Attachment A14

Sustainability Strategy

Woolworths Waterloo

923-935 Bourke Street, Waterloo

Sustainability Strategy

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Sustainability Strategy

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Amendment Register

Rev. No	Section & Page No.	Issue/Amendment	Author	Project Engineer	Checked	Date
A	-	Draft Planning Proposal Submission	RC	TB	AM	30/09/2021
B	-	Planning Proposal Submission	RC	TB	AM	04/11/2021
C	-	Revised Planning Proposal Submission	RC	TB	AM	31/08/2022

EXECUTIVE SUMMARY

This report presents the sustainability strategy that will be integrated into the proposed new mixed development at 923-935 Bourke Street, Waterloo. This document was commissioned by Fabcot Pty Ltd in support of the Planning Proposal.

To support the City of Sydney's requirements to achieve the CSPS 2012 sustainability targets, the new development is proposed to showcase Australian Excellence performance in sustainable design, construction and operational practices.

Sustainability Vision

A primary aim of the new development will be to create a mixed development with leading yet practical sustainable design and construction for a temperate climate. Significant work has been undertaken to date to firmly establish leading practice sustainable design into the proposed development.

Excellent sustainability performance is proposed to be achieved by the holistic integration of ESD elements throughout the building and site design. Wherever possible the ESD elements will be integrated into the building function to achieve the desired level of sustainable performance.

It is also envisaged that the supermarket will achieve a Green Star Interiors rating for the supermarket fitout, an achievement reached by only to other supermarket developments (Supermarket in Surry Hills and Woolworths West End Village) and this development will be a further addition to setting the example for exemplar retail development in City of Sydney.

Sustainability Targets and Measures

Sustainability is key component of Fabcot's indicative public benefit offer. All energy efficiency and renewable energy targets for office and retail uses within the future development are proposed to be consistent with the City's NetZero Energy 2026 provisions. The following specific measures are proposed:

- Supermarket & Retail – consistent with the City's NetZero Energy 2026 provisions.
- Commercial – consistent with the City's NetZero Energy 2026 provisions.
- Residential – BASIX compliance plus 5 points in both Energy (40) and Water (45).
- Incorporation of onsite rainwater capture and re-use for non-potable purposes within the development.
- Development of best practice site-wide resource recovery for operational waste / recycling systems. Commitment to electric vehicle charging facilities in residential, retail and commercial car-parking areas as presented above.

Overall Site

- Incorporation of onsite rainwater capture and re-use for non-potable water purposes
- Development of best practice site-wide resource recovery for operational waste / recycling system.

- Provision and implementation of EV charging infrastructure consistent with City of Sydney's draft Electric Vehicle Policy
- Energy efficiency and renewable energy for the development to enable Net Zero carbon Energy provisions.

ESD Strategies Summary

Commercial Office Building

The following summary outlines the ESD strategies and initiatives proposed to be considered for the new development organised under the categories of the new development's holistic Green Star Buildings v1 targets for the commercial building.

Responsible strategies		
Industry development	Responsible Construction – Builder	Verification and handover
Operational waste	Responsible finishes	
Healthy strategies		
Clean air	Light Quality	Acoustic comfort
Exposure to toxins	Amenity and comfort	Connection to nature
Resilient strategies		
Climate change resilience	Operations resilience	Community resilience
Positive strategies		
Upfront carbon emissions	Energy use	Energy source
Water use		
Places strategies		
Movement and place	Enjoyable places	Contribution to place
People strategies		
Inclusive construction practices	Design for inclusion	
Nature strategies		
Impacts to nature	Biodiversity enhancement	Nature connectivity

Note: The credits listed are draft and are to be further investigated in the project development process.

The ESD strategies and detailed sustainability initiatives presented in this report are proposed to be further developed and validated through the design and delivery of the new development.

Residential Buildings

The residential buildings are targeted to achieve the following:

- **BASIX Water target: Pass score (40) +5, i.e. Water score 45 for residential buildings**
- **BASIX Energy target: Pass score (35) +5, i.e. Energy score 40 for residential buildings**

This is considered to be exceeding the City of Sydney ESD requirements in the City of Sydney DCP 2012.

Supermarket

The proposed supermarket is intended to provide the following social sustainability and environmental initiatives to the near and wider community:

- In-store recycling area
- Flexibility of store layout to improve customer experience
- Using recycled PVC for the store fitout, trolleys, and basement bollards as an example
- Incorporation of recycled materials in construction
- Promote healthy eating through education classes and cooking classes
- Working with NGOs such as Ozharvest on food demand and minimizing food wastage
- Provide EV charging stations which will be consistent with the imminent City of Sydney's draft Electric Vehicle Policy which aims at promoting accessibility of EV charging infrastructure
- Woolworths target to rely on renewable energy, through purchasing renewable energy to operate its business.

The supermarket is also targeting a Green Star Interiors rating with the following credits:

Management credits		
Green Star AP	Commissioning and Tuning	Fitout Information
Commitment Performance	Metering and Monitoring	Responsible Construction Practices
Operational waste		
Indoor Environmental Quality credits		
Quality of Indoor Air	Acoustic Comfort	Lighting Comfort
Reduced Exposure to Pollutants	Thermal Comfort	Quality of Amenities
Ergonomics		
Energy credit		
GHG Emissions		

Transport credit		
Sustainable Transport		
Water credit		
Potable Water		
Materials credits		
Life Cycle Impacts / Sustainable Products	Responsible Building Materials	Construction and Demolition Waste
Land Use & Ecology credits		
Sustainable Sites		
Emissions credits		
Light Pollution	Microbial Control	
Innovation credits (TBC)		
Heat Rejection	Microbial Control	BSRIA Soft Landings Framework
Ultra Low VOC paints	High Performance Site Office	Financial Transparency
Community Benefits	LEED Integrative Design	Green Cleaning

Note: The credits listed are draft and are to be further investigated in the project development process.

