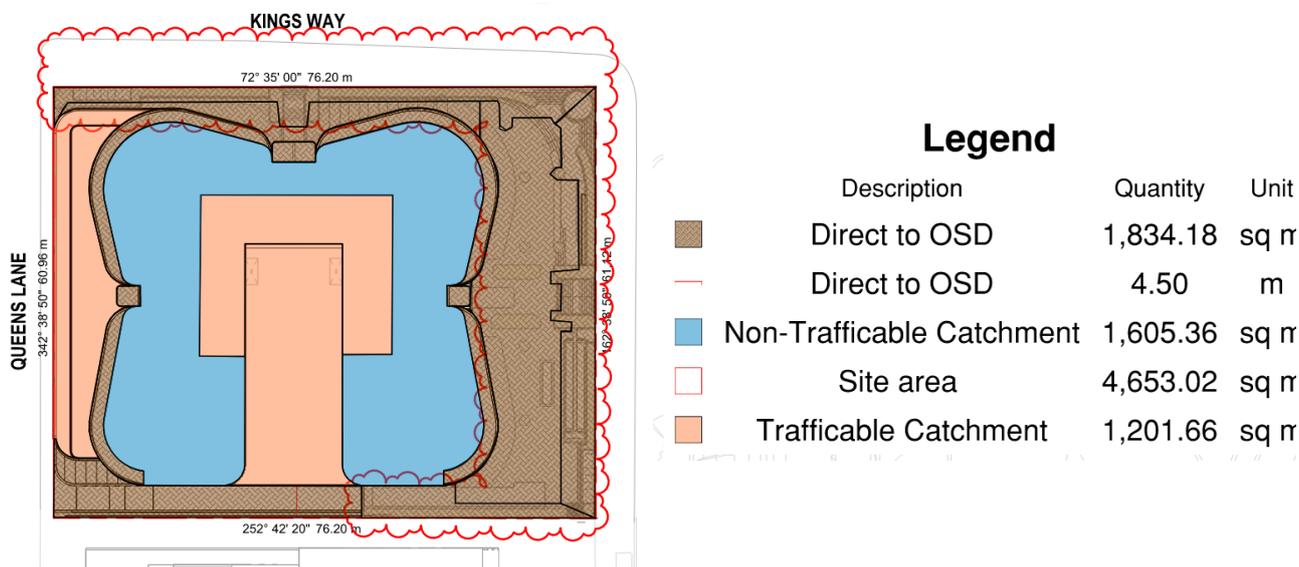


Figure 7 Site layout and catchment areas

- > Non trafficable catchment areas (areas in dark blue) are being captured and drained to a 60kL rainwater tank and will be reused for toilet flushing. Overflow will be sent through the treatment train detailed below.
- > Trafficable catchment areas (areas in light orange, and the swimming pool) are being captured and drained to a 40kL rainwater tank and will be reused for irrigation. Overflow will be sent through the treatment train detailed below.
- > All other areas are drain into the onsite OSD tank, before then going to the legal point of discharge

2.11.3 Stormwater Results

The Stormwater treatment plan produces the following results:

	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.056	1.006	51.06
Total Suspended Solids (kg/yr)	296	28	90.54
Total Phosphorus (kg/yr)	0.6749	0.1513	77.58
Total Nitrogen (kg/yr)	5.448	2.164	60.28
Gross Pollutants (kg/yr)	82.77	0	100

Figure 8 Treatment train effectiveness

Table 7 compares the results obtained from the MUSIC simulation with the best practice performance objectives. This demonstrates that the proposed stormwater management design meets all the reduction targets stipulated by Melbourne Water Best Practice Guidelines.

Table 7: MUSIC model pollution reduction results

Pollutant	Reduction	Current best practice performance objective	Target Achieved
Total Suspended Solids (kg/yr)	90.54%	85%	✓
Total Phosphorus (kg/yr)	77.58%	65%	✓
Total Nitrogen (kg/yr)	60.28%	45%	✓
Gross Pollutants (kg/yr)	100%	90%	✓

Further information about the WSUD Strategy can be found in *Appendix D - Endorsement WSUD Strategy*



2.11.3.1 Stormwater Quality

A stormwater management plan will be produced. Best practice stormwater pollutant reduction has been demonstrated by modelling the site in MUSIC with the treatment measures listed in the previous section.

2.11.3.2 Construction Site Management Plan

Further information can be found in *Appendix D - Endorsement WSUD Strategy*

2.11.3.3 Rainwater Tank Maintenance Program

Further information can be found in *Appendix D - Endorsement WSUD Strategy*



Appendix A

Green Star Tracking Matrix

MEL3611: 424 St Kilda Road
 Green Star Implementation Matrix R01 - 20240207
 Green Star Buildings V1 4 Stars



Summary

Targeted Green Star Rating	4 Star
Targeted Points	19
TBC Points	18
Total points targeted	19
Total points required	15

Definitions

Minimum Expectation	These are elements of certain credits that must be targeted by all projects looking to achieve a Green Star rating
Credit Achievement	Achieving the <i>Credit Achievement</i> criteria and requirements earns the project a predefined amount of points for each credit.
Exceptional	Achieving the <i>Exceptional Performance</i> criteria and requirements earns the project points additional to the points earned under <i>Credit Achievement</i>

Credit Number	Credit Name	Points available	Credit Tier	Targeted	TBC Points	Credit Elements	Credit Requirements	Major Responsibility	Risk	Project Team Comments
Responsible										
01	Industry Development	1	Credit Achievement	1		Green Star Accredited Professional	The Green Star AP must: • Act as the 'Project Contact' for the purposes of communicating with the GBCA; • Provide advice, guidance and support from project registration through to certification to the rest of the project team; and • Ensures the project team has access to the information covering Green Star principles, structure, timing and process including: – Eligibility – Green Star strategy – Technical Questions – The submission – Certification process – Green Star branding and marketing rules.	ADP Sustainability	Low Risk	
						Financial Transparency	The project team must provide the project's financial data in Excel format with the project's Green Star submission, not as a PDF. The Disclosure Template is available on the GBCA website. Project teams must use the latest available version. All information will be anonymised by the GBCA and included as an aggregate as part of a regular report to inform industry on the cost of Green Star. No project, owner or consultant will be identifiable.	Cost Consultant (QS) Owner/Client	Low Risk	
						Marketing Sustainability Achievements	To achieve this criterion: • The project's marketing team must complete the Green Star Case Study Template. The template seeks information on the sustainability initiatives that the building targeted to enable it being featured on the GBCA's website; • The project team must detail how the building will detail its sustainability achievements to its stakeholders. The stakeholders are defined as the typical building occupants and visitors; and • The Green Star Certification achieved for the project must be prominently displayed in a location that is visible to the public or visitors.	Owner/Client	Low Risk	
02	Responsible Construction	-	Minimum Expectation	Complies		Environmental management system	The builder or head contractor (responsible party) must have a formalised systematic and methodical approach to planning, implementing, and auditing in place during construction. For contracts valued at less than \$10 million, the responsible party must have an Environmental Management System (EMS) that complies with either the NSW Environmental Management System Guidelines or another recognised framework. For contracts valued at over \$10 million, the responsible party must have an Environmental Management System (EMS) certified to a recognised standard such as AS/NZS ISO 14001, BS 7750 or the European Community's EMAS. The EMS can be stand-alone or part of an integrated management system and must be valid for the duration of construction activities.	Head Contractor	Low Risk	
						Environmental management plan	The Environmental Management Plan (EMP) must be project specific and cover the scope of construction activities. It must be implemented from the start of construction and include all works within the project scope.	Head Contractor	Low Risk	
						Construction and demolition waste	Projects must divert at least 80% of construction and demolition waste from landfill. A Disclosure Statement is required from waste contractors and processing facilities outlining how the company and their reporting aligns with the Green Star Construction and Demolition Waste Reporting Criteria.	Head Contractor	Low Risk	
						Sustainability training	Head Contractor must provide the following training to 95% of all contractors and subcontractors present on site for at least three days: • Information on the sustainable building certification(s) sought, including: – the sustainability attributes of the building and their benefits; – the value of certification; and – the role site worker(s) play in delivering a sustainable building.	Head Contractor	Low Risk	
						Construction and demolition waste	Minimum Expectation: 90% of Construction and demolition waste must be recycled.	Head Contractor	Low Risk	
		1	Credit Achievement	1		Metering	The building must have accessible energy and water metering for all common uses, major uses, and major sources. The meters must be connected to a monitoring system capable of capturing and processing the data produced by the meters.	ADP Services		

03	Verification and Handover	-	Minimum Expectation	Complies	<p>The meters must be connected to a monitoring system capable of capturing and processing the data produced by the meters.</p> <p>The meters and automatic monitoring systems must:</p> <ul style="list-style-type: none"> • Provide continual information (up to 1-hour interval readings) • Be commissioned and validated per the most current 'Validating Non-Utility Meters for NABERS Ratings' protocol to support future achievement of a NABERS rating, irrespective of the current viability of a NABERS rating for the building or building type • Ensure all meters including utility meters and sub-meters to have accuracy declarations and/or certificates (for an example Utility Meters will have certificates issued by the National Measurement Institute) • Sub-meters that are not to be used as utility (billing) meters should either have Certificates for accuracy issued by NMI or a test certificate from the European Measuring Instruments Directive - 2004/22/CE • Where the building's Gross Floor Area (excluding car parking areas) is smaller than 1000m², unless specialist equipment with an annual power consumption of 100kwh/annum, is present in the building, a single meter for energy and a single meter for water will comply with this minimum requirement. If accessible to the building manager, the utility meter is acceptable provided it meets accuracy and data collection requirements above. 	Head Contractor	Low Risk	
					<p>Monitoring strategy</p> <p>The monitoring system must accurately and clearly present the metered data and include reports on consumption trends for the automatic monitoring system. The monitoring strategy must be developed in accordance with a recognised Standard, such as CIBSE TM39 Building Energy Metering. The monitoring strategy must include a metering schedule and identify the location and types of meters. The monitoring system must raise an alarm when the energy or water use increases beyond certain parameters and automatically issue an instant alert to the facilities manager. The process to assess, correct and validate alerts or faults must be detailed and contained in an accessible location. The project team must demonstrate the reporting and alarm functionality has been designed, installed, commissioned, and tested at practical completion to be awarded this credit. System capability for future implementation is not sufficient.</p>	ADP Services Head Contractor	Low Risk	
					<p>Environmental performance targets and information</p> <p>At design, the project team must set and document environmental performance targets for the project outlining:</p> <ul style="list-style-type: none"> • The targets for the project energy and water consumption for each individual nominated building system • Metering diagrams for energy and water • Operational monitoring expectations of energy, water, and indoor environment quality • Descriptions of the functions, intended operation, and maintenance requirements of individual nominated building systems • Airtightness targets <p>Examples of common methods for demonstrating compliance with this is through the development (early in the design phase) of a design intent report or an owner's project requirements (OPR) document. The document must provide a clear description of the basic functions, operations, and maintenance of the nominated building systems. It lists targets for the project energy and water consumption for all</p>	Head Contractor ADP ESD ADP Services	Low Risk	
					<p>Services and maintainability review</p> <p>Before construction, the project team must conduct a services and maintainability review of the building. The review must include the Head Contractor, the owner's representative, the commissioning agents, the design consultant and the facilities manager, where possible. The review must address the following:</p> <ul style="list-style-type: none"> • Commissionability; • Controllability; • Maintainability; • Operability; and • Safety of all systems. <p>The services and maintainability review and its outcomes must be summarised in a 'Service and Maintainability Report'. It must be signed off by all involved parties.</p>	ICA (if appointed) ADP Services Head Contractor	Low Risk	
					<p>Building commissioning</p> <p>During construction and before practical completion, all building systems must be commissioned per a recognised commissioning standard (CIBSE or ASHRAE commissioning guides). A commissioning specification must be included in the construction documentation listing requirements for each system. A commissioning plan must be developed prior to practical completion. The contractual tender or construction documentation must list the commissioning requirements for each system. It is not enough to state that systems must be commissioned to the relevant standard. The person responsible for the commissioning of the nominated services must have specific and demonstrable knowledge of the types of systems to be commissioned.</p>	ICA (if appointed) ADP Services Head Contractor	Low Risk	
					<p>Airtightness testing</p> <p>Airtightness must be included as part of the commissioning process during the following stages:</p> <ul style="list-style-type: none"> • Schematic design: review of design including an air barrier system schematic • Design Development: review for tightness including air barrier continuity on building plans, sections, and details. Scope of work and necessary coordination between trades and responsibilities must be demonstrated • Pre-Construction: A plan for stages of commissioning for air tightness must be defined and included in the project timeline • Construction: The building must undertake airtightness testing in accordance with the pre-construction phase air-tightness testing plan. Testing must be carried out by a suitably qualified practitioner. If a quantitative test to determine an air permeability rate is used, it must be conducted on the whole building system according to AS/NZS ISO 9972:2015 Thermal performance of buildings determination of air permeability of buildings - Fan pressurisation method. On sections smaller than the whole building qualitative procedures such as ASTM E1186-17 may be used. 	Façade Consultant Air Tightness Tester Head Contractor	Low Risk	
					<p>Building Systems Tuning</p> <p>The owner or developer must contractually commit to a tuning process that includes quarterly adjustments and measurements for at least the first 12 months after occupation. The commitment must include:</p> <ul style="list-style-type: none"> • A building tuning manual or plan • A description of the building tuning team • Confirmation the owner has engaged parties to tune the nominated systems <p>The building tuning team must include:</p> <ul style="list-style-type: none"> • The facilities manager • The Independent Commissioning Agent (ICA) or other building owner's representative • The Head Head Contractor • The services design professionals <p>These individuals must be available to address specific tuning issues where required</p>	Head Contractor	Low Risk	

					<p>Building information</p> <p>Operations and maintenance information The project team must provide operations and maintenance information for all nominated building systems to the building owner (or designated representative). This means:</p> <ul style="list-style-type: none"> • Appropriate content for all nominated building systems has been developed and provided; • The appropriate user group has access to the information they require to deliver best practice environmental outcomes; and • Guidance on keeping information up to date is provided to the facilities management team in these documents. <p>Building log book The project team must develop a building log book to present to the building owner (or designated representative) before practical completion of the project. The building log book must:</p> <ul style="list-style-type: none"> • Be developed in line with CIBSE TM31: Building Log Book Toolkit; • Cover all nominated building systems; and • Include links or references to all relevant operations and maintenance information. <p>Building user information Building user information is a source of up-to-date, relevant information for the building user. Building user information must be able to be updated and edited by the facilities management team, or other appropriate stakeholder groups, to ensure it remains current and relevant to users throughout the life of the building. All building user information must be available to the building owner and facilities management team at the time of practical completion.</p>	Head Contractor	Low Risk	
					<p>Soft Landings Framework (Both Soft Landings and ICA are required if Total Building Services Value is over \$20M) The soft landings approach is described in 'The Soft Landings Framework Australia and New Zealand' published by CIBSE ANZ, based on the BSRIA guide. The soft landings framework has five parts:</p> <ul style="list-style-type: none"> – Briefing (Stage 1) – Design development (Stage 2) – Pre-handover (Stage 3) – Initial after care (Stage 4) – Years 1 to 3 aftercare (Stage 5) <p>Stages 1 to 4 are required for purposes of this credit. Stage 5 is optional, but highly encouraged. The Soft Landings Framework document contains sample worksheets. Project teams are required to fill them in for Stage 1 to 3. Project teams are required to describe the actions that will be taken for Stage 4. The facilities management team (or building owner's representative) for the building must be involved in the soft landings approach. This means, the facilities management team must:</p> <ul style="list-style-type: none"> • Be involved in commissioning and handover process • Take part in the development of a brief technical guide for the building and the building operations and maintenance manual • Sign-off on the operations and maintenance manual • Be trained before handover. The training must include a demonstration of the building management system and any control mechanisms. The demonstration must be comprehensive and allow for additional items to be developed, such as logbooks or other manuals. <p>The facilities management team must have continued access to critical design and construction team members for two years after practical completion.</p>	Head Contractor	Low Risk	
					<p>Independent Commissioning Agent An ICA must be appointed to advise, monitor, and verify the commissioning and tuning of the nominated building systems throughout the design, tender, construction, commissioning, and tuning phases. The specified commissioning requirements must be overseen by a qualified independent commissioning professional(s).</p>	Head Contractor	Low Risk	
		1	Credit Achievement	1		ICA (if appointed)	Low Risk	
					<p>Collection of waste streams The building must provide bins or storage containers to building occupants to enable them to separate their waste. These bins must be labelled and easy to access, and evenly distributed throughout the building. They must also allow for separating the following as a minimum:</p> <ul style="list-style-type: none"> • General waste going to landfill • Recycling streams to be collected by the building's waste collection service, including: <ul style="list-style-type: none"> – paper and cardboard – glass – plastic • One additional waste stream identified by the project team. This may include collecting any of the following waste types: organics, e-waste, batteries etc. <p>Any other single waste stream (except food waste) that is expected to represent more than 5% of total annual operational waste (by volume) must also be included. Refer guidance section for further information about comingled collection.</p>	Waste Consultant	Low Risk	
					<p>Dedicated waste storage area A dedicated area, or areas, for the storage and collection of the applicable waste streams must be provided. The storage area must be sized to accommodate all bins or containers, for all applicable waste streams, for at least one collection cycle. The calculations used to demonstrate that the area provided is adequately sized to handle the recyclable waste streams specified must be based on:</p> <ul style="list-style-type: none"> • Forecasted waste generated by occupants • Collection frequency for each waste stream <p>The calculations for waste generation rates must be based on figures outlined within third-party best practice guidelines. See Guidance for more information. The storage area(s) must have efficient and safe access by collection vehicles. This includes driveway access to the building, appropriate height clearances, any onsite roads and loading docks, and the storage areas themselves providing safe and easy access for bins to be emptied into collection vehicles.</p>	Waste Consultant	Low Risk	
					<p>Sign-off by waste specialist and/or contractor. A waste specialist and/or contractor must sign-off on the designs to confirm they are adequately sized and located for the safe and convenient storage and collection of the waste streams identified.</p>	Waste Consultant	Low Risk	
04	Operational Waste	-	Minimum Expectation	Complies	<p>Risk and opportunity assessment Prior to appointment of the Head Contractor, the project team must undertake a risk and opportunities assessment of 10 or more key items in the project's supply chain (as selected by the project team) to identify environmental, social and human health risks, and opportunities following ISO 20400 Sustainable Procurement – Guidance. The assessment must be completed by the design team with input from the building owner. At least one of each of the following three areas must be represented in the 10 items:</p> <ul style="list-style-type: none"> • Building Services • Plant & Equipment • Materials <p>The risk assessment must consider risks and opportunities further down the supply chain, such as in the extraction, manufacture, or transport of key</p>	Owner/Client		

05	Responsible Procurement	1	Credit Achievement			materials. The risk and opportunity assessment must address at least the following issues: <ul style="list-style-type: none"> • Human rights • Labour practices • The environment • Fair operating practices • Consumer issues 	Owner/Client	Medium Risk	
						Responsible Procurement plan The project team must develop a plan for how the project will responsibly procure 10 or more key items mitigating risks and implementing opportunities identified in the Assessment following ISO 20400 Sustainable Procurement – Guidance as a guide to developing the plan. The plan must: <ul style="list-style-type: none"> • Identify the potential trade packages in which the 10 or more items would be procured • Identify project-level environmental, social, economic objectives reflecting the risks and opportunities assessment • Outline mitigation principles and standards • Establish a governance process with roles and responsibilities for overseeing implementation of the procurement plan objectives • Outline requirements for data collection and impact measurement monitoring and reporting • Provide a framework for incentivising the achievement of the plan with relevant contractors and trades The plan must be embedded in tender documentation for the John Holland or relevant trades. It must be implemented in			
06	Responsible Structure	3	Credit Achievement			50% of all structural components (by cost) meet a Responsible Products Value score of at least 10.	Structural Engineer ADP Sustainability Head Contractor	Medium Risk	
		2	Exceptional Performance			10% of all products in the structure (by cost) meet a Responsible Products Value score of at least 15; OR 80% of all products in the structure (by cost) have an average Responsible Products Value score of at least 10.	Structural Engineer ADP Sustainability Head Contractor	High Risk	
07	Responsible Envelope	2	Credit Achievement			30% of all building envelope components (by cost) meet a Responsible Products Value score of at least 10.	Façade Consultant ADP Sustainability Head Contractor	Medium Risk	
		2	Exceptional Performance			10% of all products in building envelope (by cost) meet a Responsible Products Value score of at least 15. OR 60% of all products in the building envelope (by cost) have an average Responsible Products Value score of at least 10.	Façade Consultant ADP Sustainability ADP Sustainability Head Contractor	High Risk	
08	Responsible Systems	1	Credit Achievement			20% of all active building systems (by cost) meet a Responsible Products Value score of at least 6.	ADP Services ADP Sustainability Head Contractor	Medium Risk	
		1	Exceptional Performance			5% of all active building systems (by cost) meet a Responsible Products Value score of at least 11. 35% of all active building systems (by cost) have an average Responsible Products Value score of at least 6.	ADP Services ADP Sustainability ADP Sustainability	High Risk	
09	Responsible Finishes	1	Credit Achievement	1		40% of all internal building finishes (by area) meet a Responsible Products Value score of at least 7.	Architect Head Contractor	Medium Risk	
		1	Exceptional Performance			10% of all internal building finishes (by area) meet a Responsible Products Value score of at least 12. OR 60% of all internal building finishes (by area) have an average Responsible Products Value score of at least 7.	Architect ADP Sustainability Architect ADP Sustainability	High Risk	
		17	Total	4	0				