The project team would like to note that there is no certified Green Star Interiors rating for supermarkets in a mixed development, but only two registered, viz. Coles Surry Hill & Woolworths West End Village.

The targeting and eventual achievement of a Green Star Interiors rating of the proposed supermarket development will be an exemplar in the supermarket and retail sector, and within the LGA of City of Sydney.

Overall project

With the social benefits proposed and the proposed Green Star Interiors rating for the supermarket, the proposed Green Star Buildings v1 for the commercial building and the BASIX Water 45 and BASIX Energy 40 for the residential buildings, the EV charging infrastructure and recycling initiatives, onsite rainwater capture and re-use for non-potable water purposes within the development, energy efficiency and renewable energy target for future Net Zero Energy provisions – the project team believes the sustainability initiatives for the development can be considered as an exemplar amongst mixed developments and aligns with City of Sydney's Sustainability strategy 2030.

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1. INTRODUCTION

1.1 Project Background and Description

This report relates to 923-935 Bourke Street, Waterloo and is submitted to the City of Sydney in support of a request for Planning Proposal seeking amendments to the Sydney Local Environmental Plan 2012. The broad intent of the Planning Proposal is to achieve a mixed-use development outcome, including a supermarket, which facilitates a suitable urban form to support local strategic planning intent for the establishment of a new 'neighbourhood centre' within the site. The Planning Proposal seeks amendment to maximum building height mapping and to introduce a site-specific criteria based exemption to the retail floor area cap outside of Green Square Town Centre and other planned centres. The indicative reference scheme in support of the proposal accommodates a mixed-use development including a subterranean supermarket, retail, commercial, residential apartments on podium and rooftop communal facilities. Basement parking is accommodated for all uses, with ground level loading and 'Direct to Boot' pick up facilities.

1.2 General

This Ecologically Sustainable Development Strategy summarises the sustainability targets and strategies that will be used to minimise the new development's environmental impact throughout design, construction and operation. This document was prepared by Floth on behalf of Fabcot Pty Ltd in support of the Planning Proposal prepared by Ethos Urban for the new development.

The design and construction of the new development will be informed by the following requirements as related to sustainability as current at time of writing:

- Sydney Local Environmental Plan (LEP) 2012
- City of Sydney Development Control Plan (DCP) 2012
- Central Sydney Planning Strategy (Draft)
- Proposed Central Sydney Planning Proposal – amendments to the Sydney LEP 2012
- Proposed Amendments to the Sydney DCP 2012
- Energy efficiency and renewable energy for the development to enable Net Zero Carbon Energy provisions.

This report is structured as follows:

- A synopsis of the new development and sustainability vision;
- A discussion of the current Green Star and NABERS certification schemes; and
- A list of the initiatives targeted by the design to achieve the above environmental targets.

2. PROJECT DESCRIPTION AND SUSTAINABILITY VISION

This section summarises the proposed development location, components and sustainability vision.

2.1 Site Description

923-935 Bourke Street, Waterloo is located at the southern fringe of the Sydney CBD.

The site has three prominent street frontages: Bourke Street to the east, Young Street to the west and McEvoy Street to the north. The site has a level ground generally.

The site is currently occupied by three industrial and commercial buildings either single or double storeys and supporting open carpark. Pedestrian access is available from all surrounding streets. An aerial map of the site is shown in **Figure 1**.

The sustainability targets of the project include the following:

- Provides A-Grade commercial office space within the highly accessible commercial/industrial precinct in an area at the fringe of the Sydney CBD;
- Supports Land Use and Transport integration by its location within walking distance from Green Square, and the bus network serving city south;
- Is of an appropriate height and scale similar to that of the buildings in the area, thus making a harmonious contribution to the adjacent skyline;
- Capitalises on its location where significant development uplift may be achieved with minimal environmental impacts to its surrounds. Future development will:
  - Present minimal adverse solar access impacts to Waterloo and provides wind amenity improvements in the immediate locality; and

The supermarket development proposes a number of sustainability initiatives including social benefits to the surrounding community.

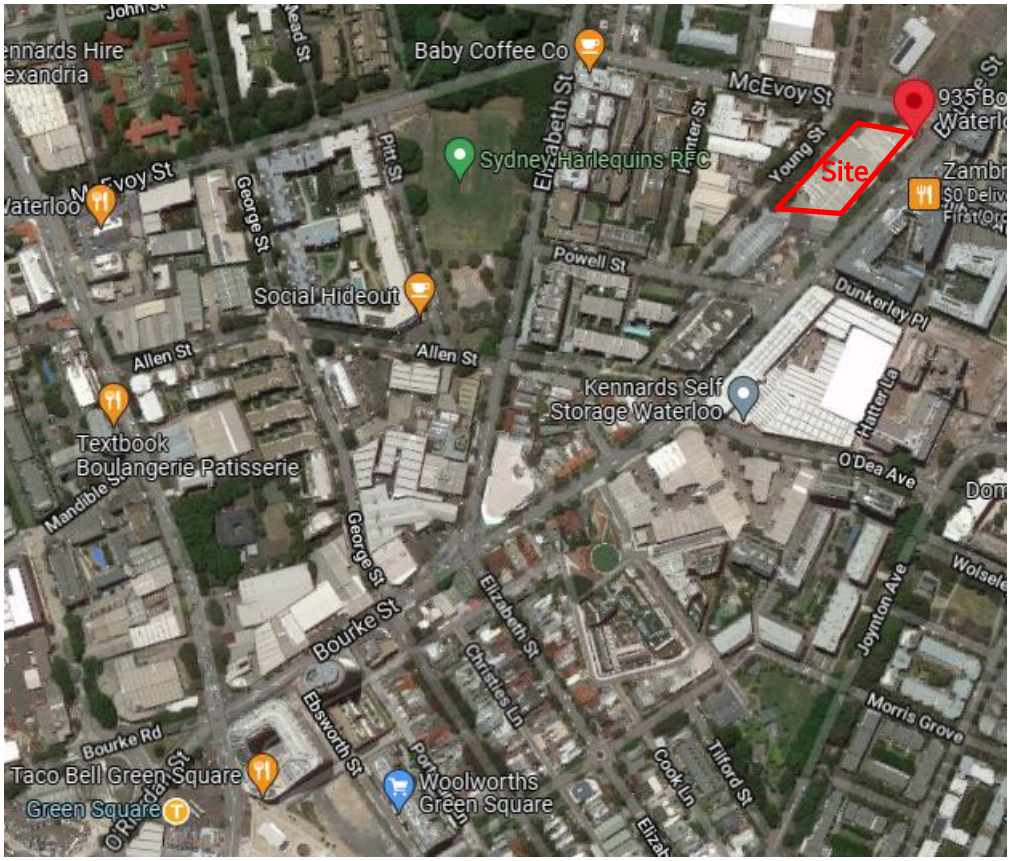

Figure 1: Aerial Photograph of the Site

Source: Google Maps

2.2 Sustainability Vision

At its core, the success of a compelling and sustainable "place" is related to two factors:

- To its physical characteristics – its location, how its looks, its facilities and infrastructure and how efficiently and sustainably it operates;
- To the human experience of place - how people derive economic, social, environmental and wellbeing benefits by their interactions with a particular place.

Beyond the critical importance of its physical characteristics, a sense of place evolves from this multitude of human experiences, both shared and individual. These experiences occur on a range of scales, from macro to micro, but always relate to the interaction of people and place. The new development aims to set a new sustainable benchmark for future living places and workplaces through innovative design, to create a space of superior interaction between people and place.

The development team has the vision to create an Australian Excellence sustainable development for the benefit of the building occupants, the Waterloo precinct and the wider City of Sydney community. The

environmental impact of the construction of the proposed development is proposed to be minimised through deep and pervasive environmentally sustainable development initiatives embedded throughout the design and construction of the new development.

The ongoing environmental impact of the new development is proposed to be reduced through passive design features incorporated in the building facades and architecture, reducing the energy required to service the building. Best-in-class building services are proposed to further reduce the energy and water use of the building by optimising energy and water conservation in the design and equipment selections.

The sustainable nature of the proposed new development will be further enhanced by making it a place where people will want to work. This will be done by addressing issues such as the indoor environment, materials selection, transport, ecology and the development's sense of community using sustainable design initiatives.

Excellent ESD performance is anticipated to be achieved by the holistic integration of ESD elements throughout the new building design. Wherever possible the ESD elements are proposed to be integrated into the new building function to achieve the desired level of ESD performance.

To support City of Sydney's water efficient outcomes requirement, the new development is proposed to be designed with best practice water efficiency fixtures and fittings into the design and equipment selections, low bleed rate cooling towers or air cooled chillers (subject to detail design), as well as rainwater capture for onsite non-potable water use.

The supermarket development proposes a number of sustainability initiatives particularly on social sustainability (Subject to agreement on the Public Benefit Offer)**.** It is envisaged that the collaboration with non-profit organisations such as Ozharvest will provide social benefits to the surrounding community with its food delivery, education classes and social interactions, on top of the environmental benefits by minimising food wastes and packaging wastes.

To support City of Sydney's draft Electric Vehicles Policy, a benchmark provision of publicly accessible electric vehicle charging facilities. The proposed EV charging infrastructure includes:

- Residential car spaces are to be EV ready,
- 50% of worker car spaces are to be EV ready,
- 25% of retail customer car spaces are to be fitted with a three phase Level 2 EV charger at 22 kilowatts or higher), and
- An additional two (2) Level 3 or 4 fast chargers accessible within the retail parking provisions.

In addition, all energy efficiency and renewable energy targets for office and retail uses within the proposed development are proposed to be consistent with the City's NetZero Energy provisions

3. SUSTAINABILITY TARGETS AND MEASURES

Buildings produce carbon dioxide emissions and other emissions that reduce air quality and contribute to global warming. Buildings also generate waste during construction and operation and can have poor indoor environment quality that harm occupants' health.

A green building minimises the environmental impact and is healthy and comfortable for its occupants. The Green Building Council of Australia has defined a green building as one that incorporates design, construction and operational practices that significantly reduce or eliminate the negative impact of development on the environment and occupants with strategies for addressing:

- Energy efficiency
- Greenhouse gas emission abatement
- Water conservation
- Waste avoidance, reuse and recycling
- Pollution prevention – noise, water, air, soil and light
- Enhanced biodiversity
- Reduced natural resource consumption
- Productive and healthier environments and
- Flexible and adaptable spaces

This section outlines the environmental certification strategies proposed for the new development.

3.1 Green Star Buildings v1 Rating Scheme

Green Star is a comprehensive, national, voluntary environmental rating system administered by the Green Building Council of Australia [1] that evaluates the environmental design and construction of buildings. With more than 26 million square metres of Green Star-certified space around Australia, Green Star has transformed Australia's property and construction market.