Healthy									
10	Clean Air	N/A	Minimum Expectation	Complies		Ventilation system attributes Separation from Pollutants; Non-residential building ventilation systems must be designed to comply with ASHRAE Standard 62.1:2013 or AS 1668:2012 (whichever is greater) regarding minimum separation distances between pollution sources and outdoor air intakes. If using ASHRAE Standard 62.1:2013, compliance is to be demonstrated in accordance with the distances specified in Table 5.5.1 of the Standard, however projects must also ensure compliance with any other requirement or guidance nominated within the Standard. Analytical solutions are also acceptable by following the example provided within Appendix F of ASHRAE Standard 62.1: 2013. Cleaning ductwork; All new and existing ductwork that serves the building must be cleaned prior to occupation in accordance with a recognised Standard. This includes all ductwork in the base building that serves the building from the air handling unit(s) to the supply vents. If no ductwork exists, these requirements are deemed to be met.	ADP Services	Low Risk	
						ADP Services Head Contractor	Low Risk		
						Provision of outdoor air (All except Resi) The building must provide a 50% improvement of outdoor air required by AS 1668.2:2012 to each space in the regularly occupied areas. To demonstrate compliance, the HVAC system must be clearly sized to accommodate the increased outdoor air rates. The project must use the design occupancy, where known, rather than the default occupancy when calculating the required rates. The default occupancy is to be determined by the project team – any assumptions made must be justified within the Submission. Where the occupant density is unknown, projects must utilise the occupancy rates prescribed within Table A1 Appendix A of AS 1668.2:2012. Demand controlled ventilation is acceptable for energy efficiency performance.	ADP Mechanical	Medium Risk	
						Provision of outdoor air (Residential Only) The regularly occupied areas must be provided with good access to outdoor air, appropriate for the activities and conditions by using one of the following options: • Where ventilation is by mechanical means, the building must provide outdoor air as per AS1668.2:2012 for the default occupancy. • Where ventilation is by natural means, the building must meet natural ventilation requirements as per AS1668.4:2012. Where active heating or cooling is provided, a dedicated and controlled outside air path must be constructed and commissioned at a rate of at least 2.5L/s per bedroom and living space, with a minimum of 5L/s per unit. Outside air must be provided to each space that is heated or cooled.	ADP Mechanical	Medium Risk	
						Exhaust or elimination of pollutants. It must be demonstrated that pollutants from printing and photocopying equipment, cooking processes and equipment are limited from the nominated area by either: • Removing the source of pollutants; or • Exhausting the pollutants directly to the outside. For the first option, sources of pollutants, such as printing or photocopy equipment, kitchen stoves or vehicles, must be compliant with minimum emissions standards or not be present within the nominated area.	Owner/Client	Low Risk	
11	Light Quality	N/A	Minimum Expectation	Complies		Lighting Comfort Lighting within the building must meet the following requirements: • All LED lighting installed has no observable effect as per the standard IEEE 1789-2015 - IEEE Recommended Practices for Modulating Current in High-Brightness LEDs for Mitigating Health Risks to Viewers. • Light sources must have a minimum Colour Rendering Index (CRI) 85 or higher • Light sources must meet best practice illuminance levels for each task within each space type with a maintained illuminance that meets the levels recommended in AS/NZS 1680.1:2006 series applicable to the project type and including maintenance • The maintained illuminance values must achieve a uniformity of no less than that specified in Table 3.2 of AS/NZS 1680.1:2006, with a maintenance factor method as defined in AS/NZS 1680.4 • All light sources must have a minimum of 3 MacAdam Ellipses, also referred to as Standard Deviation Colour Matching (SDCM)	ADP Electrical Electrolight Head Contractor	Low Risk	
						Glare Glare from light sources must be limited within the nominated area. Three options are provided for demonstrating compliance with this requirement; a performance method, and two prescriptive methods. A combination of methods can be used to demonstrate compliance to suit different spaces. Prescriptive method 1 Bare light sources must be fitted with baffles, louvers, translucent diffusers, ceiling design, or other means that obscures the direct light source from all viewing angles of occupants, including occupants looking directly upwards. Alternatively, for LED luminaires the Unified Glare Rating (UGR), as estimated from the manufacturers data sheets for a standard room, must not exceed the maximum values listed in Table 8.2 of AS/NZS 1680.1:2006. Prescriptive method 2 Where the nature of the tasks, layout and surface reflectance in a space are not known (e.g. shell and core) the lighting system must comply with the Luminaire selection system as detailed in Clause 8.3.4 of AS/NZS 1680.1:2006. Performance method The Unified Glare Rating (UGR) calculated for the lighting on a representative floor must not exceed the maximum values listed in Table 8.2 of AS/NZS 1680.1:2006. The UGR rating must be calculated in accordance with the procedure outlined in Clause 8.3.3 of AS/NZS 1680.1:2006.	ADP Electrical		
						Daylight Strategy This Minimum Expectation aims to ensure the building is providing daylight access to building occupants through solutions that exceed the typical relevant federal, state, or local regulations. The project team is required to show how the building's design: • Maximises the number of occupants that are in or near daylight areas during their daily activities for all building types • Ensures regularly occupied areas are in reasonable proximity to glazed façades, windows, or skylights • Controls or mitigates external glare in the daylight spaces • Maximises daylight to spaces that prioritise learning, healing, and living: – For schools, how all classrooms have access to a view and daylight – For hospitals, how all areas where patients are expected to remain for longer than two hours have access to a view and daylight – For apartments, how in 95% of all apartments, the living rooms and all bedrooms have access to a view and daylight. • Provides building occupants with unrestricted access to daylight indoor public common spaces As part of the submission, the project team is required to submit: • A narrative describing the building's daylight, view, and external glare control strategy • A simple calculation of the amount of space that has adequate daylight as a proportion of the total regularly occupied areas of the building • An assessment against the five requirements above Where the above requirements are unable to be met, the project team must: • Outline the barriers to achieving the requirements and the measures taken to mitigate loss of daylight quality for occupants Daylight must be calculated using Daylight Autonomy.	Architect ADP Sustainability		

		2	Credit Achievement	0	2	Artificial Lighting	The artificial lighting solution must address the quality of light in the space, provide highlights and contrast, and seek to avoid excessive lighting or overly uniform solutions. <ul style="list-style-type: none"> The walls within the field of view of occupants in regularly occupied spaces must have an average surface reflectance value of 0.70 and an average surface illuminance of at least 50% of the horizontal illuminance levels required for task. This requirement does not apply to green walls or to coloured/patterned/biophilic feature walls that make up less than 20% of the field of view of the occupants; and Vertical illuminance in workspaces: ensure that 50% of the horizontal task illuminance reaches the average eye height for 90% of primary spaces using vertical illuminance calculation grid. The illuminance values must be calculated in accordance with AS/NZS 1680 series for the relevant task. Where unknown, a conservative estimate can be used. The lighting solution should provide for highlights of colour and contrast across multiple spaces. The contrast between spaces should not exceed the maximum luminance ratios as defined in AS 1680.1 Table 3.2 for visual task, immediate surrounds and general surrounds.	Specialist Lighting	Medium Risk	Requires additional consultant work on the lighting design. Applicable for the project as internal works will be within scope.
							Architect			
							ADP Sustainability			
							ADP Sustainability			
		2	Exceptional Performance			Artificial Lighting	Achieve credits for both artificial lighting and access to daylight credits.	Refer above	Medium Risk	
						Daylight		Refer above		
12	Acoustic Comfort	N/A	Minimum Expectation	Complies		Acoustic Comfort Strategy	An Acoustic Comfort Strategy must be prepared describing how the building design will deliver acoustic comfort to the building occupants. The following Acoustic Comfort criteria are to be addressed: <ul style="list-style-type: none"> Quiet enjoyment of space; Functional use of space; Control of intrusive or high levels of noise; Privacy; Noise Transfer; and Speech intelligibility. The Acoustic Comfort Strategy is to include: <ul style="list-style-type: none"> A summary of the Standards, legislation, guidelines and other requirements that apply to the project; The proposed performance metrics for each of the Acoustic Comfort criteria relevant to the different uses within the building and whether this exceeds minimum legislative or best practice guidelines; and Description of how the design solution is intended to achieve the proposed performance metrics. The strategy must be prepared by a qualified Acoustics during the design stage and the design solutions described in the strategy must be incorporated into the Contract Documents.	ADP Acoustics	Low Risk	
						Maximum Internal Noise	Internal ambient noise levels in the regularly occupied areas must be no greater than the upper range value relevant to the activity type in each space as recommended in the current AS/NZS 2107:2016.	Acoustic Consultant		
						Acoustic Separation - privacy OR sound insulation	The project must address noise transmission between enclosed spaces within the regularly occupied area. Compliance can be demonstrated via either: <ul style="list-style-type: none"> Privacy Sound insulation Where full-height intertenancy walls are being delivered by the Contractor to Cold Shell spaces, these walls must comply with the credit requirements and cannot be excluded. Privacy For all other spaces: The sound insulation between internal spaces complies with: $D_w + LA_{eqT} > X$. Where: D_w = Weighted sound level difference measured between two spaces LA_{eqT} = Indoor ambient noise level in the space adjacent to the enclosed space $X = 75$ except for: <ul style="list-style-type: none"> $X = 60$ for any partition with a door, $X = 80$ for walls/partitions separating areas with elevated privacy requirements (e.g., meeting rooms, classrooms, wards, etc.) The sounds tests, which D_w is derived from, must be measured in accordance with ISO 16283-1. See Guidance for more information on the above pathways, and for Class 2 and Class 3 buildings. Sound insulation The partition between the spaces should be constructed to achieve a weighted sound reduction index (dB R_w) of: <ul style="list-style-type: none"> At least 45 for all partitions separating enclosed spaces which are: <ul style="list-style-type: none"> Fixed without a door Glazed partitions without a door* (refer to Guidance section) At least 40 for all partitions fronting a room (from an open plan area) At least 35 (in composite with door and partition) for all partition types that contain a door At least 50 through floors between occupied spaces 	Acoustic Consultant		
						Impact Noise Transfer	Impact noise transfer measured in accordance with ISO 16283-2 through a floor where: <ul style="list-style-type: none"> Floors are located above nominated areas; or Adjacent spaces belonging to different tenancies which share a floor must not exceed dB $L_{nT,w}$: <ul style="list-style-type: none"> - 60 for all spaces 	Acoustic Consultant		
		2	Credit Achievement	2					Low Risk	All acoustic points may require additional consultant work and additional acoustic treatment to walls, floors, and ceilings. Applicable for the project as internal works will be within scope.

						<p>Reverberation (Non-Resi only)</p> <p>Reverberation time in the regularly occupied area must be below the maximum stated in the recommended reverberation time provided in Table 1 of AS/NZ 2107:2016. This requirement does not apply to Class 2 and Class 3 projects.</p> <p>For open office areas and where note 3 of Table 1 AS/NZ 2107:2016 applies and requires that reverberation times be minimised as far as practical, acoustic absorption should be installed in the noise sensitive space. Acoustic absorption should be applied in locations appropriate to the function of the space and located to maximise the acoustic performance of materials selected.</p> <p>Compliance can be demonstrated by either:</p> <ul style="list-style-type: none"> Installed acoustic absorption, irrespective of quantity or location installed, must result in a reverberation time equivalent to or lower than the reverberation time predicted for treating at least 50% of the combined floor and ceiling area with a material having a noise reduction coefficient (NRC) of at least 0.5. Treating 50% of the combined floor and ceiling area with a material having an NRC of at least 0.5. Dedicated teaching space must have reverberation times in the lower half of the range specified in Table 1 of AS/NZS 2107:2016. <p>Measurements must be conducted in at least 10% of the spaces in the regularly occupied area.</p> <p>The range of measurement locations shall be representative of all spaces available within the regularly occupied areas. All relevant buildings systems must be in operation at the time of measurement. Projects less than 500m2 Gross Floor Area (GFA) must account for measurements conducted in at least 95% of spaces within the regularly occupied area. Guidance to be provided to future tenants regarding the effect of materials on reverberation.</p>	Acoustic Consultant	Low Risk	
13	Exposure to Toxins	N/A	Minimum Expectation	Complies	<p>Paints, adhesives, sealants and carpets</p> <p>At least 95% of internally applied paints, adhesives, sealants (by volume) and carpets (by area) must meet stipulated 'Total Volatile Organic Compounds (TVOC) Limits' specified in the Green Star submission guidelines.</p> <p>Compliance can be demonstrated in the following ways:</p> <ul style="list-style-type: none"> The product(s) are certified under a recognised Product Certification Scheme. The certificate must be current at the time of purchase; The product(s) are tested in a laboratory; or There are no paints, adhesives, sealants and carpets in the building at practical completion. 	Architect	Medium Risk		
					<p>Engineered wood products</p> <p>Either no new engineered wood products are used in the building, or at least 95% (by area) of all engineered wood products meet specified formaldehyde emission limits in the ESD Specification.</p> <p>Where there are engineered wood products, compliance to emission limits can be demonstrated in two ways:</p> <ul style="list-style-type: none"> The product(s) are certified under a recognised Product Certification Scheme. The certificate must be current at the time of purchase; and/or The product(s) are tested in a laboratory. <p>Formwork, car parking applications, and non-engineered wood products (such as milled timber) are excluded from the credit.</p>	ADP Services			
					<p>Banned or Highly Toxic Materials (if any existing buildings exist on site)</p> <p>A comprehensive hazardous materials survey must be carried out on any existing buildings or structures on the project site, in accordance with the relevant Environmental and Work Health and Safety (WHS) legislation.</p> <p>Where the survey identified asbestos, lead, or PCBs in any existing buildings or structures, the materials must be stabilised or removed and disposed of in accordance with best practice guidelines.</p>	Head Contractor			
					<p>Onsite testing</p> <p>A test must be undertaken to verify that the TVOC and formaldehyde levels are within the concentration limits stipulated. Refer ESD specification for limits.</p>	Architect	Medium Risk		
		2	Credit Achievement	2		Owner/Client	Medium Risk		
						Head Contractor	Medium Risk		
14	Amenity and Comfort	2	Credit Achievement	2	<p>Designated amenity rooms</p> <p>The building includes one or several rooms designed to promote either inclusivity, mindfulness or exercise for staff or occupants.</p> <p>For a room(s) to qualify, it must be classified as per below:</p> <ul style="list-style-type: none"> Parent room. Relaxation, meditation, or prayer room. Exercise room. <p>The room size to be provided must be as follows:</p> <ul style="list-style-type: none"> The size of the room is calculated at a ratio of 1m² per every 10 occupants or staff; and The room must be no smaller than 10m². <p>Building occupancy is determined by the project team and must be consistent with other credits in the submission.</p> <p>The room(s) must be accessible to all staff and building occupants. The room must be separate from bathrooms, showers, lockers, and active facilities.</p> <p>All amenities and/or infrastructure necessary to use the room(s) for its intended purposes must be provided (for example, including a sink or bench for a parent room).</p> <p>In addition, the room(s) must meet the following:</p> <ul style="list-style-type: none"> Credit Achievement for the Light Quality credit; Credit Achievement for the Acoustic Comfort credit; and The 'Equal access to the building' criterion of the Design for Inclusion credit. <p>These amenity rooms are for staff or regular building occupants. Examples of building occupants are:</p> <ul style="list-style-type: none"> Facilities management staff Building tenants Residents in an apartment building Staff in shops in a shopping centre Workers in an industrial setting Staff in hospitality buildings, tourism centres, or conference facilities <p>Amenity rooms provided for the primary purpose of visitor enjoyment, even if staff can use them, are not acceptable alternatives, unless the room sizes have been designed to account for visitor numbers too.</p> <p>Examples of visitors include:</p> <ul style="list-style-type: none"> People who shop in shopping centre or shops 	Owner/Client	Low Risk	Requires floor area to be designated to meet this credit. Some requirements can overlap with for Credit 34	
					Architect				
					<p>Views</p> <p>At least 60% of primary spaces occupied for more than two hours must have a clear line of sight to a high quality internal or external view. All floor areas within 8m from a compliant view meet this credit criterion.</p> <p>A high-quality internal view is defined as a view towards an area that is landscaped or contains a water feature, or an atrium. A landscaped area must contain either high plant density, xeriscape gardens or arid climate landscaping. The landscaping may be horizontal or vertical.</p>	Architect		External Landscaping Area can account for up to 50% of the area requirement of this credit.	

15	Connection to Nature	1	Credit Achievement	1		Plants	Indoor plants must be provided in regularly occupied spaces. One or more plants in pots with a soil surface area totalling at least 500cm ² for every 15m ² of the primary spaces is required. OR	Architect Landscape Architect	Medium Risk	
						Nature-inspire design	Five additional nature-inspired design interventions must be provided in alignment with the following principles: <ul style="list-style-type: none"> • Elements that provide multiple natural sensory experiences • Elements that reflect natural and cultural patterns and forms • Using natural materials • Large scale and holistically incorporated natural motifs and art Project teams must provide a narrative against a set of design principles to show how the project's ambition for nature inspired design has been embedded from design concept stage.	Architect Landscape Architect		
		1	Exceptional Performance			Occupant Nature Interaction	Occupants can interact with nature either inside the building, or externally through a green wall or roof garden. At least 5% of the building's floor area/ or site area (whichever is greater) must be allocated to this opportunity. The allocated area must be accessible and have the necessary infrastructure to allow the activity to occur (for example water source/ taps for irrigation, storage area for tools and equipment).	Architect Landscape Architect	High Risk	
		14	Total	7	2					

Resilient										
16	Climate Change Resilience	N/A	Minimum Expectation	Complies		Climate Change Screening Project team members must consider potential impacts from climate change when completing the checklist including, but not limited to: <ul style="list-style-type: none"> • Direct damage or failure of project components; • Accelerated deterioration of project components or reduced design life; • Reduced operating capacity; • Climate hazard impacts to surrounding areas (e.g. impacting access and egress); • Impacts to the health and wellbeing of building occupants and other relevant stakeholders; and • Indirect risks from impacts to other interdependent systems and services (e.g. transport networks, power, water, telecommunications). Both historic and future data must be used when completing the checklist. All rows and columns must be completed. The Minimum Expectation is achieved on completion of the checklist and doesn't require identified risks to be treated. The checklist must be signed off by a member of the project leadership team and shared with key project stakeholders, including the client/building owner. If the Credit Achievement for this credit is met, requirements of this assessment are considered to have been met	ADP Sustainability	Low Risk	Risk Assessment for the entire building. Mitigations can be mechanically based to add for extra condensers.	
		1	Credit Achievement		Climate Change Risk and Adaptation Assessment A suitably qualified professional must undertake a climate change risk and adaptation assessment and author a report. The suitably qualified professional must: <ul style="list-style-type: none"> • Perform the assessment using the information from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report Representative Concentration Pathway 8.5 (RCP 8.5). • Perform the assessment using two timescales that are relevant to the project's anticipated lifespan: one medium-term timescale between 2040 to 2050; and one long-term timescale between 2070 to 2090. • Identify the primary and secondary climate change variables relevant to the project and each risk. • Define and include the consequence and likelihood tables and risk matrix used to assess climate risks. • Assess risks in consultation with multidisciplinary representatives from within the project team and a selection of relevant external stakeholders. • Develop a risk register of 'extreme' or 'high' risks to the building and surrounding infrastructure, and the treatment options. • Communicate the results of the assessment to the leads of all design disciplines. The author must ensure the assessment: <ul style="list-style-type: none"> • Aligns with the Australian Standard AS 5334:2013 Climate change adaptation for settlements and infrastructure; and • Follows the principles of risk management outlined in the Australian and New Zealand Standard AS/NZ ISO 31000:2009 Risk Management. 	ADP Sustainability	Medium Risk			
					Managing Risks The project team must ensure risks are addressed as follows: <ul style="list-style-type: none"> • All risks rated as 'Extreme' must be addressed through specific design responses; • All risks rated as 'High' must be addressed through design or future operational responses; and • Regardless of risk rating, at least two risks identified in the assessment must be addressed by specific design responses. 	ADP Sustainability				
17	Operations Resilience	2	Credit Achievement		Comprehensive Risk Assessment The suitably qualified professional authoring the operations resilience assessment must: <ul style="list-style-type: none"> • Identify a set of clear resilience objectives and performance goals for the building; • Collaborate with key internal and external project stakeholders, including community representatives, to identify and confirm the relevant acute shocks and chronic stresses likely to impact the functionality of the building and its ability to meet performance goals; • Identify and confirm the interdependent infrastructure systems, networks, services and assets the building relies on; • Identify key areas of system vulnerability, specifically how these may be affected by the identified shocks and stresses that may impact the building through reduced capacity and/or functionality; • Outline response procedures in the event of an identified shock event impacting the building and the local community; and • Consult with relevant authorities with regards to evacuation procedures and emergency actions. As a minimum, the following shocks and stresses must be addressed in the assessment: Shocks <ul style="list-style-type: none"> • Failure of critical infrastructure (power, water and digital); • Health pandemic; • Water security; • Geological hazards (landslides, earthquakes, tsunamis); and • Direct attack (cyber and physical) Stresses <ul style="list-style-type: none"> • Ageing infrastructure; • Rising cyber dependency; 	app ADP Sustainability	Medium Risk			
					Managing Risks The project team must ensure risks are addressed as follows: <ul style="list-style-type: none"> • All risks rated as 'Extreme' must be addressed through specific design responses. • All risks rated as 'High' must be addressed through design or future operational responses. • Regardless of risk rating, at least two risks identified in the assessment must be addressed by specific design responses. 	ADP Sustainability Owner/ Client / Head Contractor				
					Addressing Power Loss The project team must perform an assessment of the building's survivability in the case of a blackout. The building must then be designed to account for its design purpose and provide a measure of survivability for the likely occupants. The project team must identify: <ul style="list-style-type: none"> • The design purpose of the building, and the potential for the building to be occupied in the case of a blackout. • The needs of occupants in such a situation. This may include the building being used by the community as refuge in the case of a blackout. • The servicing needs of that building to ensure the occupants are safe during the blackout. • The appropriate duration that the building can maintain its design purpose during the blackout. • How the building can remain safely habitable after a blackout (specifically fire systems, ventilation, temperature, water pumping and vertical transportation). • How the building will be able to operate in island mode, with consideration to loss of internet services for the Building Management System or for situations where the building is being powered on-site. The building's design must account for these issues. The range of measures that can be used to address these problems can be active (through on-site	ADP Sustainability ADP Services				

18	Community Resilience	1	Credit Achievement			Community resilience plan The project team must develop a community resilience plan that: <ul style="list-style-type: none"> • Defines its surrounding local community, and the groups which rely on or interact directly or indirectly with the building. In addition to considering tenants and visitors, this must identify key vulnerable communities; • Identifies resilience objectives and goals associated with servicing the community; • Identifies social considerations affecting the community; • Identifies acute shocks and chronic stresses that impact the project’s function and ability to service the community (including climate-related shocks and stresses if the Climate Change Resilience credit is not targeted); • Demonstrates how the development of actions (physical and non-physical responses) to manage the impact from shocks and stresses is in response to the outcomes of community engagement; • Shows how the two most significant impacts identified are dealt with specifically through the building’s design; and • Identifies how material shocks and stresses identified for the building may impact on these stakeholders by considering a clear set of social indicators (see Guidance section). The project team must undertake at least one community capacity building activity prior to or during construction.	Resilience Co./Client/Owner	High Risk	Requires Client to engage community stakeholders early within the project design. Additional consultants (such as Resilient Co.) can facilitate the works.
						Resilience Co./Client/Owner			
						Resilience Co./Client/Owner			
19	Heat Resilience	1	Credit Achievement	1		Urban heat island reduction At least 75% of the whole site area comprises of one or a combination of strategies that reduce the heat island effect. The strategies that can be used to reduce the heat island are: <ul style="list-style-type: none"> • Vegetation; • Green roofs; • Roofing materials, including shading structures, having the following: <ul style="list-style-type: none"> – For roof pitched <15°– a three-year SRI of minimum 64; or – For roof pitched >15°– a three-year SRI of minimum 34. • Unshaded hard-scaping elements with a three-year SRI of minimum 34 or an initial SRI of minimum 39; • Hardscaping elements shaded by overhanging vegetation; and • Water bodies and/or water courses. The area of the site that is shaded by permanent structures (e.g. part of a car park to the south of a tall building) during the summer solstice are also deemed compliant.	Architect	Medium Risk	Several points can be achieved by incorporating a green roof (May also be a council requirement)
						Head Contractor			
		8	Total	1	0				

Positive									
21	Upfront Carbon Emissions	N/A	Minimum Expectation	Complies		Reducing upfront carbon emissions The building's upfront carbon emissions are at least 10% less than those of a reference building. The building's upfront carbon emissions reductions must occur through good design and material selection. The reduction targets do not include demolition works. Calculating upfront carbon emission reductions To demonstrate compliance, project teams can either: • Model the proposed and reference buildings following the methodology of the Life Cycle Impacts credit for modules A1 to A5 • Complete the Upfront Carbon Emissions calculator. Projects must document a reduction in upfront carbon according to the materials and products in the scope. The GBCA's Upfront Carbon Emissions calculator uses Modules A1 to A3 to calculate compliance. Module D is excluded (e.g., carbon sequestration and biogenic carbon). See Guidance for more information.	LCA Consultant Architect Client/Owner Structural Engineer	Low Risk	
		3	Credit Achievement	0	3	Reducing upfront carbon emissions The building's upfront carbon emissions are at least 20% less than those of a reference building. The building's upfront carbon emissions reductions must occur through good design and material selection. The reduction targets do not include demolition works (i.e., demolition works are not included in the reference or proposed building). Carbon offsets purchased against the building's upfront carbon emissions from construction cannot be used to show compliance against the 20% reduction. See Minimum Expectation requirements for further information on calculating upfront carbon emission reductions.	LCA Consultant ADP Sustainability Architect Structural Engineer	Medium Risk	
						Calculating upfront carbon emissions To demonstrate compliance, project teams can use either: • Model the proposed and reference buildings following the methodology of the Life Cycle Impacts credit; or • Complete the Upfront Carbon Emissions Calculator Projects must document a reduction in upfront carbon according to the materials and products in the scope. The GBCA's Upfront Carbon Emissions Calculator uses Modules A1 to A3 to calculate compliance. <u>Module D is excluded.</u>	LCA Consultant		
						Offsetting demolition works Demolition works must be captured and offset. Where an existing building less than 30 years old has been fully or partly demolished for construction, an embodied carbon calculation must be done for the demolished portion and these emissions offset. Where the existing building is between 30 to 50 years old, the contribution must be calculated and discounted at 10% for every two additional years past year 30. In the absence of available data, the existing building can be assumed to follow modern code-compliant construction techniques for the purposes of this calculation.	Client/Owner		
3	Exceptional Performance			Upfront carbon offsets The building's upfront carbon emissions are at least 40% less than those of a reference building. The building's upfront carbon emissions reductions must occur through good design and material selection. The reduction targets do not include demolition works. Carbon offsets purchased against the building's upfront carbon emissions from construction cannot be used to show compliance against the 40% reduction. Calculating upfront carbon emission reductions To demonstrate compliance, project teams must: • Model the proposed and reference buildings following the methodology of the Life Cycle Impacts credit for modules A1 to A5 Projects must	Client/Owner	High Risk			
22		3	Credit Achievement			Reference Building: Energy Reduction (Non-Resi) Class 3 Hotels - 4.5 Stars with 20% modelling margin. Class 5 Offices - 5.5 Stars with 25% modelling margin. Class 6 Shopping Centres - 5 Stars.	ADP Sustainability	Medium Risk	NABERS Commitment Pathway
		N/A	Minimum Expectation	Complies		NATHERS Ratings Area weighted average: at least 7.5 Sole Occupancy rating: 6 stars PROJECT TARGETING "CREDIT ACHIEVEMENT" SEE ROW BELOW FOR REQUIREMENTS	ADP Sustainability	Low Risk	
						Domestic Hot Water Demand The relevant fixtures and water-using appliances installed within the project's scope must, at a minimum, meet WELS ratings to reduce the Domestic Hot Water energy use: -Showers - 9L/min maximum -Taps kitchen - 4 Stars with a maximum flow rate of 7.5L/min -Taps hand wash basins - 5 Stars with a maximum flow rate of 6L/min PROJECT TARGETING "CREDIT ACHIEVEMENT" SEE ROW BELOW FOR REQUIREMENTS	ADP Sustainability	Low Risk	
						Pool Covers Where heated pools are installed, they must have a pool cover with a minimum R-value of 0.075 for external pools or 0.05 for internal pools.	Architect	Low Risk	
						Energy Efficiency Requirements All buildings, irrespective of location, are required to comply with NCC Parts J3 to J8. No state amendments or exclusions are allowed.	ADP Sustainability	Low Risk	
						NATHERS Ratings Area weighted average: at least 7.5 Sole Occupancy rating: 6.5 stars	ADP Sustainability	Medium Risk	
				Building Services Four out of the nine of the building services requirements need to be addressed	ADP Services ADP Sustainability	Medium Risk			

Energy Use	3	Credit Achievement	0	3	Domestic Hot Water Demand	All showers have a minimum WELS rating of 4 Stars with a maximum flow rate of 7.5L/min. All hot water pipes outside of the sole-occupancy units are insulated with a minimum R-value of 2.0. All hot water pipes inside sole-occupancy units are insulated with a minimum R-value of 0.5.	ADP Services ADP Sustainability	Low Risk	GBCA TQ approving specification of the most energy efficient VT available in Australia compliant
					Domestic Hot Water Generation	-A solar thermal heating system is provided, or heat is recovered from another process (for example chiller heat recovery) or a combination of both, which contributes at least 30% of the annual thermal energy requirement for water heating or -The primary non-renewable heat source for domestic hot water is an electric heat pump with a minimum COP of 3.0 at 20°C ambient and 65°C leaving temperature	ADP Services ADP Sustainability	Low Risk	
					Heating and Cooling of Sole Occupancy Units	The building provides efficient outcomes for heating and cooling. For cooling , the building provides one or a combination of the following: - DX Split Systems: a minimum 3.5 Star SEER Cooling Star Rating (mixed zone) - Centralised Condenser Water System: water cooled packaged units with a minimum cooling EER of 3.5 AND the condenser water system exceeds energy efficiency requirements of NCC Section J5.7 and J5.12 by at least 10% - Central Chilled Water System: the chiller and chilled water systems exceed energy efficiency requirements of NCC Section J5.7 and J5.10 by at least 10%. If a cooling tower is installed, then this must exceed energy efficiency requirements of NCC Section J5.12 by at least 10% - No refrigerant-based cooling is provided For heating , the building provides one or a combination of the following: - DX Split Systems: 3 Star SEER Heating Star Rating (mixed zone) - Centralised Condenser Water System: water cooled package units with a minimum heating EER of 4.0 AND the condenser water pump system exceeds energy efficiency requirements of Section J5.7 by at least 10% - Central Heating Hot Water System: the heat source is a heat pump with a with a minimum COP of 4.0 at 10°C ambient outside air temperature AND the heating hot water pumping system exceeds energy efficiency requirements of NCC Section J5.7 by at least 10% - Electric heater: 10% better than Section J5.9 requirements - No electric or combustion-based heating is provided	ADP Services ADP Sustainability	Medium Risk	
					Clothes Drying	95% of dwellings contain both: -External clothes drying facility -Either no available space for a clothes dryer OR a heat pump clothes dryer with auto-sensing feature and vented to the outside	ADP Services ADP Sustainability Architect	Medium Risk	
					Ceiling Fans	Ceiling fans are installed in all bedrooms and living rooms and comply with the requirements of NCC Section J0.3.	ADP Services ADP Sustainability Architect	Low Risk	
					Car Parking	The building complies with one of the following: -No undercover car parking is provided -75% of undercover car parking is naturally ventilated with no mechanical ventilation systems -Undercover car parking is limited to 1 car space per 5 sole-occupancy units Where undercover parking is provided, lighting control linked to occupancy sensors must be installed, with minimum lighting levels provided for safety and security purposes.	ADP Services ADP Sustainability Architect	Low Risk	
					Vertical Transportation	The energy associated with lift machinery or other vertical transportation complies with all the following: • The minimum lift energy efficiency is class A or B in accordance with ISO 25745-2 • The lift idle and standby energy performance level is 1 in accordance with ISO 25745-2. • The minimum escalator energy performance is class A+ to A+++ in accordance with ISO 25745-3. Requirements must be met for all relevant systems where present.	ADP Services ADP Sustainability	Medium Risk	
					Lift Lobbies and Corridors	Lift lobbies and hallways (excluding main entrance lobby to the building) are either: -Naturally ventilated -Supply / exhaust air only with no heating or cooling (A/C or tempered)	ADP Services ADP Sustainability	Medium Risk	
					On-site solar PV	A minimum of 500kWh of annual electricity generation per dwelling is provided by an on-site solar PV system.	ADP Services ADP Sustainability	Medium Risk	
					3	Exceptional Performance			
Building Services	For exceptional performance only an additional 2 of the following need to be achieved. Six out of the nine of the building services requirements above need to be addressed.	ADP Services ADP Sustainability	High Risk						
					Zero Carbon Action Plan	The project team must develop a Zero Carbon Action Plan for the building. The plan must be signed off by the building owner or app and included in any operational documents for the building. The Zero Carbon Action Plan must include a target date by when the building is expected to operate as net zero carbon. The Zero Carbon Action Plan must cover all energy consumption, procurement, and generation and cannot rely on procuring renewable fuels as its only solution. It must also include infrastructure provided for tenants or future occupants such as gas installations for cooking. The Zero Carbon Action Plan must be done prior to the tender phase of the project. The plan must:	ADP Sustainability		

GBCA TQ approving specification of the most energy efficient VT available in Australia compliant

23	Energy Source	N/A	Minimum Expectation	Complies		<ul style="list-style-type: none"> Quantify the building's scope 1 (including refrigerants) and 2 emissions between now and 2050 without any interventions; Quantify the building scope 1 (including refrigerants) and 2 emissions in 2050 once all interventions have occurred; Describe the changes the building is required to undertake to be net zero carbon in operation as the distinct parts of the building's systems reach end of life; Identify spatial considerations and physical interventions needed to replace fossil fuel using equipment, refrigerants and infrastructure; Perform a cost analysis of the potential costs and savings if the building was designed to be net zero; and Be signed-off by the building owner or the Client. <p>It must also outline, if relevant:</p> <ul style="list-style-type: none"> A description of energy-consuming electrical, mechanical, or hydraulic systems and any refrigerants used; Any future spatial requirements or changes to plant rooms stemming from changes to existing building systems; Any additional capacity built into the building, substations, or building systems to enable any proposed changes. This may include the capacity to accommodate any future additional loads, energy storage or demand response solutions which may occur or be implemented during the life of the building; and An upgrade or replacement timeline for the distinct systems, or system components, describing the point at which they are to be replaced with the appropriate alternatives. <p>The outcomes of the Zero Carbon Action Plan must be integrated with other Green Star credits targeted during certification. For example, any</p>	ADP Services	Low Risk	Not required if building is all electric and will sign on for 100% Green Power
		3	Credit Achievement	0	3	<p>Base Building Electricity</p> <p>All electricity under the control of the building owner or operator must be accounted for and sourced from renewables. Electricity use for tenant loads is excluded from this credit (see Tenant Emissions). Both on-site and off-site renewables are acceptable. Where the project team claims the credit through off-site renewables, the building owner must sign a renewable energy contract. The shortest contract length is:</p> <ul style="list-style-type: none"> Five years; or Where the building is owned and managed by an entity that has signed to the Global Commitment for Net Zero Carbon Buildings managed by WorldGBC, the shortest contract length is three years. Other commitments may be acceptable through a Technical Question. The contract can be part of a corporate power purchasing agreement for a building portfolio. 	Client/Owner	Medium Risk	
		3	Exceptional Performance	0	3	<p>Base Building Energy</p> <p>This credit addresses the following:</p> <ul style="list-style-type: none"> Energy under the control of the building owner or operator; and Non-electricity energy uses that are not under the building owners' control, such as cooking or heating that uses liquid or gaseous fuels burned on site, with some minor exceptions (see Guidance). <p>Energy use for tenant loads is excluded from this credit. Both on-site and off-site renewables are acceptable. Where the project team claims the credit through off-site renewables, the building owner must sign a renewable energy contract. The shortest contract length is:</p> <ul style="list-style-type: none"> Five years; or Where the building is owned and managed by an entity that has signed to the Global Commitment for Net Zero Carbon Buildings managed by WorldGBC, the shortest contract length is three years. Other commitments may be acceptable through a Technical Question. The contract can be part of a corporate power purchasing agreement for a building portfolio. <p>Should infrastructure in the building that can use fossil fuels to power typical building systems exist, the applicant must show how it will not use fossil fuels during the building's operation. Refer to the Renewables and Offsets in Green Star Guide for more information on suitable options recognised by Green Star.</p>	Client/Owner ADP Sustainability	Medium Risk	Should be easy with All Electric Building and 100% Green Power Agreement 2023 post registration requirement - Exceptional Performance
24	Other Carbon Emissions	2	Credit Achievement	0	2	<p>Other Carbon Emissions - Pathways</p> <p>All refrigerants from building systems or domestic appliances provided by the building must be captured in the credit. This includes where fridges or freezers are provided as part of a fitout package in a residential setting. There are two pathways available:</p> <ul style="list-style-type: none"> Eliminates high-GWP refrigerants from the building; or Offsets 100% of carbon emissions from refrigerants. 	N/A	Low Risk	Mechanical Advice - Difficult to get GWP below 10
						<p>Eliminating refrigerants</p> <p>High-GWP refrigerants must be eliminated from the building. The use of refrigerants with a GWP of 10 or less is considered to comply with the credit. Natural refrigerants in most cases comply with this criterion. OR:</p>	ADP Mechanical		
		<p>Offsetting refrigerants</p> <p>Emissions are calculated by multiplying the total refrigerant charge by its Global Warming Potential (GWP) for each type of refrigerant, and adding these together. Where refrigerants are used in the building, adequate access for maintenance and/or replacement must be provided. Emissions are then offset with GBCA accepted offset programs</p>	Head Contractor						
2	Exceptional Performance			<p>Other Emissions</p> <p>This Exceptional Performance aims to address emissions that have not been addressed by claiming other credits. If other credits have been claimed, the emissions that are to be offset in this credit are lower. The emissions addressed in this credit are:</p> <ul style="list-style-type: none"> Emissions from the building's electricity use (as determined in the Energy Use credit) multiplied by the grid coefficient (unless the Energy Source Credit Achievement is met, in which case these emissions are zero); Emissions from the building's energy use as determined in the Energy Use credit (unless the Energy Source Exceptional Performance is met, in which case these emissions are zero); Upfront carbon emissions as determined in the Upfront carbon emissions credit (unless the Upfront Carbon Emissions is met, in which case these emissions are zero); Life-cycle emissions from modules B and C as calculated in Life Cycle Impacts; Emissions from construction equipment use, and utilities during construction on site; and Construction waste emissions. <p>The project team must include the above and any other carbon emissions over 1% of the total carbon emissions profile for the building (significant</p>		High Risk			
		N/A	Minimum Expectation	Complies		<p>15% Potable Water Reduction</p> <p>A 15% reduction against a reference building through the GBCA's Potable Water Calculator is demonstrated</p>	ADP Sustainability	Low Risk	

25	Water Use	3	Credit Achievement			45% Potable Water Reduction	A 45% reduction against a reference building through the GBCA's Potable Water Calculator is demonstrated	ADP Sustainability	High Risk
		3	Exceptional Performance			75% Potable Water Reduction	A 75% reduction against a reference building through the GBCA's Potable Water Calculator is demonstrated	ADP Sustainability	
26	Life Cycle Impacts	2	Credit Achievement			Life Cycle Impacts	The project demonstrates a 30% reduction in life cycle impacts when compared to standard practice.	LCA Consultant	Medium Risk
		42	Total	0	14				

Places										
27	Movement and Place	N/A	Minimum Expectation	Complies		Changing facilities There are showers, lockers and change rooms in the building Architect	Low Risk			
						Safe and inclusive access Upon accessing, pedestrians and cyclists must be protected from the elements and other vehicles. Access must be safe, with consideration given to avoiding steep gradients, surface grip levels and visibility around tight corners. Access to the facilities must be well lit between entryway to bike parking, all amenities and lift lobbies and main access points to the building. All regular building occupants must have easy access to lockers, showers, and building entry. Occupants must be able to find the facilities thanks to clear signage throughout the building and access points. Architect				
		3	Credit Achievement				Cyclist Facilities The building's access must prioritise walking and cycling options. This means the building's access must be well lit, weather protected, and separated from vehicles. The building must also include access to cyclist facilities that are separated from the primary vehicle entrance to ensure safety. Cyclist facilities must have signposted access to the changing rooms amenities as per the Minimum Expectation. The cyclist facilities must ensure the cycling equipment is safely secured. The amount of cyclist facilities is to be informed by the Sustainable Transport Plan. In a residential building, the access points must connect to the relevant cycling storage facilities. If these are at a unit level, the project team must show how the access won't be blocked by strata at a later date. Architect Traffic Engineer	Low Risk		Regular occupants and visitor numbers to be provided from Traffic Consultant Green travel plan - traffic consultant
							Sustainable Transport Plan The project team must prepare and implement a Sustainable Transport Plan. The requirements or recommendations made in the Sustainable Transport Plan must then be reflected in the design of the building's facilities and ongoing operational processes. The transport plan must be prepared by a suitably qualified Transport Planner. Suitably Qualified Transport Planner The suitably qualified transport planner shall hold a relevant tertiary qualification (including, but not limited to, Architect, engineering, sustainability and planning) and comply with at least one of the following: • Minimum five years' experience in transport planning; • Has co-authored at least five building Sustainable Transport Plan / Green Travel Plans or similar; or • Chartered member of a relevant industry body. Traffic Engineer			Total Car Parking Requirement to be provided by the Traffic Consultant
							The building must include the following: - Car sharing spaces must include an electric vehicles connection (at 5% of parking), regardless of whether they are electric at the time of practical completion. - Infrastructure to allow for future of electric charging to 25% of the parking spots in the parking area. - The building must be fitted with an EV load management system. ADP Services			
							Reducing private vehicle use Using the inputs from the Sustainable Transport Plan to complete the GBCA's Movement and Place calculator, the building's design and location must be shown to reduce emissions from transport, encourage public transport use, and reduce vehicle kilometres travelled compared to a reference building. The changes must be at least as follows: -Emission reduction: 40% -Active mode encouragement: 90% -Vehicle Kilometres Travelled (VKT) reduction: 20% Traffic Engineer			
							Encouraging Walkability The building's design and location must encourage walking to and from a number of amenities. This means designing roads within the building boundary to prioritise pedestrians, and either providing within, or being located close to, a number of amenities. Roads If there are roads within the building boundary, the design must prioritise pedestrians over vehicles. Roads should be designed to be low speed (10km/hr). Pedestrians must have the right of way, and road design must encourage this. Amenity diversity Occupants should have access to a diversity of amenities across the below eight categories. There must be at least 10 amenities across five categories within 400m radius of the building, as determined by Google Maps or other mapping services. • Grocery: e.g. Convenience stores, supermarkets; • Health and wellbeing – e.g. dentist, doctor, psychologist; • Food and Beverage: e.g. cafes, restaurants, bars; • Retail: e.g. clothing, homeware, hardware, book, gift stores; • Bank Services: e.g. banks, credit unions; • Education and Childcare: e.g. Primary, secondary, tertiary or childcare facilities; • Recreation: e.g. movie theatres, fitness centres, swimming pools; • Public facilities: e.g. Libraries, local or state government service centres; and Traffic Engineer ADP Sustainability			
		0					Contribution to place pathway There are two pathways for demonstrating compliance with this credit: • Urban Context Report and public realm interface design; or • Independent design review Client/Owner			May require additional design consultants to complete an independent design review.
							Urban context analysis The building must provide an urban context report that outlines the urban context of the development and the design responses. The report must include: • Urban context analysis: – Assessment and analysis of the local setting and wider urban context. This must include physical, social, cultural and economic factors; – Outline any planned changes to the local area (for example if located in a growth zone) and the project's design response to those. This may include Local or State Government's vision for the area; and – Identify any local challenges which the building can contribute to address. • Design responses: – Demonstration of the design responses to the urban context analysis; and Architect			Urban Context Report

29	Contribution to Place	2	Credit Achievement	2		<p>– Demonstration that the that the public space is not negatively impacted by the proposed design.</p> <p>Best Practice Examples include:</p> <ul style="list-style-type: none"> • Better Placed – Integrated Design Policy for the Built Environment of NSW; • Evaluating Good Design (NSW) provides 9 Criteria for 'Better Fit' (page 5); • Central Melbourne Design Guide provides quantified requirements for extent of active frontage and ground-level floor space; and • Urban Design Guidelines for Victoria include a Buildings chapter with guidance for interfaces 	Client/Owner	Low Risk	
						<p>Independent Design Review</p> <p>Design reviews are held at key points in the development of the design. At a minimum, these must occur as follows:</p> <ul style="list-style-type: none"> • Design Review during concept/schematic design stage, to ensure that proponents can take advantage of the advice offered at a time where the design is flexible enough to accommodate change without impacting on time and cost constraints; • A subsequent review when the design has been further progressed. This review session will typically occur during design development; and • At building permit stage (after development approval) a further check must take place by the Design Review Panel Chair or delegate, to ensure that the final design reflects approved development application and any relevant conditions related to design quality. <p>The Design review panel must be independent of the project. This can occur through an external Design review panel, such as the Government SJB Architecture Office, or in-house Design review panel, as long as it can be demonstrated that they act independent of the project team.</p> <p>The design review must use comprehensive terms of reference during the project's design and design development phase. To be classed as independent a panel member cannot be employed by the scheme promoter (an entity or a subsidiary of an entity) or decision maker that has been involved in the project in any meaningful way. Being a contributing member of a design review panel is not considered to be 'employment' for the purposes of this credit. All conflicts of interest that may arise from any panel member's involvement in the project must be disclosed.</p>	Client/Owner		
30	Culture, Heritage and Identity	1	Credit Achievement			<p>Culture, Heritage and Identity - pathway</p> <p>There are two pathways to achieving this credit:</p> <ul style="list-style-type: none"> • Community led design responses; or • Independent design review. 	Client/Owner	Low Risk	
						<p>Community led design response</p> <p>The project team must show that they have undertaken local analysis to identify culture, heritage and identity unique to the project site and area. The project team must undertake community engagement as part of this local analysis. As a result of community engagement, the project must reflect local identity, culture and heritage in the design of the building in a publicly demonstrable way. This can be achieved through:</p> <ul style="list-style-type: none"> • Community art or placemaking projects; • Selection of suppliers/designers of artwork or cultural elements; • Building elements that tell stories of the past and heritage; and • Spaces and uses that reflect the local identities. <p>Where this pathway is being pursued, it must be demonstrated that the International Association for Public Participation Australasia (IAP2) core values for public participation were used and that the project achieved the 'Collaborate' status. The project must produce a report detailing the community engagement activities undertaken and resultant design responses.</p>	Community Engagement Consultant		
						<p>Independent Design Review</p> <p>Design reviews are held at key points in the development of the design. At a minimum, these must occur as follows:</p> <ul style="list-style-type: none"> • Design Review during concept/schematic design stage, to ensure that proponents can take advantage of the advice offered at a time where the design is flexible enough to accommodate change without impacting on time and cost constraints; • A subsequent review when the design has been further progressed. This review session will typically occur during design development; and • At building permit stage (after development approval) a further check must take place by the Design Review Panel Chair or delegate, to ensure that the final design reflects approved development application and any relevant conditions related to design quality. <p>The Design review panel must be independent of the project. This can occur through an external Design review panel, such as the Government Hassell Office, or in-house Design review panel, as long as it can be demonstrated that they act independent of the project team.</p> <p>The design review must use comprehensive terms of reference during the project's design and design development phase. To be classed as independent a panel member cannot be employed by the scheme promoter (an entity or a subsidiary of an entity) or decision maker that has been involved in the project in any meaningful way. Being a contributing member of a design review panel is not considered to be 'employment' for the purposes of this credit. All conflicts of interest that may arise from any panel member's involvement in the project must be disclosed.</p> <p>Composition of the Design Review Panel</p> <p>As a minimum the Design Review Panel' must be comprised of one panel chair and two panel members. Members of the panel must:</p> <ul style="list-style-type: none"> • Possess project-relevant skills and experience; • Be recognised experts in their discipline, with a minimum of 10 years' experience; • Be registered by a relevant professional peak body and be bound by that institutes' code of ethics in relation to objectivity, integrity and 	Client/Owner		Independent Design Review
		8	Total	2	0				