[1] http://www.gbca.org.au

The new Green Star Buildings rating covers the following eight categories to assess the environmental impact that is a direct consequence of project site selection, design, construction and maintenance:

- Responsible;
- Healthy;
- Resilient;
- Positive;
- Places;
- People;
- Nature; and
- Leadership.

Green Star certification is subject to meeting four (4) eligibility criteria: Spatial Differentiation, Space Use, Conditional Requirements, and Timing of Certification. If one or more of the eligibility criteria are not achieved, the project cannot be certified.

Each category is divided into credits, each of which addresses an initiative that improves or has the potential to improve environmental performance. The new Green Star Buildings rating has minimum expectations credits which are mandatory. Some credits with minimum expectation credits and other credits have aspirational targets to achieve credits points for projects to achieve ratings higher than 4 star.

The following Green Star certified ratings are available:

- 4 Star Green Star Certified Rating, signifies 'Best Practice' in environmentally sustainable design and construction;
- 5 Star Green Star Certified Rating, signifies 'Australian Excellence' in environmentally sustainable design and construction;
- 6 Star Green Star Certified Rating, signifies 'World Leadership' in environmentally sustainable design and construction.

Green Star certification is subject to meeting the prescribed eligibility criteria and assessment of the design by the Green Building Council of Australia.

Green Star certification is awarded by the Green Building Council of Australia on the basis of a Green Star Assessment undertaken by an Independent third-party Assessor. The optional Green Star Design Review rating

is assessed by the Green Building Council of Australia independent assessor on the basis of the Tender or For Construction documentation. The Green Star Buildings certified rating is assessed on the basis of As-Built documentation together with commissioning data. The Green Building Council of Australia will grant a certificate to confirm the rating achieved, which will be effective for the life of the building.

3.2 Green Star Interiors Rating Scheme

Green Star Interiors rating is similar to Green Star Buildings v1. However, Green Star Interiors applies to design and construction of fitouts.

Green Star Interiors have the same categories as the superseded Green Star Design & As Built rating, covering nine categories:

- Management;
- Indoor Environmental Quality;
- Energy;
- Transport;
- Water;
- Materials;
- Land Use and Ecology;
- Emissions; and
- Innovation.

The new supermarket fitout is proposed to target a Green Star Interiors rating.

3.3 NABERS Operational Sustainable Building Rating Scheme

NABERS – the National Australian Built Environment Rating System – is a performance-based rating system for operational buildings. NABERS rates a building on the basis of its measured operative impacts on the environment, and provides a simple measure of how well these environmental impacts are managed compared with peers and neighbouring buildings.

NABERS was originally developed by the Australian Department of Environment and Heritage and is currently administered by the NSW Department of Planning, Industry and Environment (DPIE).

NABERS for offices currently incorporates four components

- NABERS Energy: assess Greenhouse Gas (GHG) emissions as a measure of energy efficiency;
- NABERS Water: assess potable and non-potable water use as a measure of water efficiency;
- NABERS Waste: assess general and recyclable waste generation rates as a measure of waste and recycling efficiency;
- NABERS Indoor Environment: assess thermal and acoustic comfort, indoor air quality, lighting and layout as a measure of indoor environment efficiency.

Upon reaching the planned date for the NABERS ratings, an independent NABERS accredited assessor will be arranged to carry out the performance assessment of the premises. The National NABERS Administrator will grant a certificate to confirm the rating achieved, which will be effective for a 12 month period. Building management will be required to manage and undertake annual NABERS ratings to maintain their currency during building operation.

3.4 Building Sustainability Index (BASIX)

The Building Sustainability Index (BASIX) requirements apply to all residential dwelling types and are part of the development application process in NSW. BASIX is one of the strongest sustainable planning measures to be undertaken in Australia.

In NSW, there are BASIX requirements for water and energy usage and thermal comfort performance that apply to:

- all new residential dwellings.
- alterations and additions to dwellings that cost $50,000 or more.

To demonstrate the development meets the BASIX requirements, an assessment using the online BASIX Tool will be conducted, which estimates the water and energy consumption and the thermal comfort based on the residential building design and attributes. This information includes the floor area, the size, location and type of windows, the type of insulation and the type of hot water system being installed.

4. ECOLOGICALLY SUSTAINABLE DEVELOPMENT STRATEGY – COMMERCIAL DEVELOPMENT

This section of the report addresses the sustainability of the new commercial component of the development and summarises the associated sustainability benefits. Best practice sustainable development principles will be implemented throughout the design, construction and operation of the new development, with the target to meet or exceed the City of Sydney ESD requirements.

4.1 Responsible

The Responsible category recognises activities that ensure the building is designed, procured, built, and handed over in a responsible manner.

The new development would be committed to the appropriate Responsible credit initiatives and implementation of the sustainability strategies by establishing and maintaining a rigorous, transparent and third-party certified ESD framework.

4.1.1 Industry development

- The Building owner / Developer appoints a Green Star Accredited Professional – The GSAP has been involved in the preparation of this sustainability strategy and would be retained to provide sustainability advice throughout the design, construction and initial operation of the building in order to ensure that the ESD strategy is applied effectively and as intended.
- The Building owner / Developer discloses the cost of sustainable building practices to GBCA.
- The Building owner / Developer markets the building's sustainability achievements.

4.1.2 Responsible Construction

- The Builder or head contractor has an environmental management system in place to manage its environmental management system in place to manage its environmental impacts on site – The Contractor will hold a valid accreditation certificate under ISO 14001 and the environmental performance, conditions and impacts of construction works will be actively managed.
- The Builder or head contractor has an environmental management plan to cover the scope of construction activities
- The Builder or head contractor diverts 90% of construction and demolition waste from landfill, and waste contractors and facilities comply with the Green Star Construction and Demolition Waste Reporting Criteria

Figure 1: Construction & demolition waste recycling facility

- The Builder or head contractor provides training on the sustainability targets of the building.