People									
31	Inclusive Construction Practices	N/A	Minimum Expectation	Complies		On-site Facilities, Policies, and Training The Head Contractor must ensure the following is provided or available on-site: <ul style="list-style-type: none"> • Separate gender inclusive bathroom facilities and changing amenities with a high degree of privacy • Diverse gender-specific fit-for-purpose personal protective equipment (PPE) for diverse body sizes and types The Head Contractor must: <ul style="list-style-type: none"> • Implement policies to address issues of discrimination, racism, and bullying on-site • Introduce on-site redress procedures for any relevant breaches and corrective measures to be put in place should any incident be identified • Empower a diverse lead team to manage these policies on-site • Provide training to all Head Contractor s and subHead Contractor s on these policies (as per below) <ul style="list-style-type: none"> – Training must be provided to 95% of all Head Contractor s and subHead Contractor s present on site for at least three days for: <ul style="list-style-type: none"> – Information on drug and alcohol awareness and mental health – Information on policies implemented on discrimination, racism, bullying on site, and safe ways to report poor behaviour 	Head Contractor	Low Risk	
		1	Credit Achievement	1		Needs analysis The responsible party should carry out a needs analysis of potential site workers and sub-contractors at tender (or similar early stage) to determine appropriate actions. The policies and programs should be relevant to all construction workers on site for the full duration of construction.	Head Contractor	Medium Risk	
						Physical and mental health impacts The Head Contractor must show that they have introduced programs and solutions to address at least five of the following: <ul style="list-style-type: none"> • Suicide prevention; • Healthy eating and active living; • Reduce harmful alcohol and tobacco consumption and avoid drug use; • Increased social cohesion, community and cultural participation; • Understanding depression; • Preventing violence and injury; • Decreased psychological stress; and • Finding fulfilment at work or mindful meditation. A mix of programs is acceptable. The programs must cover at least 80% of the workforce that have attended the site for more than three days from commencement on site to practical completion. The programs or solutions can be implemented directly by the Head Contractor or through partnerships with mental and physical health organisations	Head Contractor		
				Evaluating the program's effectiveness The project must provide an evaluation report to the client and sub-contractors with the following information: <ul style="list-style-type: none"> • Information on the programs or initiatives that were delivered, including information on dates, attendance, and available languages; and • A review on whether the programs delivered the intended outcomes including recommendations for improving future delivery of these programs. 	Head Contractor				
32	Indigenous Inclusion	2	Credit Achievement			Indigenous Inclusion - pathway There are two pathways to meeting this credit: <ul style="list-style-type: none"> • The building's design and construction played a central role in the delivery of the targets in the project owner's organisational Reconciliation Action Plan (RAP); or • The building's design process followed Indigenous Design and Planning principles. Both require visible and inclusive participation of Aboriginal and Torres Strait Islander throughout the project's life cycle.	Client/Owner	Medium Risk	
						Reconciliation Action Plan To meet this Credit Achievement, the project team must demonstrate that: <ul style="list-style-type: none"> • A key member of the Project Team is part of the organisational RAP Working Group; • At least 90% of the RAP targets have been met on the project; and • All implemented actions related to the RAP are publicly reported on the Project's website. Any design element must be informed by consultation undertaken with the local Aboriginal and Torres Strait Islander community or through nominated representatives. Where an organisational RAP has already been developed and endorsed, the project is required to adapt this to the project under certification. The project must detail specific engagement, implementation and actions that have positively influenced the outcomes of the project.	Client/Owner		
						Inclusion of Indigenous design The project team must demonstrate that the Australian Indigenous Design Charter guiding principles are incorporated in the design of the building including: <ul style="list-style-type: none"> • How local Aboriginal and Torres Strait Islander communities have been engaged throughout the design development; • How the project has been designed to acknowledge and recognise the Indigenous culture of the site; • How information on the reconciliation and cultural values of the project will be made available to the public, visitors and building tenants in the operational phase of the project's life. At a minimum, the following four principles from the Australian Indigenous Design Charter are to be addressed: <ul style="list-style-type: none"> • Indigenous Led: Ensure Aboriginal and Torres Strait Islander representation in the creation of the design; • Community Specific: Ensure respect for the diversity of Aboriginal and Torres Strait Islander culture by following community specific cultural protocols; • Impact of Design: Always consider the reception and implications of all designs so that they are respectful to Indigenous culture; and • Shared Knowledge (collaboration, co-creation, procurement): Develop and implement respectful methods for all levels of engagement and sharing of Indigenous knowledge (collaboration, co-creation, procurement). 	Architect		

33	Procurement & Workforce Inclusion	2	Credit Achievement			<p>Social Procurement Strategy - 2%</p> <p>Through the implementation of a social procurement strategy, at least 2% of the building's total contract value has been directed to generate employment opportunities for disadvantaged and under-represented groups. The project team must develop and implement a social procurement strategy or plan (this can be part of an overall project procurement plan/strategy). The project team must also include targets and annual reporting requirements in the strategy.</p> <p>Social procurement strategy</p> <p>The plan must include:</p> <ul style="list-style-type: none"> • A description of the project's social procurement and workforce objectives, needs, and targets; • A demographic study of the local region to inform identification of target workforce groups and their skills; • Descriptions of the roles and responsibilities in the implementation and monitoring of social procurement and workforce targets and contracts; • Data collection and reporting templates / tools, including how data from Tier 2 and Tier 3 contractors will be collected; • Monitoring and reporting requirements; and • Reporting requirements for the project director. <p>Projects must report the following at the time of practical completion:</p> <ul style="list-style-type: none"> • Dollar spent and as a proportion of building contract value; • Supplier(s) engaged; • Where workforce targets are in place, the number of jobs created per target group expressed as Full Time Equivalent; and • Jobs supported. <p>Employment opportunities strategies</p> <p>Generation of employment opportunities for disadvantaged and under-represented groups can be achieved:</p> <ul style="list-style-type: none"> • Directly, through workforce targets; or • Indirectly, through social procurement. <p>A combination of these strategies can be used to achieve the credit, as long as the total dollar spend on the above activities is equal to or greater than Criteria percentage of the building's total contract value.</p> <p>The building's design and construction can contribute to generating employment opportunities for disadvantaged and under-represented groups through the procurement of goods, services and construction by:</p> <ul style="list-style-type: none"> • Aboriginal and/or Torres Strait Islander businesses; • Social enterprises; and/ or • Disability enterprises. 	Head Contractor	Medium Risk	
		1	Exceptional Performance			<p>Social Procurement Strategy - 4%</p> <p>Through the implementation of a social procurement strategy, at least 4% of the building's total contract value has been directed to generate employment opportunities for disadvantaged and under-represented groups.</p>	Head Contractor	High Risk	
34	Design for Inclusion	2	Credit Achievement	2		<p>Inclusive Design</p> <p>To be compliant, the building's design and construction must be able to be navigated and enjoyed by stakeholders of diverse ages, genders, and abilities (for example physical, sight, sound, mind, spectrum). This applies to common spaces, bathroom facilities and amenities provided within the building. This must include:</p> <ul style="list-style-type: none"> • Equal access to the building: Provide equitable, appealing, safe, and secure access in a manner that does not segregate or stigmatise users through all principal entrance points and main thoroughfares inside and outside the building; • Diverse wayfinding: Introduce visual, physical, olfactory, and auditory solutions to help individuals navigate the site in a safe and enjoyable manner; and • Inclusive spaces: Introduce internal and external spaces for a diverse range of users, including parents, family restrooms, emergency rooms, quiet rooms and social interaction rooms. These rooms must be accessible to all users. 	Architect	Low Risk	Requires Wayfinding consultant and Access Consultant
		1	Exceptional Performance			<p>Engagement with target Groups</p> <p>The project team must consult with distinct community types to develop a needs analysis that will influence the project during the design phase. The consultation must be undertaken early in the design process and include a balanced cross-section of representation of the target group. The consultation process must generate a report that is then used to influence the design of the project.</p> <p>As a result of the needs analysis, the building must show how it aligns with best practice guidelines, such as the Design for Dignity Guidelines: Principals for Beyond Compliance Accessibility in Urban Regeneration. Building solutions that are expected to be included would be assistive technologies, emotional health spaces, acoustic treatments, adaptive strategies, gender, size, and physical appropriate facilities.</p>	Owner/ Client Architect	Medium Risk	
		9	Total	3	0				

Nature									
35	Impacts to Nature	N/A	Minimum Expectation	Complies		Project Site <ul style="list-style-type: none"> At the date of purchase or option contract, the building, infrastructure, or construction works do not clear: <ul style="list-style-type: none"> Old-growth forest, Prime agricultural land, Any wetland listed as being of 'High National Importance', Aspects considered 'Matters of National Significance' listed under the Environmental Protection and Biodiversity Conservation Act (1999) regardless of whether they have been referred to the Federal Environmental Minister for consideration and assessed as a 'controlled action' or not. If the project site is adjacent to the above, or within 100 meters, or the site contains the above and these are being protected, the construction and future operations of the site takes measures to reduce their impacts: <ul style="list-style-type: none"> Both the Waterways Protection Credit Achievement and the Credit Achievement for this credit is met, and The light pollution impacts are managed, and Where the site is next to a wetland (as above), by also putting in place Wetland Protection Measures. 	Client/Owner	Low Risk	
						Light Pollution to neighbouring bodies The project team must demonstrate that all outdoor lighting on the project complies with AS 4282:1997 Control of the obtrusive effects of outdoor lighting. The conditions apply to all boundaries, apart from boundaries with roads. The boundary shall be taken as the site boundary, with no setback and no consideration of the location of adjacent buildings (i.e. worst-case scenario). The following values from Table 2.1 of AS 4282:1997 must be applied: <ul style="list-style-type: none"> For Class 2 buildings (residential), the compliance is for columns 4 and 5 as per Table 2.1 of AS 4282:1997; or For Class 3 to 9 buildings (non-residential), the compliance is as per column 3 as per Table 2.1 of AS 4282:1997. The system must comply with both pre- and post-curfew requirements.	ADP Electrical		
						Light pollution to night sky It must be demonstrated that one of the following specified reductions in light pollution has been achieved by the project. <ul style="list-style-type: none"> Control of Upward Light Output Ratio (ULOR); or Control of Direct Illuminance. This covers all external lighting of a project. In addition to other types of external lighting, for the purposes of this credit, luminaires inside glazed atria and those on the uppermost (uncovered) deck of an outdoor car park are considered external. Control of Upward Light Output Ratio (ULOR) For this option, the project team must demonstrate that no external luminaire on the project has a ULOR that exceeds 5%, relative to its actual mounted orientation. Project teams must demonstrate that the ULOR provided or calculated in the documentation, is relevant to the as-installed orientation of the luminaire. Control of Direct Illuminance For this option, the project team must demonstrate that direct illuminance from external luminaires on the project produces a maximum initial point illuminance value no greater than: <ul style="list-style-type: none"> 0.5 Lux to the site boundary; and Lux to 4.5 metres beyond the site into the night sky, when modelled using a calculation plane set at the highest point of the building. Calculations shall be in accordance with AS 4282:1997. The calculation plane must cover the area between the site boundary and building façade or vertical service to be illuminated. The horizontal calculation plane shall be set at the top of the building fabric, excluding spires. Calculation plane grid points shall have a 0.5m spacing. All illumination	ADP Electrical		
						Wetland Management Plan The site-specific Wetland Management Plan must be prepared by a qualified Ecologist or other qualified professional and include requirements for ongoing quarterly monitoring, annual reporting, and management of the wetland ecosystem for a minimum of five years. The plan must be exhibited to the public on the applicant's website or the local council's offices or library for a minimum of 24 months.	Owner/Client		
		2	Credit Achievement			Protection of ecological values The project team must show how ecological values will be protected including: <ul style="list-style-type: none"> Documenting the current, future and past ecological values on the site by type and biomass. This includes terrestrial and aquatic ecological values, geologic features and soils (including interaction with living things). When determining biodiversity value, the project must reference local, regional, state and national priorities and strategies; The proportion of existing vegetated area being retained and the biodiversity value of this area; Identifying local and regional threats and mitigation requirements; Listing active management strategies to be employed to protect the integrity of ecological values throughout the project planning, construction and occupancy; Documenting the community engagement process, and outline risks and opportunities to enhance the site; and Detailing consultation outcomes with local stakeholders including Aboriginal or Torres Strait Islander groups and environmental groups. 	Landscape Architect	Medium Risk	
						Ecologist			
		2	Credit Achievement		2	Landscape Area At a minimum, external landscape in the building, whether horizontal or vertical must be provided at a ratio of either 15% of the site area or at a ratio of 1:500 of the GFA, whichever is larger. Vertical or horizontal landscapes are acceptable.	Landscape Architect	Medium Risk	
						Diversity of species Landscape must be shown to be diverse and include multiple species/genus/etc. Greater than 60% of plants must be indigenous and the site must include at least one significant (nesting) tree or equivalent habitat provision per 500m ² of landscaped area. No invasive species are allowed, as per the Australian Weeds Strategy 2017 to 2027. There are two pathways to demonstrate diversity in plant selection and climate resilience. Prescriptive pathway The landscaping must meet the following plant diversity targets: <ul style="list-style-type: none"> 10% plant species; 20% plant genus; and 30% plant family. Performance pathway An ecologist must assess and verify that the choice of landscaping and biodiversity is diverse and resilient to climate change impacts, thereby increasing the longevity of the landscape. An Ecologist must provide this narrative.	Landscape Architect (or suitably qualified professional)		

36	Biodiversity Enhancement					Biodiversity Management Plan A suitably qualified professional, such as a qualified ecologist or Landscape Architect, must prepare the Plan. The plan must outline key actions that need to be undertaken in order to maintain the ecological integrity of biodiversity on the site, whether this is existing or that created as part of the development. The following key requirements must be outlined in the biodiversity management plan: <ul style="list-style-type: none"> • The vision and objectives for the site's biodiversity values; • Roles and responsibilities in the implementation of the Plan; • A description of the biodiversity baseline on-site; • How success and implementation will be measured; • How impacts or threats to biodiversity on site post practical completion will be mitigated; and • Provision for update of the Biodiversity Management Plan where necessary; The Plan must be included as part of the project's handover.	Landscape Architect (or suitably qualified professional)		
		2	Exceptional Performance			Landscape Area As a minimum, external landscape in the building, whether horizontal or vertical must be provided at a ratio of either 30% of the site area or at a ratio of 1:300 of GFA, whichever is larger. Vertical or horizontal landscapes are acceptable.	Landscape Architect (or suitably qualified professional)	High Risk	
37	Nature Connectivity	2	Credit Achievement			Nature Connectivity The site must be built to encourage species connectivity through the site, and to adjacent sites. If the project sits within a blue or green grid strategy it must contribute to the goals of the strategy. The site may include any of the following strategies: <ul style="list-style-type: none"> • Landscaping: Where connectivity is being achieved through landscaping, this must be contiguous with existing, restored and new habitats. As a minimum requirement for habitat connectedness, the conservation area must make up at least 25% of the total external area within the building's site boundary. To be eligible, this must be at least 182m²; or • Infrastructure: Design features such as a canopy bridge, wildlife tunnels, green roofs, amphibian tunnels and green infrastructure are used to connect nature on site to adjacent natural areas, which are either existing, restored or new. For both pathways, the project is to provide a narrative on how the pathway would support the targeted wildlife species. In addition to the above, if the project sits within a blue or green grid strategy, the project team must demonstrate how its design and landscaping contribute to the goals of the strategy.	Ecologist	High Risk	
38	Nature Stewardship	2	Credit Achievement			Overview The building owner, as part of the project's development, undertakes activities that protects or restores biodiversity at scale beyond the development's boundary.	Client/Owner	High Risk	
						Area of restoration or protection The area of restoration must be equivalent to the total GFA of the development, or site area, whichever is greater.	Ecologist		
						Location of restoration or protection Land for restoration must be in Australia and restored to equivalent ecological value of the site before any development occurred. The location of the land designated for the offsite restoration must not be in the development boundary. A qualified Ecologist must confirm that the ecological value is equivalent. There are situations where land restoration may occur in a site where the building is located, but not within the development boundary (e.g. a university campus). Project teams are encouraged to contact GBCA to determine whether this site complies. Project teams must ensure that the land being claimed for restoration and protection activities is not being double counted for multiple buildings or other activities. The Certified Assessor reserves the right to query for additional information during assessment.	Ecologist		
						Activities to protect or restore Achieving the credit can be done by either: <ul style="list-style-type: none"> • The project owner protecting or restoring an area offsite themselves; or • The project owner supports an organisation that restores an area on their behalf. In all cases, for the activities above, the project team must show how the action is additional. That is, the action goes beyond any legislated requirements and how it is resulting in an outcome that wouldn't have happened otherwise. There may be other pathways that can be used by building owners to demonstrate that they are restoring or protecting an area outside their development boundary. Project teams are encouraged to contact GBCA to explore these opportunities.	Ecologist		
						Legislated requirements Where the project is required to purchase biodiversity offsets, invest in land restoration, restore land, or similar, as part of an EPBC action or development approval, or other legislated requirements, these actions cannot be used to demonstrate compliance with this credit.	Ecologist		
39	Waterway Protection	2	Credit Achievement	2		Runoff Volume The project must demonstrate a reduction in average annual stormwater discharge (ML/yr) of 40% across the whole site.	Civil Engineer	Medium Risk	Use of Proprietary Device. Check Council Status on devices
						Water Pollution All runoff discharged from site meets specified pollution reduction targets listed: Total Suspended Solids (TSS) 85% Gross Pollutants 90% Total Nitrogen (TN) ² 45% Total Phosphorus (TP) ² 65%	Civil Engineer		
						Environmental Management Minimise the risk of chemical pollutants and other toxicants entering the stormwater system, including by, but not limited to: <ul style="list-style-type: none"> • Chemical storage, loading, refuelling or work areas must install bunding, with any spills draining to trade waste or appropriate treatment devices. These areas must have an awning or roofing to separately divert rainfall into the stormwater system. • If a site has more than 200m² of uncovered areas where vehicles are likely to transit and/or park, then hydrocarbon treatment devices must be installed, specified to remove at least 98% of hydrocarbons, sized to treat a 1-in-3 month ARI (4EY) flow. 	Civil Engineer		
		Runoff Volume The development must demonstrate an annual average flow reduction (ML/yr) of 80% compared to pre-development levels.	Civil Engineer						

		2	Exceptional Performance			Water Pollution	All runoff discharged from site meets specified pollution reduction targets listed: Total Suspended Solids (TSS) 90% Gross Pollutants 95% Total Nitrogen (TN) ² 60% Total Phosphorus (TP) ² 70%	Civil Engineer	Medium Risk	
		14	Total	2	2					
Leadership										
40	Market Transformation	5	Credit Achievement			TBC	The project implements a building solution or process that is considered leading in their targeted sector, nationality or globally.	TBC	High Risk	
41	Leadership Challenges	1	Credit Achievement			Climate Positive Pathway	Target the following Credits under the Climate Positive Pathway (2023): 1. Upfront Carbon Emissions - Credit Achievement 2. Energy Use - Credit Achievement 3. Energy Source - Exceptional Performance 4. Other Carbon Emissions - Exceptional Performance	ADP Sustainability	Medium Risk	
		2				Circular Economy	Prerequisites It is a prerequisite of this Leadership Challenge that projects target and achieve the Responsible Procurement credit in Green Star Buildings, and model the proposed and reference buildings following the methodology of the Life Cycle Impacts credit, using the data collected from this Leadership Challenge. The project team demonstrates an increased circularity of 10% (weighted by cost). Circularity Assessment The project team must demonstrate the following process has been followed: • During concept or design development (prior to tender) conduct an assessment identifying opportunities for circularity within the project, reviewing the following layers of the building: – Structure – Envelope – Finishes – Systems – Furniture (for Green Star – Interiors, or integrated fitouts) • Based on the assessment, select between two and five material/s and product/s opportunities for circular initiatives that will be implemented throughout the project that meet both the following criteria: – One item must be worth at least 1% (or at least \$1M for projects over \$100M) of the total project cost, and all items combined must be at least 2% (or at least \$2M for projects over \$100M) of the total project cost (refer guidance) – The items selected are based on opportunity for improvement in one or more of the following areas: – Material Source (virgin or recovered) – Supply Chain distance – Complexity of product/material – Design for Disassembly and Reuse – Product Lifespan – Recovery Potential • Identify partnerships with suppliers, NGOs, or other organisations (in addition to any consultants or contractors) required to implement the circular interventions • Calculate the circular score for the current material/s with the support of the supply chain stakeholders using the CTI tool or similar • Calculate the circular score after the implementation of the circular initiatives	See Credit 5	Medium Risk	
		1	Exceptional Performance			Circular Economy	The project team demonstrates an increased circularity of 20% (weighted by cost).	See Credit 5	High Risk	
		4	Credit Achievement			Responsible Products	Projects may target this Leadership challenge for each of the four Responsible Products credits (Structure, Envelope, Systems, Finishes). One point is available per credit. 1. The project must target and achieve Exceptional Performance in the Selected Responsible Products credit(s) of Structure, Envelope, Systems and/or Finishes. 2. The project meets both the 'Best Practice Products' and the 'Good Practice Products' requirement in the Exceptional Performance in the Selected Responsible Products credit(s) of Structure, Envelope, Systems and/or Finishes.	See Credit 6-9	High Risk	



Appendix B

NatHERS Report



424 St Kilda Road

Preliminary NatHERS Report – Endorsement Referral
Comments Issue

Prepared for: Gurner

Project No: MEL3611
Date: 28 May 2025
Revision: 4





Project:	424 St Kilda Road
Location:	424-426 St Kilda Road Victoria, 3121
Prepared by:	ADP Consulting Pty Ltd Level 13, 55 Collins Street Melbourne VIC 3000
Project No:	MEL3611
Revision:	4
Date:	28 May 2025

Rev	Date	Comment	Author	Signature	Technical Review	Signature	Authorisation & QA	Signature
01	04/04/2024	Town planning	Anusha Krishnan	AK	Charles Pentney	CP	Joseph Princi	JP
02	17/03/2025	Endorsement	Max Anderson	MA	Joseph Princi	JP	Joseph Princi	JP
03	24/04/2025	50% DD Issue	Ahmed Hassan	AH	Charles Pentney	CP	Joseph Princi	JP
04	28/05/2025	Façade treatment	Ahmed Hassan	AH			Joseph Princi	JP



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Executive Summary

The project is a proposed mixed-use development at 424-426, St Kilda Road within the City of Port Philip. This report provides a sample set of unique apartments, and aims to illustrate the expectation that the design and fabric of the building is honed to achieve the following energy efficiency performance:

- > 7.5-star average across the whole development
- > No individual apartment less than 6.5-stars
- > A Whole of Home (WOH) energy rating ≥ 50 using a NatHERS software tool

Further, no unit is to exceed the maximum cooling load of 30 MJ/m²

To demonstrate the expected performance outcome, a significant sample of the building has been modelled to predict the average NatHERS rating of all the apartments. Typical low rise, medium rise and high-rise units, and a variety of bedroom quantities have been modelled to ensure no apartment will be rated below the minimum requirement.

The table below identifies the thermal performance requirements of the glazing to achieve the aforementioned NatHERS performance requirements:

Table 1 Glazing thermal performance specification

Window Type	U-value (W/m ² . K)	SHGC
All Windows	≤ 2.11	0.44 \pm 5%

The other elements of the building envelope have been detailed in Table 6.

Please note that the glazing chosen above needs to meet the VLT values specified in the ESD daylight report.

The preliminary sample set achieves the following results.

Table 2 NatHERS test exercise results

	Heating Load (MJ/m ² per annum)	Cooling Load (MJ/m ² per annum)	Star Rating
Minimum	2.3	5.8	6.8
Maximum	35.2	29.8	9.8
Average	14.0	19.6	8.5

1. Introduction

The multi-residential development consists of Class 2 apartments. The Victorian amendment of the National Construction Code (NCC) 2022 requires that buildings achieve the following performance for the building fabric when modelled in accordance with an approved House Energy Rating Software:

- > Class 2 buildings achieve:
 - The average energy rating of all Sole Occupancy Units is not less than 7.0 Stars
 - Each Sole Occupancy Unit has an energy rating of not less than 6.0 Stars
 - A Whole of Home (WOH) energy rating ≥ 50 using a NatHERS software tool

However, this project is targeting the following performance targets:

- > 7.5-star NatHERS rating average for all apartments.
- > 6.5-star NatHERS rating minimum for each individual apartment.
- > No unit to exceed a maximum cooling load of 30 MJ/ m²

Preliminary assessments have been undertaken to provide an indication of the building fabric performance parameters that will likely be required to meet the BCA requirement. The HERO software has been used to determine the results in this report. The following documentation has been used for information in this report:

1. SOM Architects, Endorsement Drawings, dated 13/03/2025

1.1 NCC 2022 Section J Requirements

All new building work, including work to alter an existing building, must comply with the NCC requirements

- All new roofs, walls, floors and glazing must comply with the NCC fabric provisions
- All sections of building must be sealed in accordance with Part J5 of the NCC.
- Wall and Roof that is directly in contact with metal must have a thermal break.

1.1.1 General Information

Table 3 summarises the general project information that forms the basis of this advice.

Table 3: Project Information Summary

Building Class	Class 2
NCC Climate Zone	6
Applicable NCC version	NCC 2022
Assessment pathway	NatHERS

1.2 Whole of Home

As required by NCC 2022 NatHERS to provide an additional assessment and rating for 'Whole of Home' energy use, accounting for the home's appliances, solar and batteries. This assessment gives a second performance rating out of 100. For Class 2 sole occupancy units, we require a Whole of Home performance rating of ≥ 50 . To achieve the targeted rating of 50, the following energy commitments must be implemented:

Table 3: Energy commitments for Class 2 development

Appliance or System	Technology	Performance level/rating
Heating and Cooling	Split System DX (TBC) or water cooled VRF system	Zones Energy Rating Level (ZERL) rating: 4.0 stars
Hot Water	Heat Pumps with COP of 3.0 or higher	N/A
Cooking	Electric Cooktop and Oven (TBC)	N/A
Lighting power density	5.0 W/m ²	N/A
PV solar panels	N/A	N/A
Communal Pool	Requirements to be confirmed	

****ADP notes that a whole of home assessment has not been completed yet and the requirements are subject to either this or a J1V5 assessment.***

2. Preliminary Rating Results

Tabulated below are the individual apartment ratings achieved from a sample set of apartments selected from the current design and typical assumptions. The sample set was chosen to reflect a typical selection of apartments from both the towers but with preference given to the apartments that are likely to achieve the lowest ratings based off orientation and layout. This selection will give a good indication of the minimum and average rating that will be achieved.

Table 4 NatHERS test exercise results

	Heating Load (MJ/m ² per annum)	Cooling Load (MJ/m ² per annum)	Star Rating
Minimum	2.3	5.8	6.8
Maximum	35.2	29.8	9.8
Average	14.0	19.6	8.5

Table 5 Individual Apartment Ratings

Apartment No	Heating Load	Cooling Load	Star Rating
L1.01	23.6	29.6	7.4
L1.07	13.8	19.9	8.5
L1.09	4.5	17.5	9.2
L1.10	20.2	21.2	8.1
L2.02	20	28.9	7.7
L2.09	4.5	26.6	8.7
L2.11	7.3	5.8	9.8
L2.17	16	7.3	9.1
L2.19	26.9	18.9	7.9
L5.01	14.5	13.2	8.8
L5.08	4.9	22.3	8.9
L5.12	2.3	12.4	9.7
L5.14	9.5	12.2	9.2
L5.16	15.4	13.6	8.8
L13.10	10.6	27.3	8.3
L13.13	35.2	29.8	6.8
L17.04	8.3	26.7	8.4
L17.05	52.5	28.3	7.1

3. Assumptions of Current Design

Tabulated below are the assumptions used in the rating of this development as per the current architectural drawings. Changes to any of the listed assumptions may alter the performance and invalidate the energy rating details in this report.

Table 6 Building Fabric Construction Assumptions

Building Element	Assumptions
Floor Construction (Between apartments)	Suspended concrete slab Uninsulated
Floor Construction (Between apartments and unconditioned spaces e.g. apartments above carpark and balconies.	Suspended slab R2.0 added insulation
Floor coverings	Tiles (bathrooms) Carpet (bedrooms) Timber (living, kitchen)
Ceiling construction (Exposed ceilings e.g. apartments below balconies)	Suspended concrete slab R2.0 added insulation
Ceiling construction (Exposed ceilings e.g. apartments below outdoor terraces)	Suspended concrete slab R2.3 added insulation
Roof construction	Suspended concrete slab R4.1 added insulation
Wall construction (external)	Light-weight façade column walls R2.5 added insulation – with consideration of thermal bridging as per AS/NZS 4859.2
Wall construction (Between apartments/risers/corridors/stairs/lifts)	Lightweight plasterboard R1.5 added insulation
Wall construction (Internal within apartments)	Lightweight
Entry doors	Sealed and weather-stripped

Building Element	Assumptions
Exhaust fans	Kitchen, Bathrooms and Laundry – 1 each Sealed and weather stripped
Recessed downlights	Uncovered and sealed

The following table details the modelling inputs of the glazing details:

Table 7 Glazing modelling assumptions

Window Type	U-value (W/m ² . K)	SHGC
All Windows	≤2.11	0.44±5%

Note:

- > *The above listed assumptions are subject to change as the design drawings get developed further (window schedules, door schedules, elevations, section drawings etc).*
- > *Total U-values and SHGC correspond to whole system values and must take into consideration thermal bridging in window systems.*
- > *NatHERS projects which are using the NCC 2022 must consider/apply thermal bridging through the envelope (any part of the assessment where a conditioned space is adjacent to an external or unconditioned area). This only applies to steel-frame structures, such as metal studs or frames. Thermal break tap will be considered to all walls, floors and ceiling/roof which is adjacent to an external or unconditioned space.*

3.1 Privacy Screening and Façade Treatments – South Elevation (Levels 8–18)

In response to design development and council feedback, privacy screening measures and façade treatments have been introduced to the external face of the **south elevation from Levels 8 to 18**. These modifications are reflected in architectural plans prepared by SOM Architects (SK32_A108, SK32_A109, SK32_A111, SK32_A114, SK32_A116, SK32_A117, SK32_A118; all dated 12 November 2024), and consist of three primary treatments:

- > **Treatment A:** Treated spandrel glass with **100% visual blackout**, applied full height.
- > **Treatment B:** Treated fluted translucent glass, **75% obscured**, full height to habitable areas and 1100 mm high to balcony balustrades.
- > **Treatment C:** Encapsulated directional privacy louvre integrated within double-glazed units, with full-height application and spandrel finish.

These treatments are intended to enhance visual privacy while maintaining compliance with energy performance targets set under NCC 2022 and NatHERS methodology.

Thermal Performance of Façade Treatments

To assess the thermal and solar implications of the revised façade treatments, representative glazing and construction systems were selected based on product market research and modelled accordingly in HERO software.

- > **Treatment A – Spandrel Glass Assembly with Insulation:**
This treatment was modelled with an assumed build-up as follows:
 - **External layer:** Standard spandrel glass, assumed 6 mm thickness
 - **Cavity insulation:** R2.5 bulk insulation
 - Air gap: 90 mm
 - **Backing:** Aluminium panel backing
Thermal bridging was considered in accordance with NatHERS/NCC requirements. This system was modelled as an insulated opaque wall component rather than glazing, with thermal performance inputs adjusted to reflect the R2.5 insulation.
- > **Treatment B – 75% Obscured Fluted Glass:**
Represented using a fluted high-performance glazing product (e.g. ComfortPlus™ or equivalent), with the following assumed composite system properties:
 - **U-value:** 4.00 W/m²·K
 - **SHGC:** 0.46
- > **Treatment C – Directional Privacy Louvre Glazing:**
Represented using a directional light-control glazing product (e.g. Okasolar or equivalent), with the following assumed system properties:
 - **U-value:** 2.16 W/m²·K
 - **SHGC:** 0.31

Assumptions applied for both glazing treatments B and C included:

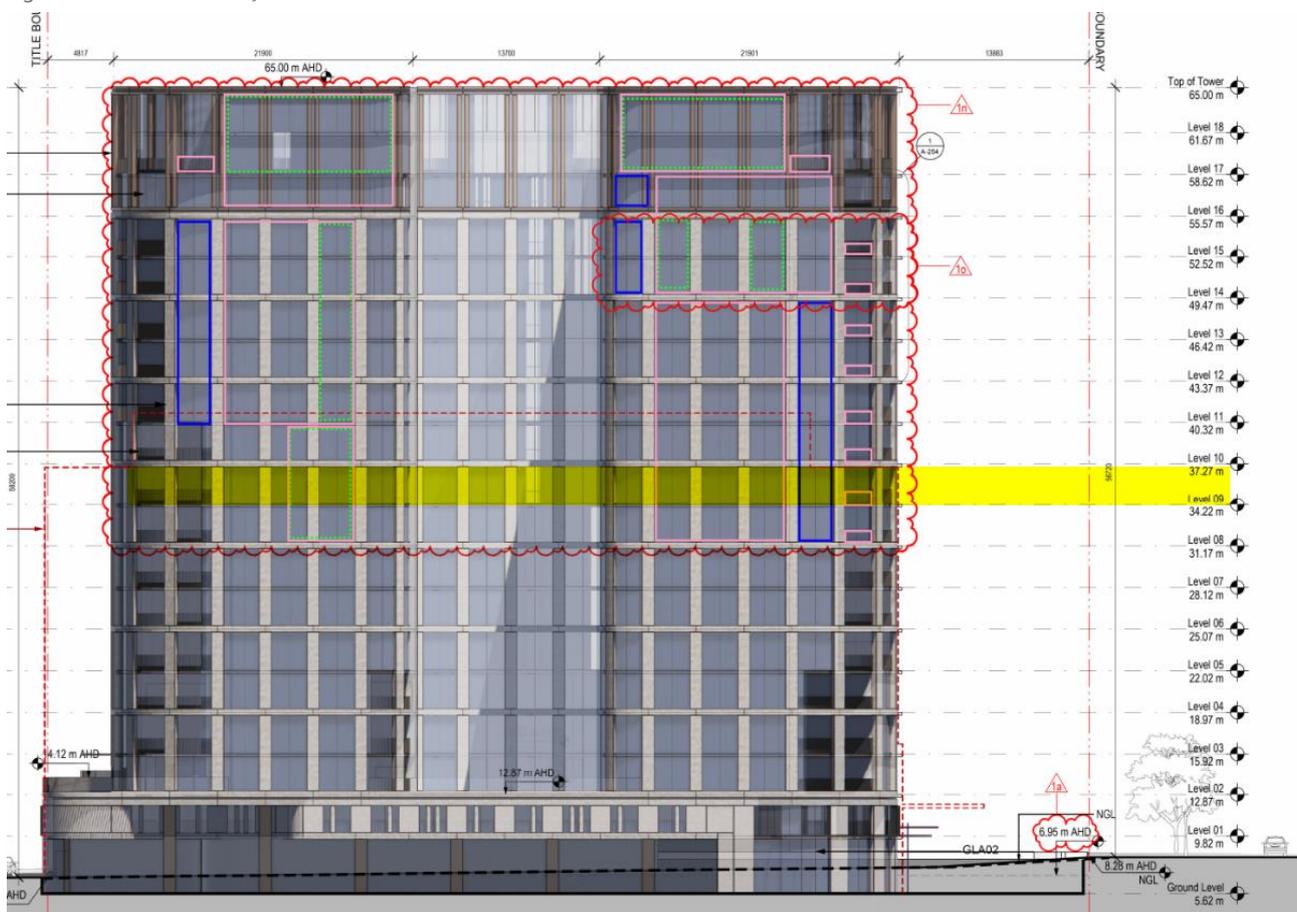
- > Frame: Aluminium (unbroken), U = 5.6 W/m²·K, SHGC = 0.05
- > Frame fraction: 20%
- > Glass fraction: 80%

These values represent a reasonable approximation for early-stage energy modelling and are subject to confirmation based on final product selections.

Level 9 Targeted Modelling Approach

Level 9’s southern façade facing apartments were selected as the test case for this analysis, as it incorporates all three of the proposed façade treatments. HERO modelling was undertaken with updated inputs reflecting the thermal and solar performance of the three treatments described above. This approach allows for an integrated understanding of the impact of these privacy measures on the NatHERS energy rating outcomes, and the results are presented in the following section.

Figure 1 Level 9 façade treatments



To assess the overall impact of the revised privacy screening and façade treatments, HERO modelling was undertaken for **apartments 9.03 and 463**—both located on Level 9 and representative of conditions where all three treatments are applied. The results of this targeted assessment are summarised in the table below:

Performance Metric	Result	Compliance Target
Average Star Rating	8.4 stars	≥ 7.0 stars (average)
Total Thermal Load	35.3 MJ/m ² /yr	≤ 62 MJ/m ² /yr (maximum)
Heating Load	17.2 MJ/m ² /yr	≤ 47 MJ/m ² /yr (maximum)
Cooling Load	18.1 MJ/m ² /yr	≤ 39 MJ/m ² /yr (maximum)

These results demonstrate that the development continues to comply with the NatHERS performance criteria despite the introduction of the revised privacy façade treatments. However, it is critical that the final thermal performance characteristics of the glazing assemblies and detailed spandrel design specifications are validated during later stages of the design process. The project team will continue to monitor compliance to ensure the thermal performance targets are upheld as product selections and documentation are finalised.

4. Discussion and Recommendations

From the results shown in Table 3 and 4 the glazing as specified below will achieve the BCA and council requirements for the minimum and average star ratings. The glazing selected for the apartment matches the glazing from the previous scheme and will therefore meet the daylight requirements. However, due to the extent of glazing on Level 11, the results indicate an increased heating demand. Therefore, an improved glazing specification has been nominated to meet these requirements.

Window Type	U-value (W/m ² . K)	SHGC
Treatment B – 75% Obscured Fluted Glass (or equivalent)	≤2.16	0.31±5%
Treatment C – Directional Louvre Glazing (or equivalent)	≤4.00	0.46±5%
All other Windows	≤2.11	0.44±5%

Note: The values listed above are whole window system values (as per WERS), not glazing only.

Glazing performance is a critical factor in building thermal efficiency, significantly impacting both heating and cooling loads. The currently selected glazing specification demonstrates a very high-performance outcome. However, it is important to acknowledge that with different glazing system characteristics (openability, framing, project factors etc) that the system values specified above may be challenging to achieve. As such, moving into the tender process, the project team is committed to ensuring the project continues to deliver on the established NatHERS and cooling load targets. We recognize that achieving these targets may require iterative design adjustments to account for any reduction in glazing performance.

4.1 U-Value and Solar Heat Gain Coefficient (SHGC) explained

When selecting windows and doors for a building project, one will often be required to comply with certain performance values for energy efficiency, such as U-Value, and Solar Heat Gain Co-efficient. In order to comply, the window system must perform to the set parameters, or design coordination has been undertaken to accommodate a change in glazing performance. It's important to note, that these values are "whole window values", i.e. inclusive of framing, not glass alone. These values are available for all aluminium window and door products as part of their WERS rating (<http://www.wers.net/wers-home>).

4.1.1 U-Value

The U-value is the measure of how much heat is transferred through the window. The lower the U-value the better the insulation properties of the window – the better it is at keeping the heat or cold out (& in).



4.1.2 SHGC

Solar Heat Gain Coefficient or SHGC is a measure of how much solar radiation passes through the window. In a cool climate, windows which have a high SHGC allow a greater amount of solar radiation to pass through, offering free solar heating for the home in winter. Glass selection has a considerable effect on the SHGC of a window or door. To comply with energy reports the SHGC must be within 10% of the set value.

Often, lower SHGC values will impact light transmission or visible transmittance (T_{vw}).

5. Final HERO Modelling and Certification

In order to complete the final HERO calculations (typically undertaken prior to construction) and issue star rating certificates for each dwelling, the following items are required prior to undertaking the assessments:

- > Complete set of construction issue architectural drawings.
- > Drawings showing wall, floor and roof build-ups including details (R-values) of insulation being provided.
- > Window schedules detailing type and dimensions of all windows.
- > Elevations and sections of building(s).
- > Details of actual glazing being installed. This will include the following:
 - Brand/manufacturer.
 - Glazing product/build up (i.e. 6mm thick glazing/12mm air gap/6mm thick glazing etc...).
 - Glazing overall U-value including frame. If multiple types of glazing are proposed, all values are required.
 - Glazing SHGC value(s).



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Appendix C

Preliminary Daylight Modelling Report



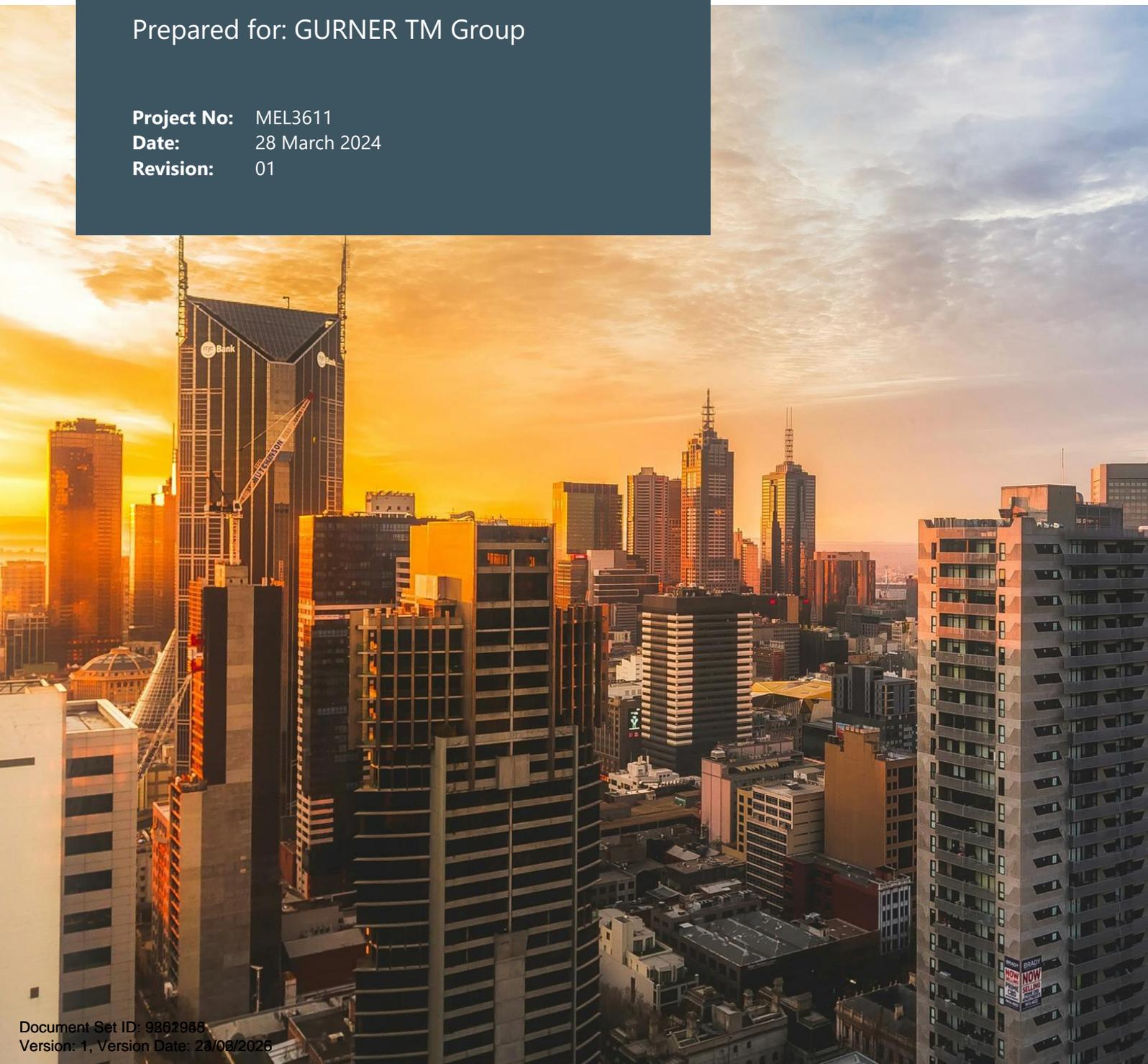
424 St Kilda Road

ESD - Residential Daylight Report

-

Prepared for: GURNER TM Group

Project No: MEL3611
Date: 28 March 2024
Revision: 01





Project: 424 St Kilda Road
Location: 424 St Kilda Road
 Melbourne, Victoria 3004
Prepared by: ADP Consulting Pty Ltd
 Level 13, 55 Collins Street
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Project No: MEL3611
Revision: 01
Date: 28 March 2024

Rev	Date	Comment	Author	Signature	Technical Review	Signature	Authorisation & QA	Signature
01	28/03/2024	For Council Review	Max Anderson	MAX			Joseph Princi	JP

Project Team

Client / Principal GURNER TM Group
Architect SOM



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Executive Summary

This daylight report provides the indicative daylight results for the residential components of the 424 St Kilda Road development. It aims to provide council with the necessary information around the assumptions that have been made about the building's fabric, and the resulting anticipated daylight performance of living spaces and bedrooms. A selection of 9 unique floor plates have been used to conduct this daylight assessment, totalling to 389 spaces being assessed.

Note that as part of the project's 4 Star Green Star Buildings Pathway, Daylight is not a point targeted by this project. However, this daylight report will still compare the results of the building to the requirements of the point, as Green Star Buildings as a whole reflects industry leading sustainable practice, and the most up to date benchmark for measuring daylight.

Key Assumptions



Currently, the building is expecting to use visible light transmittance (VLT) 50% glass on the façade that faces externally, and VLT 75% glass on the façade that faces internally into the light well of the building. A sample floor markup can be found below; façade areas in green use VLT 50% glass, façade areas in orange use VLT 75% glass. Note that the VLT of the glazing may be further adjusted through the design development and procurement process.

Figure 1 Area markup of visible light transmittance (VLT) 50% glass (Green) vs VLT 75% glass (Orange)

Results

Table 1 Executive Summary – Daylight Autonomy Results

Total Assessed Floor Area (m ²)	Total Compliant area (m ²)	Total Percentage Compliance (sda%)
5476.63	5166.72	94%

Table 2 Executive Summary – Daylight Autonomy Compliant Rooms

Total Compliant Rooms	Total Non Compliant Rooms	Total Room Percentage Compliance
372	17	95.6%

Overall the residential components of the building achieve a total daylight autonomy compliance of 94%. This means that for 80% of daylight hours, 94% of commonly occupied residential area achieve high levels of daylight.

As this project is using the standards of Green Star Buildings as its benchmark, it is important to note that typically there would be a 20% minimum daylight area compliance in any assessed room/space. While this project acknowledges that some rooms do not meet this minimum, it is noted that a vast majority of the development achieves high levels of daylight otherwise (as seen in tables 1 and 2 above).

1. Introduction

1.1 Introduction

This daylight report provides the indicative daylight results for the residential components of the 424 St Kilda Road development. It aims to provide council with the necessary information around the assumptions that have been made about the building's fabric, and the resulting anticipated daylight performance of living spaces and bedrooms. A selection of 9 unique floor plates have been used to conduct this daylight assessment, totalling to 389 spaces being assessed.

Note that as part of the project's 4 Star Green Star Buildings Pathway, Daylight is not a point targeted by this project. However, this daylight report will still compare the results of the building to the requirements of the point, as Green Star Buildings as a whole reflects industry leading sustainable practice, and the most up to date benchmark for measuring daylight.

1.2 Daylight assessment framework

As part of the daylight assessment, the following frameworks has been adopted when assessing living spaces:

1.2.1 Daylight Autonomy

Daylight autonomy (DA) is a more recently adopted method of daylight quality review, which is considered a more accurate approach to determining the 'real' daylight experience by the occupants within the space. This methodology is now the preferred solution by the Green Building Council of Australia (GBCA).

Daylight autonomy (DA) is a percentage of annual daytime hours that any given point in a space is above the nominated lux level (i.e. 160lux).

The daylight autonomy results are a better representation of external conditions across the year and better consideration of dwelling orientation and expected built outcomes.

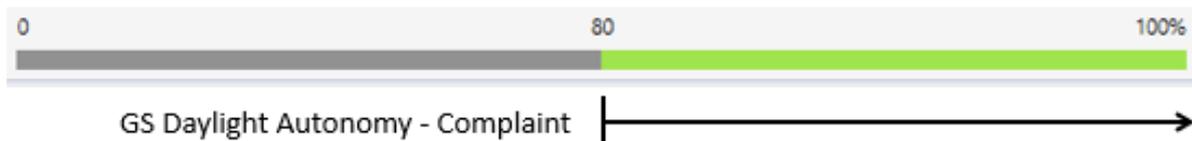
1.2.2 Green Star Daylight Autonomy (GS DA)

For residential buildings (Class 2 & 3), at least 60% of the combined living and bedroom areas across the building must comply with the daylight requirements. Kitchens are not included in the calculations. The daylight levels must also be present in at least 20% of the area of each bedroom and living area. Daylight must be calculated using Daylight Autonomy.

1.3 Residential Daylight Modelling

1.3.1 Reading Daylight Results

Daylight Autonomy



In Green Star Daylight Autonomy, area that are green meet or exceed the requirement for 160 lux for 80% of nominated daylight hours.

1.3.2 Residential Modelling Assumptions

1.3.2.1 Project Model VLT and Design Development

Currently, the building is expecting to use visible light transmittance (VLT) 50% glass on the façade that faces externally, and VLT 75% glass on the façade that faces internally into the light well of the building. The expected VLT has been informed by the preliminary NatHERS performance results. Please refer to the project’s NatHERS documentation for further information on glazing performance. Note that the VLT of the glazing may be further adjusted through the design development and procurement process.. A sample floor markup can be found below:

Figure 2 Area markup of visible light transmittance (VLT) 50% glass (Green) vs VLT 75% glass (Orange)



Table 3 Key for Figure 1

Line Colour	Façade Glass Visible Light Transmittance (VLT%)
Green	50%
Orange	75%

The following table outlines the inputs and assumptions used in the daylight modelling analysis.