4.1.3 Verification and handover

- The building is set up for optimum ongoing management due to its appropriate metering and monitoring systems.

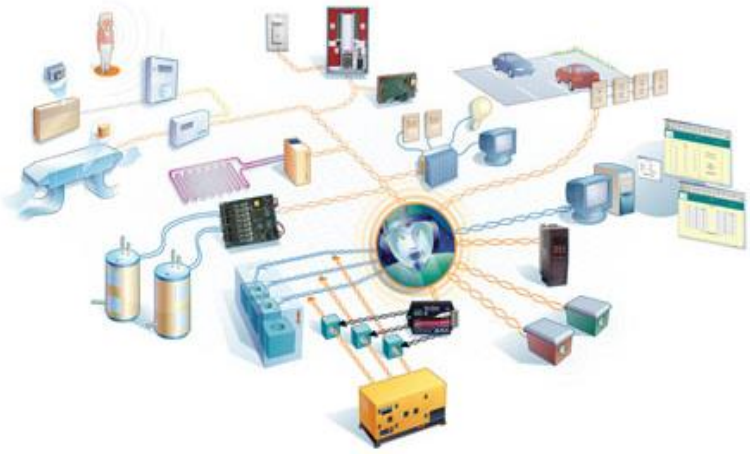

Figure 2: Building control, metering and monitoring systems concept

- The building has set environmental performance targets, designed and tested for airtightness, been commissioned, and will be tuned.

- The project team create and deliver operations and maintenance manuals information to the facilities management team at the time of handover. Information is available to building users on how best use the building.
- An independent level of verification is provided to the commissioning and tuning activities through the involvement of an independent commissioning agent.

4.1.4 Operational waste

- The building is designed for the collection of separate waste streams.
- The building provides a dedicated and adequately sized waste storage area.
- The building ensures safe and efficient access to waste storage areas for both occupants and waste collection contractors.

4.1.5 Responsible finishes

- 60% of all internal building finishes (by cost) meet a Responsible Products Value of at least 7, calculated by GBCA's Responsible Product Calculator.

Figure 3: Sustainable product databases and labels

4.2 Healthy

The Healthy category includes the most “Minimum Expectations” than any other category in the rating toll. This emphasises the important role the built environment has in the health and wellbeing of occupants.

The proposed development will be designed and implemented to achieve a safe and comfortable indoor environment to its occupants.

Figure 4: IEQ / Healthy concept

4.2.1 Clean Air

- Levels of indoor pollutants are maintained at acceptable levels.
- High levels of outdoor air are provided.
- Pollutants entering the building are minimised.
- The building’s ventilation systems allow for easy maintenance.

4.2.2 Lighting Quality

- Lighting within the building meets minimum comfort requirements.
- Not just good lighting levels suitable for the typical tasks in each space are available, but the building provides best practice artificial lighting.
- The building provides adequate levels of daylight.

4.2.3 Acoustic Comfort

- An Acoustic Comfort Strategy is prepared to describe how the building and acoustic design aims to deliver acoustic comfort to the building occupants.

4.2.4 Exposure to Toxins

- The building's paints, adhesives, sealants, and carpets are low in TVOC or non-toxic.
- The building's engineered wood products low in TVOC or non-toxic.
- Occupants are not exposed to banned or highly toxic materials in the building.

4.2.5 Amenity and Comfort

- The building has dedicated amenity rooms to act as a parent room, relaxation room, or an exercise room.

4.2.6 Connection to Nature

- The building provides views; or
- The building incorporates nature-inspired design; or
- 5% of the building's site area is allocated to nature in which occupants can directly engage with.

4.3 Resilient

The Resilient category gives insight into issues that can cause disruptions into our reliance on a range of interdependent assets and services. These assets and services can be easily disrupted as a result of climate change and other externalities ranging from health pandemics, terrorism, to infrastructure failure. The credits in Resilience take into considerations the short- and long-term performance of the building to address various disruptions.

4.3.1 Climate Change Resilience

- The project team develops a project-specific climate change risk and adaptation assessment for the building.
- Extreme and high risks are addressed.

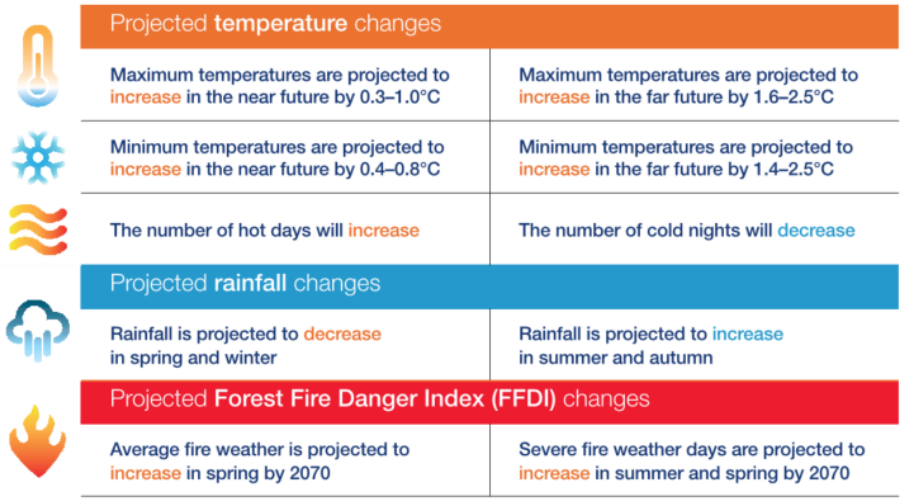

Figure 5: NSW OEH Metropolitan Sydney Climate Change Snapshot excerpt

4.3.2 Operations Resilience

- The project team undertakes a comprehensive review of the acute shocks and chronic stresses likely to influence future building operations.
- The building's design and future operational plan addresses any high or extreme system-level interdependency risks.
- The building's design maintains a level of survivability and design purpose in a blackout.

4.3.3 Community Resilience

- The project team is going to undertake a needs analysis of the community, which identifies shocks and stresses that impact the building's ability to service the community, and develops responses to manage these.

4.4 Positive

The Positive category allows buildings to address the IPCC 1.5°C Global Warming trajectory: reducing energy consumption and switching to renewable energy. It also focuses on the importance of water consumption; and acknowledges the value in understanding the full life cycle impacts of the building that leads to better design and material selection.

4.4.1 Upfront Carbon Emission

- The building's upfront carbon emissions are at least 10% less than those of a reference building.

4.4.2 Energy Use

- The building's energy use is at least 20% less than a reference building.
    - The ongoing energy consumption and the associated carbon emissions of the new development will be reduced through high performance building facades designed to optimise the passive performance of the building architecture, thereby reducing the energy required for cooling, heating and lighting for the occupants. Best-in-class building services will further reduce the energy and water use of the building by optimising energy and water conservation in the design and equipment selections, and will also be actively controlled to operate only as and where required.

4.4.3 Energy Source

- The building provides a Zero Carbon Action Plan.
- 100% of the building's energy comes from renewables.

4.4.4 Water Use

- The building installs efficient water fixtures or uses 15% less potable water compared to a reference building.
    - 6 Star WELS rated urinals
    - 4 Star WELS rated toilets
    - 6 Star WELS rated tapware
    - 3 Star WELS rated showers for EOT facilities
    - Stormwater reuse
    - Low-bleed rate cooling towers or air-cooled chillers
    - Where landscape irrigation systems are provided, they will be automatically controlled via a system, of timers and sensors to minimise water consumption.

4.5 Places

The Places category focuses on the integration of the building into the urban fabric and deliver places that increase social cohesion. Buildings have an impact either positive or negative to the wider surroundings. The Places category recognises this and seeks to maximise the positive impacts and limits the negative ones.

4.5.1 Movement and Place

- The building includes showers and changing facilities for building occupants that are accessible, inclusive and located in a safe and protected space.
- A benchmark provision of publicly accessible electric vehicle charging facilities though a future Voluntary Planning Agreement (VPA)

4.5.2 Enjoyable Places

- The building delivers memorable, beautiful, vibrant communal or public places where people want to gather and participate in the community.
- The spaces are inclusive, safe, flexible and enjoyable.

4.5.3 Contribution to Place

- The building's design contributes to the liveability of the wider urban context and enhances the public realm.

4.6 People

The People category encourages solutions that address the social health of the community by bringing a new dimension to the design and construction of buildings. It highlights issues such as diversity and gender equity, inclusion, and mental health.

4.6.1 Inclusive Construction Practices

- During the building's construction, the head contractor provides gender inclusive facilities and protective equipment. The head contractor also installs policies on-site to increase awareness and reduces instances of discrimination, racism and bullying.
- Policies and programs implemented are relevant to construction workers on site.
- The head contractor provides high quality staff support on-site to reduce at least five key physical and mental health impacts relevant to construction workers.
- The effectiveness of their interventions is evaluated.

4.6.2 Design for Inclusion

- The building is designed and constructed to be inclusive to a diverse range of people with different needs.

4.7 Nature

Rapid urbanisation is putting pressure on ecosystems and threatening biodiversity. The Nature category focuses to bring positive impacts of green space and biodiversity.

4.7.1 Impacts to Nature

- The building was not built on, or significantly impacted, a site with a high ecological value.
- The building's light pollution has been minimised.
- effectiveness of their interventions is evaluated.

4.7.2 Biodiversity Enhancement

- The building's site includes an appropriate landscape area;
- The landscaping includes a diversity of species and prioritises the use of climate- resilient and indigenous plants; and
- The project team develops a site-specific Biodiversity Management Plan and provides it to the building owner or building owner representative.

4.7.3 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.

4.8 Leadership

The Leadership category aims to recognise the implementation of innovative practices, processes and strategies that promote achievements in the built environment that are beyond the scope of the rating tool as released.

4.8.1 Market Transformation

- The project seeks opportunities to implement a building solution or process that is considered leading in the targeted sector, nationally or globally. This will be liaised with GBCA.

4.8.2 Leadership Challenges

- The project will seek opportunities to meet the requirements of a Leadership Challenge developed by the GBCA. The list of Leadership Challenge is currently not available. Where there is/are suitable challenge(s), the project will target it/them.

5. ECOLOGICALLY SUSTAINABLE DEVELOPMENT STRATEGY – RESIDENTIAL DEVELOPMENT

This section of the report addresses the sustainability components of the residential development portion and summarises the associated sustainability benefits.

5.1 BASIX Water

Water is one of our most precious resources. Water restrictions have been applied across the greater Sydney area.

The following water savings initiatives are proposed to ensure that significant water sawing be achieved.

5.1.1 Water Fixtures

All water fittings and fixtures such as showerheads, water tap outlets and toilet cisterns are to have and/ or exceed the following Water Efficiency Labelling Scheme (WELS) star ratings:

Water Fittings / fixtures	Proposed Rating
Dwelling shower head rating	4 (4.5 – 6 L/min)
Dwelling sink / tap rating	4
Dwelling toilet cistern rating	4
Dishwasher	4

The water conservation measures are summarised below:

- A rainwater recycle tank will be provided to collect rainwater from non-trafficable roof areas and will be used for common landscape irrigation, car washing bay and toilets flashing in all dwellings.
- Low water use plant species to be selected were possible, in order to reduce the amount of water used for irrigation.