Note: The materials and subsequent reflectance's of products are per the current finishes schedule. Where alternate products are proposed during the design process, these should generally be in accordance with the reflectivity performance specifications nominated.

Table 4: Inputs and assumptions used in the daylight study

Description	Parameter	Comments
Architectural drawings	-	Dated 05/03/2024
Rhino Model	-	Edited and Finalised 26/03/2024
Glazing visible light transmissivity (VLT)	See above	Double glazing
Floor reflectance	60%	Light-coloured carpet and timber flooring
Wall reflectance	94%	Painted White Walls – Dulux Vivid White
Ceiling reflectance	94%	Painted White Walls – Dulux Vivid White
External Walls reflectance	50%	Assumed light coloured finish
Balcony Floors reflectance	30%	Assumes light-coloured tiles
Balcony Underside reflectance	80%	Assumes white paint
Analysis Surface	Floor, based on architectural furnishing intent	0.01m above floor
Adjacent structures / context geometry reflectance	Dependent on Geometry. 30% or typical practice	Per Rhino model received
Exclusions	-	Kitchen Areas and Dining Areas. Living Areas and Bedrooms only

1.3.3 Residential 3D Model

South East Perspective View



North West Perspective View



1.4 Residential Daylight Modelling Results

Table 5 Executive Summary – Daylight Autonomy Results

Total Assessed Floor Area (m ²)	Total Compliant area (m ²)	Total Percentage Compliance (sda%)
5476.63	5166.72	94%

Table 6 Executive Summary – Daylight Autonomy Compliant Rooms

Total Compliant Rooms	Total Non Compliant Rooms	Total Room Percentage Compliance
372	17	95.6%

Overall the residential components of the building achieve a total daylight autonomy compliance of 94%. This means that for 80% of daylight hours, 94% of commonly occupied residential area achieve high levels of daylight.

As this project is using the standards of Green Star Buildings as its benchmark, it is important to note that typically there would be a 20% minimum daylight area compliance in any assessed room/space. While this project acknowledges that some rooms do not meet this minimum, it is noted that a vast majority of the development achieves high levels of daylight otherwise (as seen in tables 5 and 6 above).

It is also important to note that a room that achieves low or zero Daylight Autonomy compliance does not mean that it receives no daylight at all. In order for an area to be compliant with daylight autonomy, it needs to both achieve a high level of daylight (160 lux), and receive that level of daylight for 80% of the nominated hours. Thus rooms that have low compliance may simply receive medium levels of daylight consistently, or high levels of daylight inconsistently.

In the case of this project, these low daylight compliant rooms are all within the lower floors of the internal, lightwell facing apartments. They are predominantly bedrooms, which may not be typically occupied during daylight hours. Please find them in table 7 below.

Table 7 Low Compliance Rooms in 424 St Kilda Road Sample set.

Room name	Assessed Area	Compliant Area	Compliance (sDA%)
L01.02 BR2	9.35	1.00	11%
L02.01 L	9.82	0.39	4%
L02.01 BR1	10.27	0.00	0%
L02.02 L	10.08	1.01	10%
L02.02 BR1	8.94	0.00	0%
L02.03 BR	10.05	0.00	0%
L02.16 BR3	12.02	1.37	11%
L02.17 BR3	9.45	1.13	12%
L02.17 BR2	9.45	1.51	16%

Room name	Assessed Area	Compliant Area	Compliance (sDA%)
L04.01 L	9.82	1.18	12%
L04.01 BR1	10.27	0.00	0%
L04.02 BR1	8.94	0.00	0%
L04.03 BR	10.05	0.00	0%
L08.01 BR1	10.27	0.00	0%
L08.02 BR1	8.94	0.00	0%
L10.01 BR1	10.27	0.59	6%
L12.01 BR2	10.19	1.70	17%

A.1 Full Daylight Results

Table 8 Appendix A – Full Daylight Compliance Results

Room	Assessment Area (m ²)	Compliant Area (m ²)	Percentage compliance (sDA %)
L01.01 BR1	9.65	9.65	100.0%
L01.01 BR2	8.52	8.52	100.0%
L01.01 L	17.52	17.52	100.0%
L01.02 BR1	9.00	9.00	100.0%
L01.02 BR2	9.35	1.00	10.7%
L01.02 L	10.89	8.35	76.7%
L01.03 BR1	11.40	2.49	21.9%
L01.03 BR2	9.28	9.28	100.0%
L01.03 L	11.14	11.14	100.0%
L01.04 BR1	10.04	10.04	100.0%
L01.04 BR2	8.22	8.22	100.0%
L01.04 L	15.18	14.89	98.1%
L01.05 BR1	8.17	8.17	100.0%
L01.05 BR2	9.89	9.89	100.0%
L01.05 L	15.29	15.29	100.0%
L01.06 BR1	10.47	10.47	100.0%
L01.06 BR2	9.57	9.57	100.0%
L01.06 L	13.62	13.62	100.0%
L01.07 BR1	12.90	12.90	100.0%
L01.07 BR2	11.07	11.07	100.0%
L01.07 L	14.79	14.79	100.0%
L01.08 BR1	9.59	9.59	100.0%
L01.08 L	11.24	11.24	100.0%
L01.09 BR1	12.70	12.70	100.0%
L01.09 BR2	9.45	9.45	100.0%
L01.09 L	12.80	12.80	100.0%
L01.10 BR1	8.93	8.93	100.0%
L01.10 BR2	9.37	9.37	100.0%
L01.10 L	15.01	15.01	100.0%

Room	Assessment Area (m ²)	Compliant Area (m ²)	Percentage compliance (sDA %)
L02.01 L	9.82	0.39	4.0%
L02.01 BR1	10.27	0.00	0.0%
L02.02 L	10.08	1.01	10.0%
L02.02 BR1	8.94	0.00	0.0%
L02.03 BR	10.05	0.00	0.0%
L02.03 L	10.10	3.70	36.7%
L02.04 L	9.43	9.43	100.0%
L02.04 BR	8.49	8.49	100.0%
L02.05 BR1	7.99	7.03	88.0%
L02.05 BR2	9.50	9.50	100.0%
L02.05 L	13.20	13.20	100.0%
L02.06 BR1	9.45	9.45	100.0%
L02.06 BR2	9.44	9.44	100.0%
L02.06 L	14.11	14.11	100.0%
L02.07 BR1	8.48	8.48	100.0%
L02.07 BR2	8.47	8.47	100.0%
L02.07 L	13.57	12.55	92.5%
L02.08 BR1	9.82	8.93	90.9%
L02.08 BR2	12.83	12.83	100.0%
L02.08 L	17.00	17.00	100.0%
L02.09 BR1	10.73	10.73	100.0%
L02.09 BR2	11.48	11.48	100.0%
L02.09 BR3	10.78	10.78	100.0%
L02.09 L	17.87	17.87	100.0%
L02.10 BR1	9.58	9.58	100.0%
L02.10 BR2	12.22	12.22	100.0%
L02.10 L	15.75	15.75	100.0%
L02.11 BR1	8.49	5.44	64.0%
L02.11 BR2	9.15	6.95	76.0%
L02.11 BR3	9.15	6.86	75.0%
L02.11 L	16.24	16.24	100.0%

Room	Assessment Area (m ²)	Compliant Area (m ²)	Percentage compliance (sDA %)
L02.12 BR1	7.71	7.71	100.0%
L02.12 BR2	10.55	4.65	44.1%
L02.12 BR3	9.64	5.65	58.6%
L02.12 L	14.52	14.52	100.0%
L02.13 BR1	10.07	10.07	100.0%
L02.13 BR2	8.41	8.41	100.0%
L02.13 L	12.69	12.69	100.0%
L02.14 BR1	10.39	10.39	100.0%
L02.14 BR2	9.42	9.42	100.0%
L02.14 BR3	9.62	9.62	100.0%
L02.14 L	12.97	12.97	100.0%
L02.15 BR1	9.07	9.07	100.0%
L02.15 BR2	10.42	10.42	100.0%
L02.15 L	13.70	13.70	100.0%
L02.16 BR1	7.54	7.54	100.0%
L02.16 BR2	9.75	2.27	23.3%
L02.16 BR3	12.02	1.37	11.4%
L02.16 L	14.77	14.77	100.0%
L02.17 BR3	9.45	1.13	12.0%
L02.17 BR1	8.40	8.40	100.0%
L02.17 BR2	9.45	1.51	16.0%
L02.17 L	14.29	14.29	100.0%
L02.18 BR1	8.84	8.84	100.0%
L02.18 BR2	12.91	12.91	100.0%
L02.18 L	11.37	11.37	100.0%
L02.19 BR1	8.73	8.73	100.0%
L02.19 BR2	8.44	7.43	88.0%
L02.19 L	10.23	10.23	100.0%
L04.01 L	9.82	1.18	12.0%
L04.01 BR1	10.27	0.00	0.0%
L04.02 L	10.08	2.35	23.3%

Room	Assessment Area (m ²)	Compliant Area (m ²)	Percentage compliance (sDA %)
L04.02 BR1	8.94	0.00	0.0%
L04.03 BR	10.05	0.00	0.0%
L04.03 L	10.10	6.06	60.0%
L04.04 L	9.43	9.43	100.0%
L04.04 BR	8.49	8.49	100.0%
L04.05 L	13.35	13.35	100.0%
L04.05 BR1	7.99	6.71	84.0%
L04.05 BR2	8.32	8.32	100.0%
L04.06 BR1	9.45	9.45	100.0%
L04.06 BR2	9.03	9.03	100.0%
L04.06 L	14.11	14.11	100.0%
L04.07 BR1	8.48	8.48	100.0%
L04.07 BR2	8.17	8.17	100.0%
L04.07 L	13.57	13.57	100.0%
L04.08 BR1	9.82	9.82	100.0%
L04.08 BR2	8.75	8.75	100.0%
L04.08 L	17.00	17.00	100.0%
L04.09 BR1	9.47	9.47	100.0%
L04.09 BR2	11.48	11.48	100.0%
L04.09 BR3	10.78	10.78	100.0%
L04.09 L	16.38	16.38	100.0%
L04.10 BR1	9.58	9.58	100.0%
L04.10 BR2	12.22	12.22	100.0%
L04.10 L	15.75	15.75	100.0%
L04.11 BR1	8.49	8.49	100.0%
L04.11 BR2	9.15	9.15	100.0%
L04.11 BR3	9.15	9.15	100.0%
L04.11 L	16.24	16.24	100.0%
L04.12 BR1	7.71	7.71	100.0%
L04.12 BR2	10.55	9.62	91.2%
L04.12 BR3	9.64	8.98	93.1%

Room	Assessment Area (m ²)	Compliant Area (m ²)	Percentage compliance (sDA %)
L04.12 L	14.52	14.52	100.0%
L04.13 BR1	10.07	10.07	100.0%
L04.13 BR2	8.41	8.41	100.0%
L04.13 L	12.69	12.69	100.0%
L04.14 BR1	10.68	10.68	100.0%
L04.14 BR2	11.90	11.90	100.0%
L04.14 BR3	8.84	8.84	100.0%
L04.14 L	17.14	17.14	100.0%
L04.15 BR1	9.07	9.07	100.0%
L04.15 BR2	10.42	10.42	100.0%
L04.15 L	13.70	13.70	100.0%
L04.16 BR1	7.54	7.54	100.0%
L04.16 BR2	9.75	2.92	30.0%
L04.16 BR3	12.02	3.44	28.6%
L04.16 L	14.77	14.77	100.0%
L04.17 BR2	9.45	1.89	20.0%
L04.17 BR1	8.40	8.40	100.0%
L04.17 BR1	9.45	2.27	24.0%
L04.17 L	14.29	14.29	100.0%
L04.18 BR1	8.84	8.84	100.0%
L04.18 BR2	12.91	12.91	100.0%
L04.18 L	11.37	11.37	100.0%
L04.19 BR1	8.73	8.73	100.0%
L04.19 BR2	8.44	8.44	100.0%
L04.19 L	10.23	10.23	100.0%
L08.01 L	9.82	4.71	48.0%
L08.01 BR1	10.27	0.00	0.0%
L08.02 L	9.56	6.37	66.7%
L08.02 BR1	8.94	0.00	0.0%
L08.02 BR2	8.93	6.78	76.0%
L08.03 L	12.93	12.93	100.0%

Room	Assessment Area (m ²)	Compliant Area (m ²)	Percentage compliance (sDA %)
L08.03 BR1	9.41	3.45	36.7%
L08.03 BR2	9.51	9.51	100.0%
L08.04 L	13.35	13.35	100.0%
L08.04 BR1	7.99	7.99	100.0%
L08.04 BR2	8.32	8.32	100.0%
L08.05 L	14.11	14.11	100.0%
L08.05 BR1	9.45	9.45	100.0%
L08.05 BR2	9.03	9.03	100.0%
L08.06 L	13.57	13.57	100.0%
L08.06 BR1	8.48	8.48	100.0%
L08.06 BR2	8.17	8.17	100.0%
L08.07 L	17.00	17.00	100.0%
L08.07 BR1	9.82	9.82	100.0%
L08.07 BR2	8.75	8.75	100.0%
L08.08 L	16.38	16.38	100.0%
L08.08 BR1	9.47	9.47	100.0%
L08.08 BR2	11.48	11.48	100.0%
L08.08 BR3	10.78	10.78	100.0%
L08.09 BR1	9.58	9.58	100.0%
L08.09 BR2	12.22	12.22	100.0%
L08.09 L	15.75	15.75	100.0%
L08.10 BR1	8.49	8.49	100.0%
L08.10 BR2	9.15	9.15	100.0%
L08.10 BR3	9.15	9.15	100.0%
L08.10 L	16.24	16.24	100.0%
L08.11 BR1	9.69	9.69	100.0%
L08.11 BR2	11.06	11.06	100.0%
L08.11 L	14.52	14.52	100.0%
L08.12 BR1	14.29	14.29	100.0%
L08.12 BR2	13.02	13.02	100.0%
L08.12 BR3	14.41	14.41	100.0%

Room	Assessment Area (m ²)	Compliant Area (m ²)	Percentage compliance (sDA %)
L08.12 L	18.82	18.82	100.0%
L08.13 BR1	11.16	11.16	100.0%
L08.13 BR2	13.70	13.70	100.0%
L08.13 BR3	10.22	10.22	100.0%
L08.13 L	16.18	16.18	100.0%
L08.14 BR1	9.58	9.58	100.0%
L08.14 BR2	9.75	6.50	66.7%
L08.14 BR3	12.02	5.84	48.6%
L08.14 L	23.84	23.84	100.0%
L08.15 BR1	9.45	5.29	56.0%
L08.15 BR2	9.45	5.67	60.0%
L08.15 BR3	12.04	12.04	100.0%
L08.15 L	20.04	20.04	100.0%
L08.16 BR1	14.08	14.08	100.0%
L08.16 BR2	10.12	9.14	90.3%
L08.16 BR3	11.70	11.70	100.0%
L08.16 L	28.81	28.81	100.0%
L10.01 L	9.82	8.64	88.0%
L10.01 BR1	10.27	0.59	5.7%
L10.02 L	9.56	9.56	100.0%
L10.02 BR1	8.94	1.85	20.7%
L10.02 BR2	8.93	8.93	100.0%
L10.03 L	12.93	12.93	100.0%
L10.03 BR1	9.41	8.78	93.3%
L10.03 BR2	9.51	9.51	100.0%
L10.04 L	13.35	13.35	100.0%
L10.04 BR1	7.99	7.99	100.0%
L10.04 BR2	8.32	8.32	100.0%
L10.05 L	14.11	14.11	100.0%
L10.05 BR1	9.45	9.45	100.0%
L10.05 BR2	9.03	9.03	100.0%

Room	Assessment Area (m ²)	Compliant Area (m ²)	Percentage compliance (sDA %)
L10.06 L	13.57	13.57	100.0%
L10.06 BR1	8.48	8.48	100.0%
L10.06 BR2	8.17	8.17	100.0%
L10.07 L	17.00	17.00	100.0%
L10.07 BR1	9.82	9.82	100.0%
L10.07 BR2	8.75	8.75	100.0%
L10.08 L	16.38	16.38	100.0%
L10.08 BR1	9.47	9.47	100.0%
L10.08 BR2	11.48	11.48	100.0%
L10.08 BR3	10.78	10.78	100.0%
L10.09 BR1	9.58	9.58	100.0%
L10.09 BR2	12.22	12.22	100.0%
L10.09 L	15.75	15.75	100.0%
L10.10 BR1	8.49	7.47	88.0%
L10.10 BR2	9.15	9.15	100.0%
L10.10 BR3	9.15	9.15	100.0%
L10.10 L	16.24	16.24	100.0%
L10.11 BR1		9.15	100.0%
L10.11 BR2	11.24	11.24	100.0%
L10.11 BR3	9.15	9.15	100.0%
L10.11 L2	9.15	9.15	100.0%
L10.11 L	22.09	22.09	100.0%
L10.12 BR1	12.64	12.64	100.0%
L10.12 BR2	13.70	13.70	100.0%
L10.12 BR3	10.22	10.22	100.0%
L10.12 L	70.88	70.88	100.0%
L10.13 BR1	9.58	9.58	100.0%
L10.13 BR2	9.75	8.77	90.0%
L10.13 BR3	12.02	8.59	71.4%
L10.13 L	23.84	23.84	100.0%
L10.14 BR1	9.45	7.94	84.0%

Room	Assessment Area (m ²)	Compliant Area (m ²)	Percentage compliance (sDA %)
L10.14 BR2	9.45	8.32	88.0%
L10.14 BR3	12.04	12.04	100.0%
L10.14 L	20.04	20.04	100.0%
L10.15 BR1	14.08	14.08	100.0%
L10.15 BR2	10.12	9.79	96.8%
L10.15 BR3	11.70	11.70	100.0%
L10.15 L	28.81	28.81	100.0%
L110.11 BR1	9.69	9.37	96.7%
L12.01 BR1	10.50	10.50	100.0%
L12.01 BR2	10.19	1.70	16.7%
L12.01 L	14.40	14.40	100.0%
L12.02 BR1	10.50	10.50	100.0%
L12.02 BR2	10.18	5.43	53.3%
L12.02 L	17.60	17.60	100.0%
L12.03 BR1	14.85	14.85	100.0%
L12.03 BR2	10.50	10.50	100.0%
L12.03 BR3	10.35	10.35	100.0%
L12.03 L	23.80	22.62	95.1%
L12.04 BR1	11.50	11.50	100.0%
L12.04 BR2	11.70	11.70	100.0%
L12.04 BR3	10.44	10.44	100.0%
L12.04 L	22.81	22.81	100.0%
L12.05 BR1	11.54	11.54	100.0%
L12.05 BR2	9.80	9.80	100.0%
L12.05 L	15.87	15.87	100.0%
L12.06 BR1	11.10	11.10	100.0%
L12.06 BR2	11.48	11.48	100.0%
L12.06 BR3	11.42	11.42	100.0%
L12.06 L	35.22	35.22	100.0%
L12.07 BR1	9.58	9.58	100.0%
L12.07 BR2	12.22	12.22	100.0%

Room	Assessment Area (m ²)	Compliant Area (m ²)	Percentage compliance (sDA %)
L12.07 L	15.75	15.75	100.0%
L12.08 BR1	8.49	8.49	100.0%
L12.08 BR2	9.15	9.15	100.0%
L12.08 BR3	9.15	9.15	100.0%
L12.08 L	16.24	16.24	100.0%
L12.09 BR1	9.69	9.69	100.0%
L12.09 BR2	11.24	11.24	100.0%
L12.09 BR3	9.15	9.15	100.0%
L12.09 L	22.09	22.09	100.0%
L12.10 BR1	12.64	12.64	100.0%
L12.10 BR2	13.70	13.70	100.0%
L12.10 BR3	10.22	10.22	100.0%
L12.10 L	70.88	70.88	100.0%
L12.11 BR1	9.58	9.58	100.0%
L12.11 BR2	9.75	9.75	100.0%
L12.11 BR3	12.02	12.02	100.0%
L12.11 L	23.84	23.84	100.0%
L12.12 BR1	9.45	9.45	100.0%
L12.12 BR2	9.45	9.45	100.0%
L12.12 BR3	12.04	12.04	100.0%
L12.12 L	20.04	20.04	100.0%
L12.13 BR1	14.08	14.08	100.0%
L12.13 BR2	10.12	9.79	96.8%
L12.13 BR3	11.70	11.70	100.0%
L12.13 L	28.81	28.81	100.0%
L14.01 BR1	10.50	10.50	100.0%
L14.01 BR2	10.19	10.19	100.0%
L14.01 L	14.40	14.40	100.0%
L14.02 BR1	10.50	10.50	100.0%
L14.02 BR2	10.18	10.18	100.0%
L14.02 L	17.60	17.60	100.0%

Room	Assessment Area (m ²)	Compliant Area (m ²)	Percentage compliance (sDA %)
L14.03 BR1	14.85	14.26	96.0%
L14.03 BR2	10.50	10.50	100.0%
L14.03 BR3	10.35	10.35	100.0%
L14.03 L	14.43	14.43	100.0%
L14.04 BR1	11.50	11.50	100.0%
L14.04 BR2	11.70	11.70	100.0%
L14.04 BR3	10.44	10.44	100.0%
L14.04 L	22.81	22.81	100.0%
L14.05 BR1	11.54	11.54	100.0%
L14.05 BR2	9.80	9.80	100.0%
L14.05 L	15.87	15.87	100.0%
L14.06 BR1	11.10	11.10	100.0%
L14.06 BR2	11.48	11.48	100.0%
L14.06 BR3	11.42	11.42	100.0%
L14.06 L	35.22	35.22	100.0%
L14.07 BR1	9.58	9.58	100.0%
L14.07 BR2	12.22	12.22	100.0%
L14.07 L	15.75	15.75	100.0%
L14.08 BR1	8.49	8.49	100.0%
L14.08 BR2	9.15	9.15	100.0%
L14.08 BR3	9.15	9.15	100.0%
L14.08 L	16.24	16.24	100.0%
L14.09 BR1	9.69	9.69	100.0%
L14.09 BR2	14.55	14.55	100.0%
L14.09 BR3	12.82	12.82	100.0%
L14.09 L	41.68	41.68	100.0%
L14.09 L2	16.21	16.21	100.0%
L14.10 BR1	12.44	12.44	100.0%
L14.10 BR2	9.58	9.58	100.0%
L14.10 BR3	10.97	10.97	100.0%
L14.10 L	20.28	19.60	96.7%

Room	Assessment Area (m ²)	Compliant Area (m ²)	Percentage compliance (sDA %)
L14.10 L	29.99	29.99	100.0%
L14.11 BR1	13.75	13.75	100.0%
L14.11 BR2	13.90	13.90	100.0%
L14.11 BR3	18.79	18.79	100.0%
L14.11 L	34.38	34.38	100.0%
L14.11 L2	18.62	18.62	100.0%
L14.11 L3	14.63	14.63	100.0%
L16.01 BR1	16.78	16.78	100.0%
L16.01 BR2	35.58	35.58	100.0%
L16.01 BR3	25.45	25.45	100.0%
L16.01 L1	44.05	44.05	100.0%
L16.01 L2	38.51	38.51	100.0%
L16.01 L3	20.71	20.71	100.0%
L16.01 L4	18.86	18.86	100.0%
L16.01 L5	9.11	9.11	100.0%
L16.02 BR1	15.64	15.64	100.0%
L16.02 BR2	14.65	14.65	100.0%
L16.02 BR3	8.74	8.74	100.0%
L16.02 L1	39.36	39.36	100.0%
L16.02 L2	22.90	22.90	100.0%
L16.02 L3	55.94	55.94	100.0%
L16.02 L4	27.43	27.43	100.0%
L16.03 BR1	8.57	8.57	100.0%
L16.03 BR2	14.99	14.99	100.0%
L16.03 BR3	14.86	14.86	100.0%
L16.03 L1	25.33	25.33	100.0%
L16.03 L2	59.20	59.20	100.0%
L16.03 L3	40.10	40.10	100.0%
L16.04 BR1	24.62	24.62	100.0%
L16.04 BR2	17.72	17.72	100.0%
L16.04 BR3	8.86	8.86	100.0%