5.1.2 BASIX Water Score

The target BASIX Water score will be set to achieve the minimum pass score (40) plus 5%, viz. 45. This is considered by the project team to be a substantial improvement to a project of similar scale and nature.

5.2 BASIX Thermal Comfort

For the proposed development located in zone 56 under BASIX the thermal comfort requirements are:

- A maximum heating load of 45.4 MJ/m2/year and cooling load of 29.5 MJ/m2/year for each apartment
- A maximum heating load of 40.0 MJ/m2/year and cooling load of 26.0 MJ/m2/year for the whole development

A thermal comfort assessment of the proposed development will be carried out to show compliance.

The project is targeting to achieve 5% overall lower than the maximum heating and cooling load allowance in BASIX Thermal Comfort.

5.2.1 Building Fabric

The proposed development is to be designed to exceed the NCC 2019 and BASIX requirements for building envelope.

5.2.1.1 Construction

The construction compliance for the residential component of the development depends on the thermal comfort modelling result for BASIX compliance.

The minimum performance requirements for the building form and construction of the dwellings at the proposed development location as per the NCC 2019 Section J- Energy Efficiency are:

- Roof and Ceiling R3.7
- External Walls R2.8 / R2.3
- Internal Walls R1.8
- Floor R2.0
- Glazing See separate subsection

This will necessitate the use of insulation in walls, floor and the roof. Insulation reduces heat flow and so the heat loss in winter and heat gain in summer. This minimises the heating and cooling load demand on the air conditioning systems.

Slab and external walls will be concrete. Concrete is considered to be a high density material and reasonably good conductor in the range of building products. For high density materials a lot of heat energy is required to change the temperature. This means that it has high thermal mass and excellent properties for absorbing heat energy, storing it and then releasing it to the room. It is advantageous in damping daily temperature variations within conditioned spaces, resulting in both heating and cooling loads reductions.

Light coloured roof material is recommended to be used to reflect more sunlight and reduce summer heat gain.

The final insulation levels will be determined by NatHERS thermal modelling software for compliance with BASIX.

5.2.1.2 Glazing

It is recommended that windows for the residential section of the development will be high performance glazing systems. Performance glazing substantially reduces heat transfer/ transmission. This particularly reduces heat loss in winter; therefore, internal heat gain from equipment, lighting and people are better

contained. Also, absorbs the infrared portion of sunlight and reduces the amount transferred into the conditioned space. It will correspond in reduction in both heating and cooling loads.

The final window selection is subject to thermal comfort modelling for compliance with BASIX.

The assessment to show compliance will be carried out during the detailed design stage of the project.

5.3 BASIX Energy

5.3.1 Air conditioning

All apartments will be served by multiple concealed ducted type air cooled variable refrigerant volume (VRV) reverse cycle air conditioners connecting to VRV outdoor units in the locations to provide cooling in summer and heating in winter.

All apartments shall be of day/night zoned operation as per BASIX requirement with one fan coil unit mounted above the ceiling, connected via internally insulated ductwork, and insulated flexible duct to a supply outlet in each room.

Reverse cycle air-conditioning is at least 3 times more efficient when compared to electric heater.

These initiatives will provide significant savings in energy use.

5.3.2 Mechanical Ventilation

All apartments shall be served by ventilation system as follows:

- Apartment toilets, main bathroom, ensuite and laundry exhausts shall be interlock to light switch.
- Ductwork and pipework systems will be designed to reduce system pressure losses to reduce fan and pump motor power. This includes selection of equipment for reduced coil and vessel pressure drops and being generous with ductwork and pipework sizes to reduce friction losses.
- The car park ventilation fans shall be controlled via a CO monitoring system and smoke detection system. The supply and exhaust fans shall be VSD driven.
- CO monitoring system for car park ventilation system to comply with AS 1668.2 energy efficient measures – Energy used by carpark ventilation system can be reduced according to the occupancy level or contaminant generation rate by utilising CO monitoring system, thus saves energy.

5.3.3 Lighting System

All apartments shall be served by lighting system as follows:

- Fixtures incorporating the latest lamp technologies and efficient designs will be installed to minimize energy use and provide an efficient artificial lighting system.
- The apartment glazing areas will allow plenty of natural daylight access and it will minimise the use of artificial lighting
- Lighting will be designed to comply or exceed the minimum requirements of NCC 2019 Section J6

- Car park shall be illuminated across the floor level using LED fittings and controlled via local motion detector.
- LED lift lighting is to be used and connected to lift call button.

5.3.4 Appliances

An energy and water efficient dishwasher and clothes dryer will be provided to each unit to reduce energy and water consumption. The following Minimum Energy Performance Standards (MEPS) and Water Efficiency Labelling Scheme (WELS) star ratings for appliances will be achieved.

Appliances	MEPS	WELS
Dishwasher	3.0	4.0
Clothes Dryer	2.0	N/A

5.3.5 Photovoltaic Solar Panels

Renewable energy is becoming more accessible and integral to improve sustainability performance of the building sector.

Photovoltaic panels are proposed for installation on the apartment roof tops. The capacity will be determined in the detail design of the project.

5.4 Other Residential Initiatives

5.4.1 Materials

Construction material selection is an important part of environmental strategy. Every material consumes natural resources during its manufacture and transportation to site. The selection of materials and finishes also impacts on ongoing maintenance by susceptibility to weathering, deterioration and replacement cycles, and contributes to energy consumption and carbon dioxide emissions.