Room	Assessment Area (m ²)	Compliant Area (m ²)	Percentage compliance (sDA %)
L16.04 L1	17.22	17.22	100.0%
L16.04 L2	59.36	59.36	100.0%
L16.04 L3	48.49	48.49	100.0%
L18 PH2 BR1	14.00	14.00	100.0%
L18 PH2 BR2	13.37	13.37	100.0%
L18 PH2 BR3	19.44	19.44	100.0%
L18 PH2 L	73.06	73.06	100.0%
L18 PH3 BR1	21.26	21.26	100.0%
L18 PH3 BR2	10.93	10.93	100.0%
L18 PH3 BR3	11.10	11.10	100.0%
L18 PH3 L	59.11	59.11	100.0%
L18 PH6 BR1	11.12	11.12	100.0%
L18 PH6 BR2	10.93	10.93	100.0%
L18 PH6 BR3	21.26	21.26	100.0%
L18 PH6 L	65.17	65.17	100.0%
L18 PH7 BR1	19.41	19.41	100.0%
L18 PH7 BR2	12.70	12.70	100.0%
L18 PH7 BR3	14.44	14.44	100.0%
L18 PH7 L	62.83	62.83	100.0%



A.2 Daylight Plot Markups

424 ST KILDA ROAD

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ARCHITECT
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SKIDMORE, OWINGS & MERRILL
(AUSTRALIA)
LEVEL 3, 351-357 ELIZABETH STREET
MELBOURNE, VIC 3000, AUSTRALIA

NOTES

KEY PLAN

LEGEND
 RETAIL
 COMMERCIAL
 1 BEDROOM APARTMENT
 2 BEDROOM APARTMENT
 3 BEDROOM APARTMENT
 PENTHOUSE APARTMENT
 STORAGE / STORAGE CAGE
 NOTE: ALL CAR SPACES SIZED TO ACCOMMODATE FUTURE INSTALLATION OF EV CHARGERS. EV CHARGERS TO BE EITHER WALL COLUMN OR GROUND MOUNTED WITH BOLLARD PROTECTION

SEAL & SIGNATURE



20250319
Residential apartment
layouts have not changed
since town planning.
Daylight performance is
expected to remain similar,
pending renewed modelling

ADP 20240327
-Residential Daylight-
-Daylight Autonomy Areas of Compliance-



1	05/03/24	Town Planning
#	DATE	ISSUE DESCRIPTION

General Arrangement Plan
Level 01

PROJECT NO. 523553
 DATE: 05/03/24
 SCALE: 1 : 200 @ A1
A-104

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NOTES

KEY PLAN

LEGEND

- RETAIL
- COMMERCIAL
- 1 BEDROOM APARTMENT
- 2 BEDROOM APARTMENT
- 3 BEDROOM APARTMENT
- PENTHOUSE APARTMENT
- STORAGE / STORAGE CAGE

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SEAL & SIGNATURE



KINGS WAY



QUEENS LANE



REFER TO LANDSCAPE ARCHITECT'S REPORT FOR LANDSCAPE DESIGN

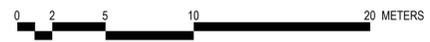
ST KILDA ROAD

5 QUEENS ROAD
11 STOREY OFFICE

BAYVIEW EDEN
8 STOREY HOTEL

LUCIENT
430 ST KILDA ROAD
19 STOREY RESIDENTIAL

ADP 20240327
**-Residential Daylight-
-Daylight Autonomy Areas of Compliance-**



20250319
Residential apartment layouts have not changed since town planning. Daylight performance is expected to remain similar, pending renewed modelling

#	DATE	ISSUE DESCRIPTION
1	05/03/24	Town Planning

General Arrangement Plan
Level 02

PROJECT NO. 523553
DATE: 05/03/24
SCALE: 1:200 @A1

A-105

424 ST KILDA ROAD

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(AUSTRALIA)
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MELBOURNE, VIC 3000, AUSTRALIA

NOTES

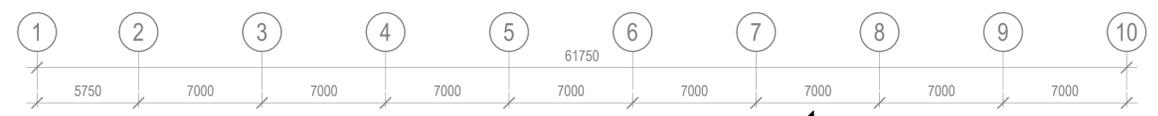
KEY PLAN

LEGEND

- RETAIL
- COMMERCIAL
- 1 BEDROOM APARTMENT
- 2 BEDROOM APARTMENT
- 3 BEDROOM APARTMENT
- PENTHOUSE APARTMENT
- STORAGE/ STORAGE CAGE

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SEAL & SIGNATURE



KINGS WAY

B
A-251



QUEENS LANE

ST KILDA ROAD

A
A-250

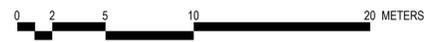
20250319
 Residential apartment
 layouts have not changed
 since town planning.
 Daylight performance is
 expected to remain similar,
 pending renewed modelling

5 QUEENS ROAD
11 STOREY
OFFICE

BAYVIEW EDEN
8 STOREY
HOTEL

LUCIENT
430 ST KILDA ROAD
19 STOREY
RESIDENTIAL

ADP 20240327
**-Residential Daylight-
 -Daylight Autonomy Areas of Compliance-**



#	DATE	ISSUE DESCRIPTION
1	05/03/24	Town Planning

General Arrangement Plan
Level 03-04

PROJECT NO. 523553
 DATE: 05/03/24
 SCALE: 1:200 @A1

A-106

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NOTES

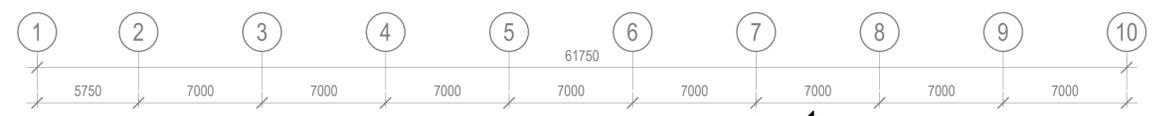
KEY PLAN

LEGEND

- RETAIL
- COMMERCIAL
- 1 BEDROOM APARTMENT
- 2 BEDROOM APARTMENT
- 3 BEDROOM APARTMENT
- PENTHOUSE APARTMENT
- STORAGE / STORAGE CAGE

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SEAL & SIGNATURE



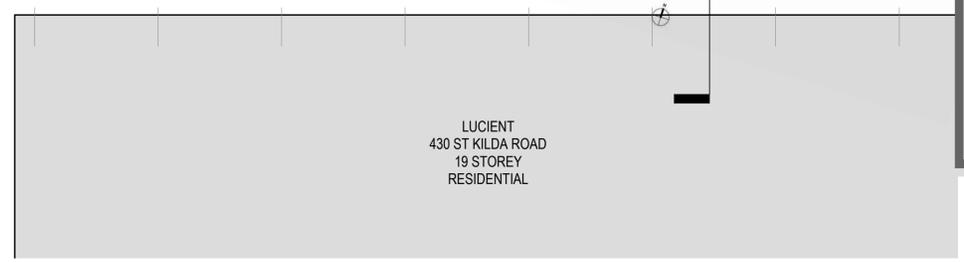
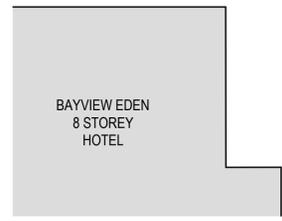
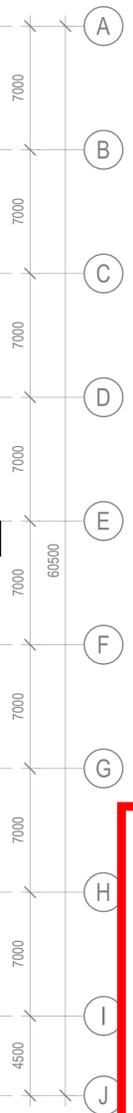
KINGS WAY

A-251



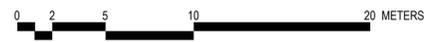
QUEENS LANE

ST KILDA ROAD



20250319
 Residential apartment layouts have not changed since town planning. Daylight performance is expected to remain similar, pending renewed modelling

ADP 20240327
**-Residential Daylight-
 -Daylight Autonomy Areas of Compliance-**



#	DATE	ISSUE DESCRIPTION
1	05/03/24	Town Planning

General Arrangement Plan
Level 05-08

PROJECT NO.	SHEET NO.
523553	A-107
DATE:	
05/03/24	
SCALE:	
1 : 200 @A1	

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NOTES

KEY PLAN

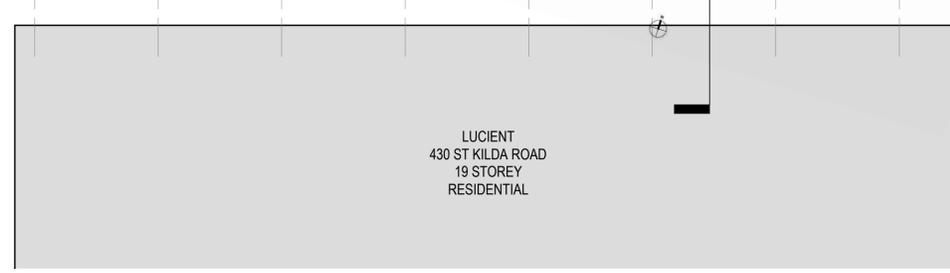
- LEGEND
- RETAIL
 - COMMERCIAL
 - 1 BEDROOM APARTMENT
 - 2 BEDROOM APARTMENT
 - 3 BEDROOM APARTMENT
 - PENTHOUSE APARTMENT
 - STORAGE / STORAGE CAGE

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SEAL & SIGNATURE



20250319
Residential apartment layouts have not changed since town planning. Daylight performance is expected to remain similar, pending renewed modelling



ADP 20240327
**-Residential Daylight-
-Daylight Autonomy Areas of Compliance-**



#	DATE	ISSUE DESCRIPTION
1	05/03/24	Town Planning

General Arrangement Plan
Level 09-10

PROJECT NO. 523553
DATE: 05/03/24
SCALE: 1:200 @A1
SHEET NO. **A-109**

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LEVEL 3, 351-357 ELIZABETH STREET
MELBOURNE, VIC 3000, AUSTRALIA

NOTES

KEY PLAN

LEGEND

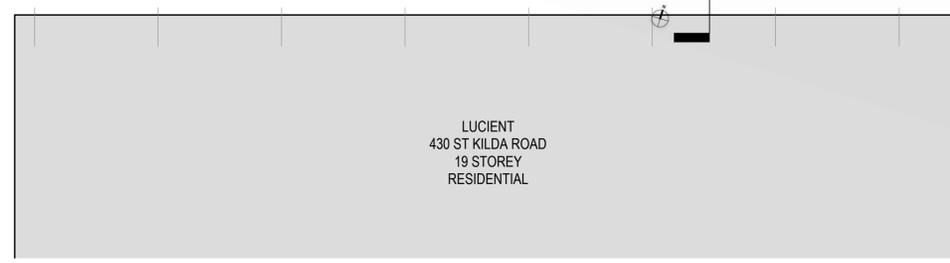
- RETAIL
- COMMERCIAL
- 1 BEDROOM APARTMENT
- 2 BEDROOM APARTMENT
- 3 BEDROOM APARTMENT
- PENTHOUSE APARTMENT
- STORAGE / STORAGE CAGE

NOTE: ALL CAR SPACES SIZED TO ACCOMMODATE FUTURE INSTALLATION OF EV CHARGERS. EV CHARGERS TO BE EITHER WALL COLUMN OR GROUND MOUNTED WITH BOLLARD PROTECTION

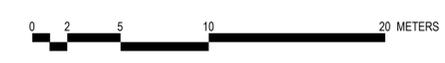
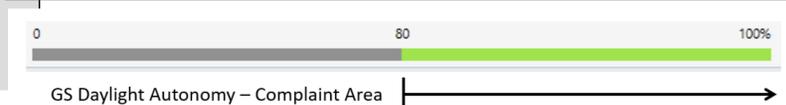
SEAL & SIGNATURE



20250319
Residential apartment
layouts have not changed
since town planning.
Daylight performance is
expected to remain similar,
pending renewed modelling



ADP 20240327
**-Residential Daylight-
-Daylight Autonomy Areas of Compliance-**



#	DATE	ISSUE DESCRIPTION
1	05/03/24	Town Planning

General Arrangement Plan
Level 11-13

PROJECT NO. 523553
DATE: 05/03/24
SCALE: 1:200 @A1
SHEET NO. **A-111**

424 ST KILDA ROAD

CLIENT

GURNER™
GROUP

ARCHITECT

SOM

SKIDMORE, OWINGS & MERRILL
(AUSTRALIA)
LEVEL 3, 351-357 ELIZABETH STREET
MELBOURNE, VIC 3000, AUSTRALIA

NOTES

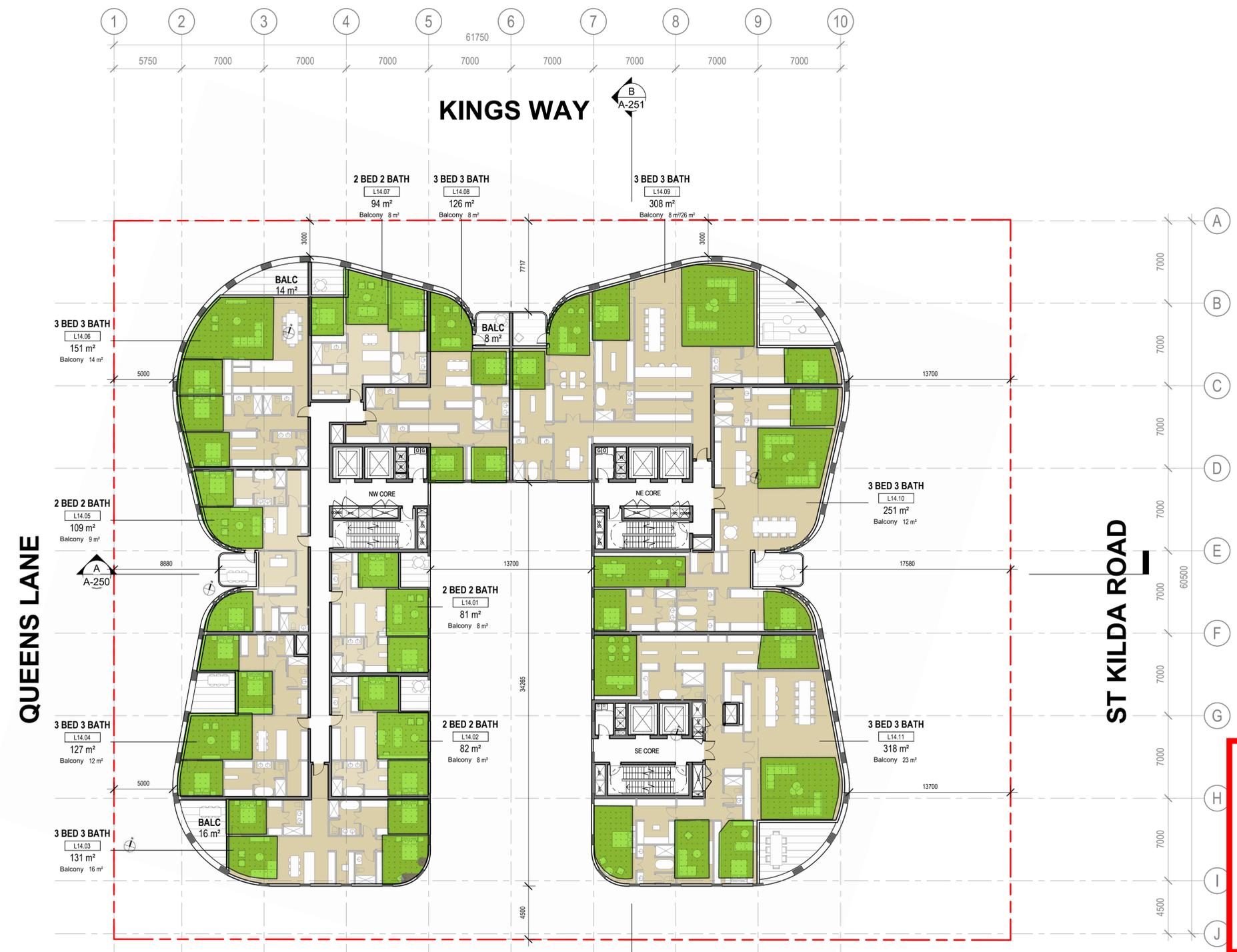
KEY PLAN

LEGEND

- RETAIL
- COMMERCIAL
- 1 BEDROOM APARTMENT
- 2 BEDROOM APARTMENT
- 3 BEDROOM APARTMENT
- PENTHOUSE APARTMENT
- STORAGE / STORAGE CAGE

NOTE: ALL CAR SPACES SIZED TO ACCOMMODATE FUTURE INSTALLATION OF EV CHARGERS. EV CHARGERS TO BE EITHER WALL COLUMN OR GROUND MOUNTED WITH BOLLARD PROTECTION

SEAL & SIGNATURE



20250319
Residential apartment
layouts have not changed
since town planning.
Daylight performance is
expected to remain similar,
pending renewed modelling

LUCIENT
430 ST KILDA ROAD
19 STOREY
RESIDENTIAL

ADP 20240327
**-Residential Daylight-
-Daylight Autonomy Areas of Compliance-**



#	DATE	ISSUE DESCRIPTION
1	05/03/24	Town Planning

General Arrangement Plan
Level 14-15

PROJECT NO. 523553
DATE: 05/03/24
SCALE: 1:200 @A1
SHEET NO. **A-114**

424 ST KILDA ROAD

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LEVEL 3, 351-357 ELIZABETH STREET
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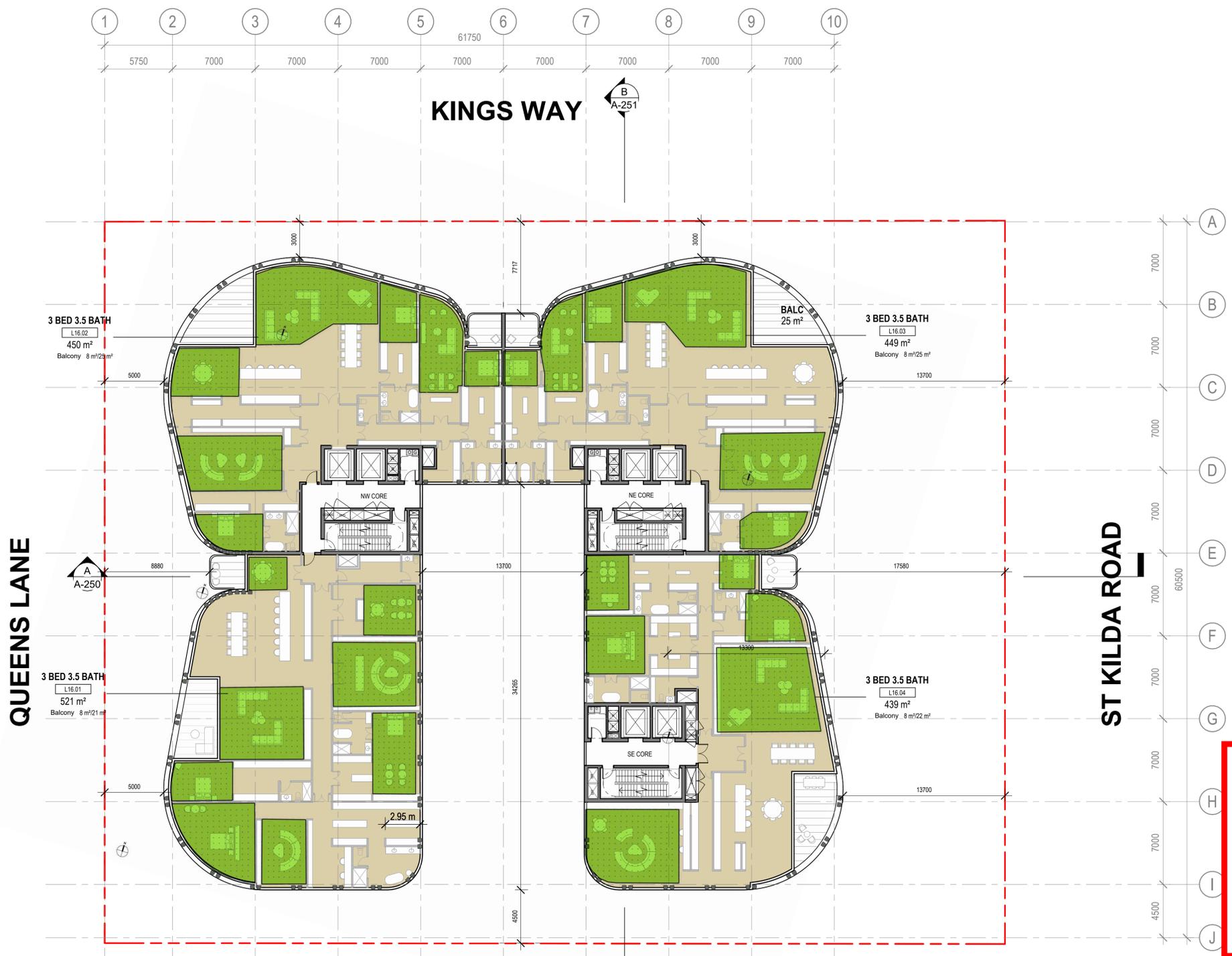
KEY PLAN

LEGEND

- RETAIL
- COMMERCIAL
- 1 BEDROOM APARTMENT
- 2 BEDROOM APARTMENT
- 3 BEDROOM APARTMENT
- PENTHOUSE APARTMENT
- STORAGE / STORAGE CAGE

NOTE: ALL CAR SPACES SIZED TO ACCOMMODATE FUTURE INSTALLATION OF EV CHARGERS. EV CHARGERS TO BE EITHER WALL COLUMN OR GROUND MOUNTED WITH BOLLARD PROTECTION

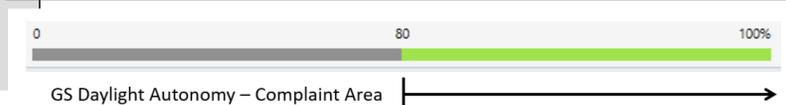
SEAL & SIGNATURE



20250319
Residential apartment
layouts have not changed
since town planning.
Daylight performance is
expected to remain similar,
pending renewed modelling

LUCIENT
430 ST KILDA ROAD
19 STOREY
RESIDENTIAL

ADP 20240327
-Residential Daylight-
-Daylight Autonomy Areas of Compliance-



#	DATE	ISSUE DESCRIPTION
1	05/03/24	Town Planning

General Arrangement Plan
Level 16

PROJECT NO. 523553
 SHEET NO. **A-116**
 DATE: 05/03/24
 SCALE: 1:200 @A1

424 ST KILDA ROAD

CLIENT
GURNER™
GROUP

ARCHITECT
SOM
SKIDMORE, OWINGS & MERRILL
(AUSTRALIA)
LEVEL 3, 351-357 ELIZABETH STREET
MELBOURNE, VIC 3000, AUSTRALIA

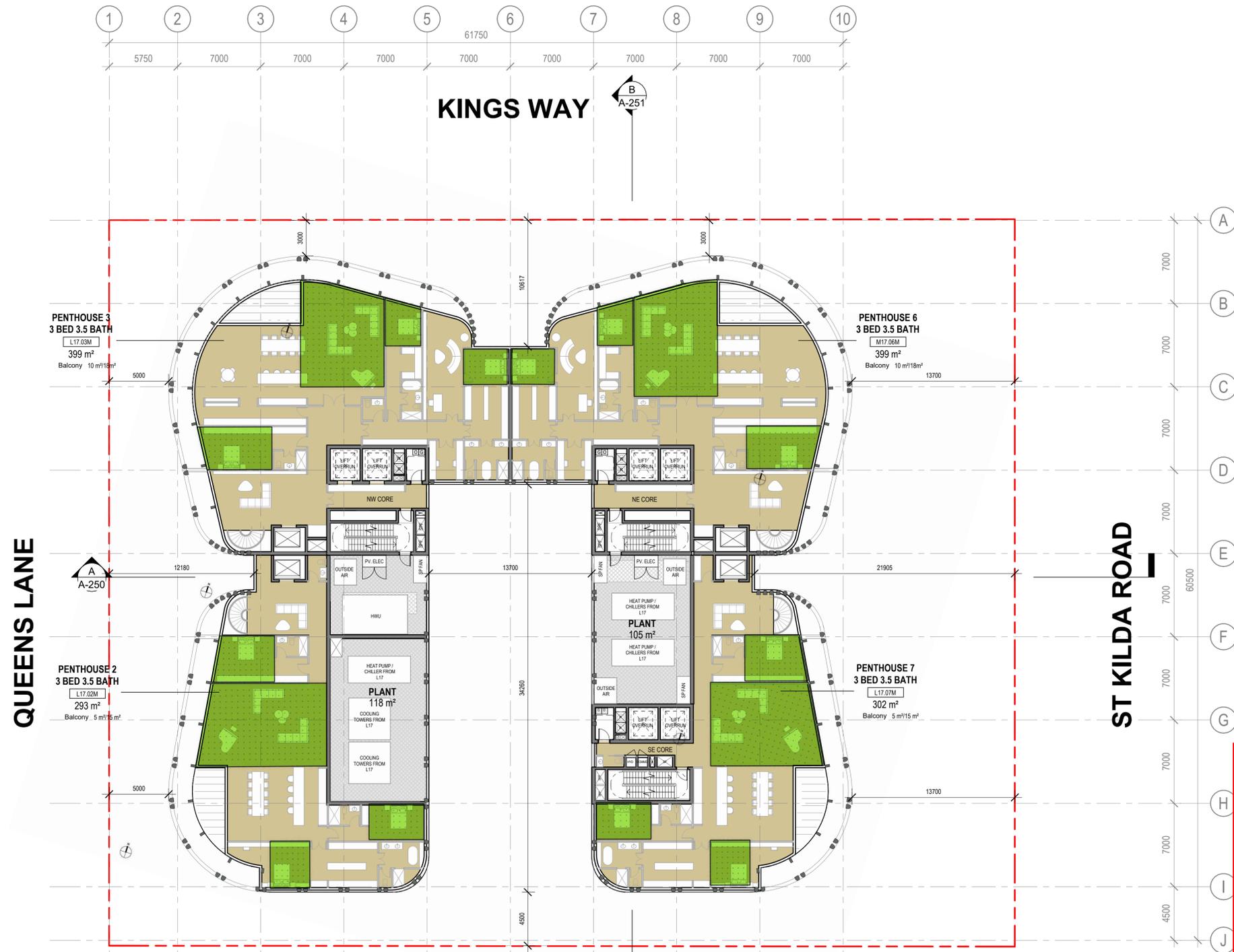
NOTES

KEY PLAN

- LEGEND
- RETAIL
 - COMMERCIAL
 - 1 BEDROOM APARTMENT
 - 2 BEDROOM APARTMENT
 - 3 BEDROOM APARTMENT
 - PENTHOUSE APARTMENT
 - STORAGE / STORAGE CAGE

NOTE: ALL CAR SPACES SIZED TO ACCOMMODATE FUTURE INSTALLATION OF EV CHARGERS. EV CHARGERS TO BE EITHER WALL COLUMN OR GROUND MOUNTED WITH BOLLARD PROTECTION

SEAL & SIGNATURE



20250319
Residential apartment
layouts have not changed
since town planning.
Daylight performance is
expected to remain similar,
pending renewed modelling

ADP 20240327

-Residential Daylight-
-Daylight Autonomy Areas of Compliance-

GS Daylight Autonomy – Complaint Area →

LUCIENT
430 ST KILDA ROAD
19 STOREY
RESIDENTIAL



1	05/03/24	Town Planning
#	DATE	ISSUE DESCRIPTION

General Arrangement Plan
Level 18

PROJECT NO. 523553
DATE: 05/03/24
SCALE: 1 : 200 @A1

A-118



Appendix D

Endorsement WSUD Strategy

Consultant Advice Notice

From	Ahmed Hassan	Advice No.	CAN No-ESD-03
Project	424 St Kilda Road	Project No.	MEL3611
Date	15 May 2025	Pages	1/10
Subject	WSUD Assessment - Endorsement	Revision:	04

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Introduction

This CAN provides an overview of the water sensitive urban design (WSUD) strategy for 424 St Kilda Road, located within the municipal boundaries of the City of Port Phillip. The report outlines the design intent for rainwater collection, reuse, and treatment, alongside the results of the MUSIC modelling undertaken for the site.

The MUSIC assessment was completed using musicX, with the Melbourne Airport rainfall station selected as the closest representative station. The rainfall data applied covers the 10-year period from 1987 to 1996, with a total annual rainfall range of approximately 500–650 mm, using the 086282MelbourneAirportInfill1987-1996_6min.mlb dataset.

In addition to presenting the model outcomes, this report includes consideration of potential pathways for reduced toilet servicing.

A summary report from the MUSIC auditor tool has been provided as a supplement to this report.



Reduction Requirements

The project will meet council pollution reduction targets, while also targeting Green Star Building's Stormwater credit achievement. The values are as follows.

Table 1 Storm Water Pollution Reduction Requirements

Pollutant type	Council Performance requirements (reduction of the typical annual load)	Green Star Buildings Credit Achievement Targets (reduction of the typical annual load)
Suspended solids (SS)	80%	85%
Total phosphorus (TP)	45%	65%
Total nitrogen (TN)	45%	45%
Litter	70%	90%

Modelling

To demonstrate compliance with best practice performance objectives the stormwater management strategy for the site has been modelled with the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) software. This report details the methodology and the parameters used in building the model as well as the results obtained and how the performance of the system compares with the Melbourne Water performance objectives.

Site Layout Plan

Figure 1 below demonstrates the different catchment areas and surfaces across the site. Note that the design of the building, and the following catchment areas may change as the design continues to develop over time.

Figure 1 Site layout and catchment areas



- > Non trafficable catchment areas (areas in brown) are being captured and drained to a **40kL rainwater tank** and will be reused for toilet flushing in the non-residential areas. Overflow will be sent to the OSD tank.
- > Trafficable catchment areas (areas in red, and the softscape garden beds) are being captured and drained to a **40kL rainwater tank** and will be reused for irrigation. Overflow will be sent to the OSD tank.

Modelling

Figure 2 Music model

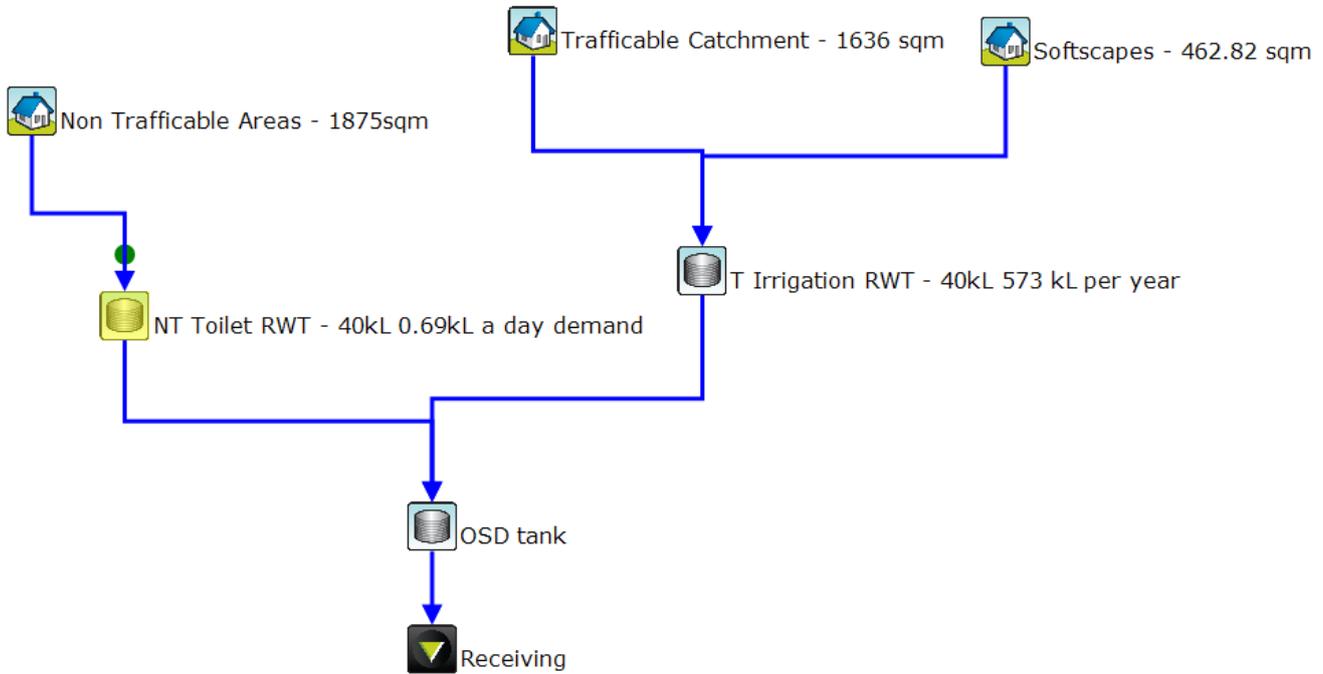


Figure 3 Non trafficable area configuration

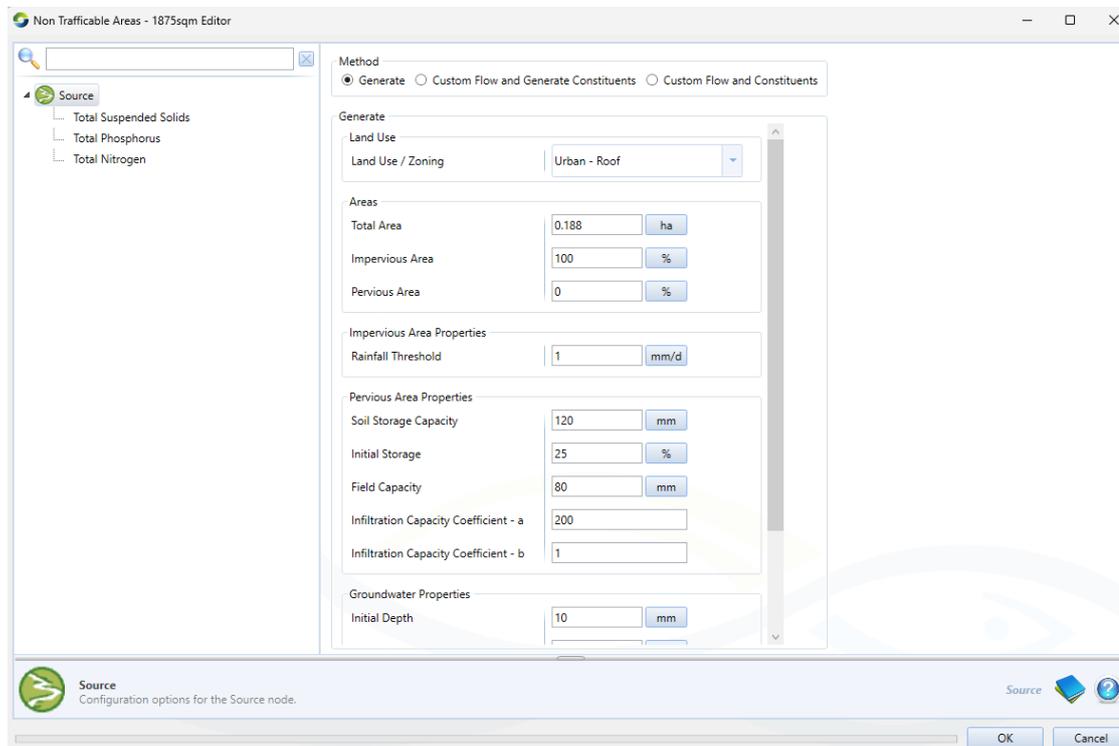




Figure 4 Trafficable area configuration

The screenshot shows the 'Trafficable Catchment - 1636 sqm Editor' window. On the left, a tree view shows 'Source' expanded with sub-items: 'Total Suspended Solids', 'Total Phosphorus', and 'Total Nitrogen'. The main panel is titled 'Method' and has three radio buttons: 'Generate' (selected), 'Custom Flow and Generate Constituents', and 'Custom Flow and Constituents'. Below this is the 'Generate' section with a 'Land Use / Zoning' dropdown set to 'Urban - Mixed'. The 'Areas' section contains: 'Total Area' (0.164 ha), 'Impervious Area' (100%), and 'Pervious Area' (0%). The 'Impervious Area Properties' section has 'Rainfall Threshold' (1 mm/d). The 'Pervious Area Properties' section has: 'Soil Storage Capacity' (120 mm), 'Initial Storage' (25%), 'Field Capacity' (80 mm), 'Infiltration Capacity Coefficient - a' (200), and 'Infiltration Capacity Coefficient - b' (1). The 'Groundwater Properties' section has 'Initial Depth' (10 mm). At the bottom, there is a 'Source' icon and the text 'Configuration options for the Source node.', along with 'OK' and 'Cancel' buttons.

Figure 5 Softscape area configuration

The screenshot shows the 'Softscapes - 462.82 sqm Editor' window. The layout is identical to Figure 4. The 'Method' section has 'Generate' selected. The 'Land Use / Zoning' dropdown is 'Urban - Mixed'. The 'Areas' section contains: 'Total Area' (0.046 ha), 'Impervious Area' (0%), and 'Pervious Area' (100%). The 'Impervious Area Properties' section has 'Rainfall Threshold' (1 mm/d). The 'Pervious Area Properties' section has: 'Soil Storage Capacity' (400 mm), 'Initial Storage' (25%), 'Field Capacity' (80 mm), 'Infiltration Capacity Coefficient - a' (200), and 'Infiltration Capacity Coefficient - b' (1). The 'Groundwater Properties' section has 'Initial Depth' (10 mm). At the bottom, there is a 'Source' icon and the text 'Configuration options for the Source node.', along with 'OK' and 'Cancel' buttons.



Figure 6 Input parameters for irrigation RWT

T Irrigation RWT - 40kL 573 kL per year Editor

Rainwater Tank
 Re-use
 Advanced
 Custom Storage and Outflow

Inlet Properties
 Low Flow Bypass: 0 m³/s
 High Flow Bypass: 100 m³/s

Tank Group
 Number of Tanks: 1
 Show Total Tank Properties:

Individual Tank Properties

Storage Properties
 Volume below overflow: 40 m³
 Depth above overflow: 0.2 m
 Surface Area: 5 m²
 Initial Volume: 10 m³

Outlet Properties
 Overflow Pipe Diameter: 0.05 m

Rainwater Tank
 Configuration options for the Rainwater Tank node.

OK Cancel

T Irrigation RWT - 40kL 573 kL per year Editor

Rainwater Tank
 Re-use
 Advanced
 Custom Storage and Outflow

Use stored water for irrigation or other purpose

Max Draw Down height: 8 m Range: (0 - 8.00)

Annual Demand
 Demand: 573 kL/y
 Distribution: Monthly Pattern

Monthly Pattern Properties

Month	Requirement	%
January	16	
February	13	
March	12	
April	5	

Import... Export...

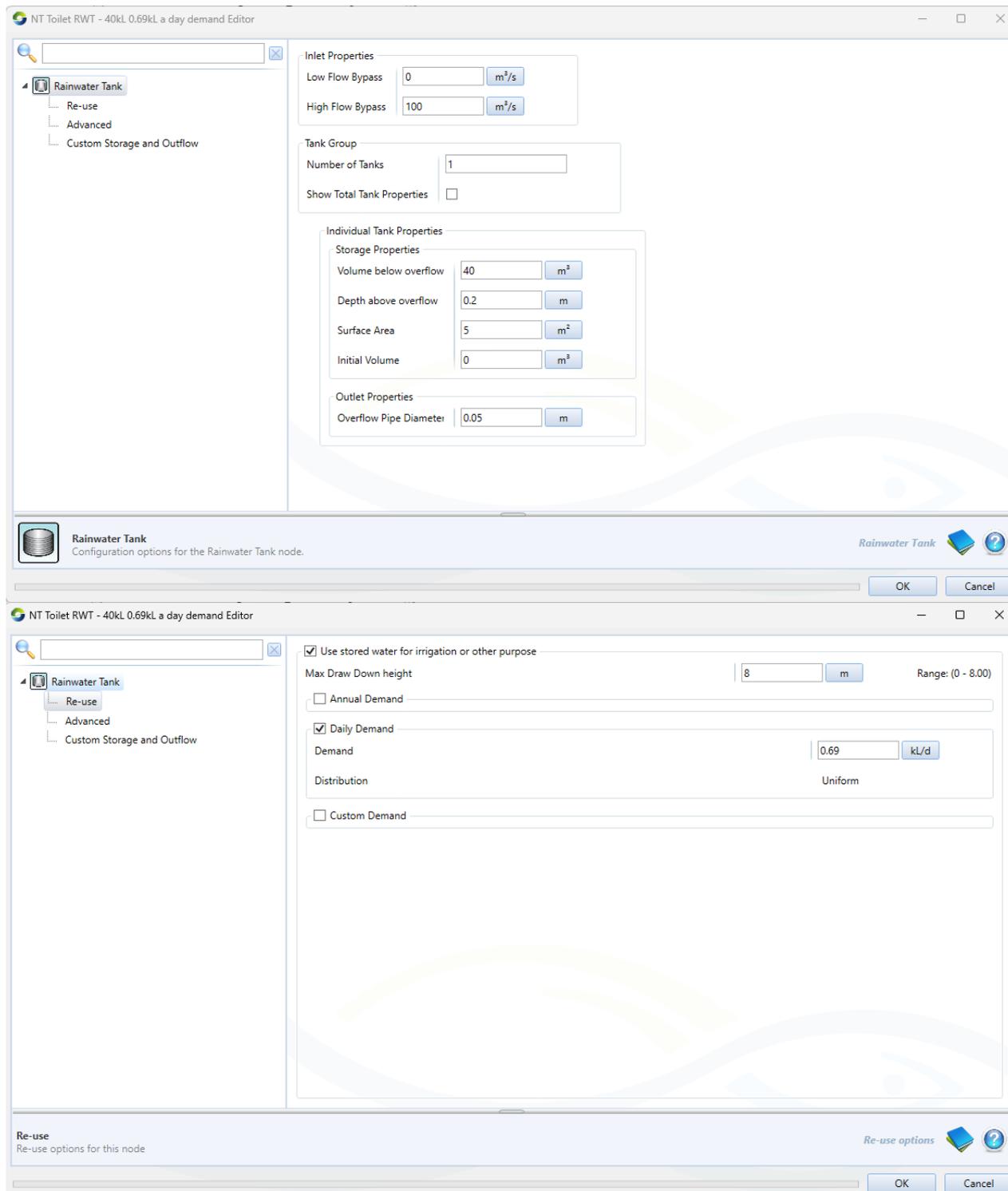
Daily Demand
 Custom Demand

Re-use
 Re-use options for this node

Re-use options

OK Cancel

Figure 7 Input parameters for toilet reuse tank



Treatment Train

As demonstrated in Figure 3 the treatment train proposed for the site stormwater run-off consists of the following measures:



- > 40kL Rainwater Tank – collection and storage from roof area and connected to toilets and urinals for flushing.
- > 40kL Irrigation Tank – collection and storage from trafficable areas and garden beds for reuse in landscape irrigation
- > OSD Tank – to treat run off from all areas (including areas with no reuse).
- > Garden beds are modelled as pervious areas 450mm thick and are to be connected to the drainage system where the drained rainwater is diverted to the rainwater tank.

Weather Data

The weather station that has been chosen to model this site with is Melbourne City as per the Melbourne Water Guidelines for the use of MUSIC.

Re-use demands

Toilets

Toilet flushing water demand has been calculator via a preliminary potable water calculator. The demand has considered for the following areas of the site:

- > B01 Office & toilet
- > GF Office - strata
- > GF Grocer - boutique
- > L01 Amenities
- > L01 Office

All other toilets including residential and medical suite toilets are being serviced by mains water. Water demand for toilets being serviced by rainwater in the building is calculated to be an average of 0.69 KL a day.

Irrigation

Irrigation demand has been calculated via the GBCA potable water calculator. The demand has considered all landscaped areas on site as re-using rainwater. The irrigation demand for the building is calculated to be an average of **573 KL a year**. The demand has been matched to monthly evapotranspiration, accounting for summer months demanding more irrigation, and winter months demanding less.

Results

	Sources	Residual Load	% Reduction
Flow (ML/yr)	1.595	0.8228	48.42
Total Suspended Solids (kg/yr)	176.5	20.02	88.66
Total Phosphorus (kg/yr)	0.4442	0.1254	71.76
Total Nitrogen (kg/yr)	3.989	1.729	56.65
Gross Pollutants (kg/yr)	62.59	0	100

Figure 8 Treatment train effectiveness

Table 2 compares the results obtained from the MUSIC simulation with the best practice performance objectives. This demonstrates that the proposed stormwater management design meets all the reduction targets stipulated by Melbourne Water Best Practice Guidelines.



Table 2 MUSIC model pollution reduction results

Pollutant	Reduction	Current best practice performance objective	Target Achieved
Total Suspended Solids (kg/yr)	88.66%	85%	✓
Total Phosphorus (kg/yr)	71.76%	65%	✓
Total Nitrogen (kg/yr)	56.65%	45%	✓
Gross Pollutants (kg/yr)	100%	90%	✓

Figure 9 Scenario summary

Run Name: (1) Baseline - non-resi reuse only - 40 KL tanks

Identifier: 307eee3b-5358-4c15-8fec-1092671fcd6a

Metadata:

Key	Value
Configuration End Date	1996-12-31
Configuration Name	MUSICX configuration
Configuration Start Date	1996-01-01
Configuration Time Step	SixMinutesTimeStep
Configuration Type	MUSICX configuration
Project File Path	T:\MEL\MEL3611\08. ESD\4. Calculations & Design\WSUD\202504 WSUD updated\20250417 424 St Kilda Road Resi spaces only.mxproj
Scenario Description	
Scenario Input Set Name	Default Input Set
Scenario Name	Baseline - non-resi reuse only - 40 KL tanks
Scenario Recorder Set Name	Current Recorder Tree
Scenario Type	MUSICX
Simulation Date	2025-05-15 10:07:17 AM
eWater Source Version	5.30.0

External Files:

Type	Name	Path	Exists	Reload On Run
Data Source	MLB Climate Data		<input type="checkbox"/>	<input type="checkbox"/>



Construction Site Management Plan

A stormwater pollution reduction strategy will be contractually required to be adopted by the Main Contractor as part of its overall Environmental Management Plan (EMP). The strategy should prevent construction debris and littering entering the stormwater systems. The EMP will be required to specifically address the following in respect to stormwater:

1. Objectives
 - a. No impact on offsite surface or ground water due to construction activities
 - b. Site stormwater to be managed such that no contaminated water is discharged from site
2. General
 - a. Materials and waste to be stored at least 2m away from drainage lines
 - b. All inadvertent chemical spills to be cleaned up immediately
 - c. Application and inclusion of a range of mitigation measures for soil depositing on roads, stormwater, dust and noise
3. Stormwater
 - a. Installation of hay bales around stormwater drains to minimise sediment entering stormwater
 - b. Installation of crushed rock to frequently used tracks / haul roads that may produce sediment

Maintenance Program

Rainwater Tank

The proposed system will be routinely maintained as part of the maintenance programme and will be included in the service requirements of the project.

The following will be followed:

- > First flush devices will be cleaned every 6 months
- > Roof and other collection areas will be inspected regularly, at a minimum every 3 months to ensure they are maintained free of pollutants
- > The type of tanks and pump will be maintained in accordance with manufacturers' requirements – typically annually but quarterly in the first year as part of building tuning phase



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