Where possible, it is recommended that building materials, fittings and finishes have been recycled or incorporate recycled materials and have environmental certification recognized by a third party certification scheme.

The proposed sustainability initiatives for materials to be utilised on this project comprise:

- Paint and floor covering will contain low levels of volatile organic compounds (VOC).
- Design of building components, including the structural framing, roofing and facade cladding for optimal durability and longevity.
- Waste cupboard or storage areas for recycling and garbage.

5.4.2 Waste Management

Waste collection and disposal plays a very important role in the protection of the environment and the health of the population in the modern world.

A waste management plan will be prepared in accordance with City of Sydney Council's requirements to assess and monitor waste management process for construction and demolition waste as well as waste during occupation within the development.

5.4.3 BASIX Energy Score

The target BASIX Energy score will be set to achieve the minimum pass score (35) plus 5%, viz. 40.

5.4.4 Electric Vehicle Charging Infrastructure

Consistent with the imminent City of Sydney's Electric Vehicle Policy, all residential car spaces in the development will be electric vehicle ready.

6. ECOLOGICALLY SUSTAINABLE DEVELOPMENT STRATEGY – SUPERMARKET DEVELOPMENT

This section of the report addresses the sustainability initiatives of the supermarket development component and summarises the associated sustainability benefits.

6.1 Social Benefits from Supermarket development

6.1.1 Working with Non-profit Organisations, e.g. Ozharvest on food demand and minimizing food wastage

Ozharvest was founded by Ronni Kahn AO in 2004 after noticing the huge volume of food going to waste, OzHarvest quickly grew to become Australia's leading food rescue organisation. Ozharvest strives to save surplus food from ending up in landfill and delivering it to charities that help feed people in need.

This delivers sustainability benefits in multiple fronts:

- Reduce food wastages going to landfill, and hence, reducing waste emissions from food wastes.

  Food waste feeds climate change. Food waste is often overlooked in the climate change debate, but is responsible for 8-10% of global greenhouse gases. That's more than all the emissions from the plastic produced (3.8%), the aviation section (1.9%) and from extracting oil (3.8%). Food waste is a major contributor to climate change, and tackling food waste is an important element in halving the emission target by 2030.

Figure 6: Rotting food in landfill

- Provide social benefits in the form of cooked meals or food ingredients to the less privileged
- Provide social benefits via voluntary work collaborations amongst voluntary workers and the service users

6.1.2 Promote healthy eating through education classes and cooking classes

Below are some of the programs and benefits offered by Ozharvest.

Figure 7: Ozharvest education program – Food Waste Costs Australia

- Provide social benefits via education to strengthen community connections, improve life skills, and increase healthy eating and food waste awareness with a range of programs
- Provide social benefits via voluntary work collaborations amongst voluntary workers and the service users
- Provide FEAST which is a curriculum aligned education program, inspiring kids to eat healthy food, waste less and be change-makers in their local communities. The program teaches year 5 and 6 students about food waste, sustainability and nutrition using hands-on cooking and inquiry-based learning. It offers professional learning for teachers through an on-site training day.

6.1.3 Provision of In-store Recycling Area

The supermarket proposes to provide in-store recycling area for various waste streams including food packaging and other waste/recycling streams.

Some waste streams, such as plastic packaging for food, are not included in typical recycling streams, and hence, normal households have to put these wastes into general waste ending in landfill. By providing recycling for other waste streams not typically included in recycling collection, this is anticipated to promote more recycling streams, and hence, reduce waste going into landfill.

6.1.4 Woolworths target to rely on renewable energy, through purchasing renewable energy to operate its business

Woolworths Supermarket recognises the emissions from fossil fuel powered electricity. They have a corporate policy to transform procurement of energy into renewable sources to operate its business. This is anticipated to drive continual uptake of renewable energy, and reduce emissions from fossil fuel powered electricity.

6.1.5 Provision and Promotion of EV charging stations

Transport is Australia's third largest source of greenhouse gas emissions accounting for 17% of total emissions in 2017. Cars are responsible for roughly half of all transport emissions.

In ratifying the Paris Agreement, Australia committed to rapidly reduce our carbon emissions, by reducing emissions by 26-28 percent on 2005 levels by 2030 and transitioning to zero emissions before 2050.

One of the important strategies is electrifying and powering cars, buses, trains and trams with 100% renewable energy.

The proposed supermarket development recognised the emissions from cars. In addition, the demographics of the locality composes of a significant amount of dwellings with no private car parking and electric vehicle charging facility.

Therefore, electric vehicle (EV) charging stations are proposed to be included in the public basement parking to promote and facilitate EV uptake and usage, in turn reduce emissions from cars.

The proposed EV charging infrastructure includes:

- 50% of worker car spaces are to be EV ready and
- 25% of retail customer car spaces are to be fitted with three phase Level 2 EV chargers at 22 kilowatts or higher
- An additional two (2) Level 3 or 4 fast chargers accessible within the retail parking provisions.

Figure 8: Electric vehicle parking bay with charging point – encouraging and facilitating uptake of EV

6.1.6 Flexibility of store layout to improve customer experience

With a full-line supermarket of approximately 3,110sqm of trading area, the store layout will have the ability to trial different layouts to improve the customer experience, which will also future-proof store expansions as required to cater for the projected population growth.

6.2 Green Star Interiors Rating

The supermarket development is targeting a Green Star Interiors rating. There is only a handful of supermarket that achieve a Green Star Interiors rating. This target is considered exceeding the City of Sydney ESD requirements.

Brief descriptions of the credits targeted are shown below:

6.2.1 Management Category

The supermarket development would be committed to the appropriate management and implementation of the sustainability strategies by establishing and maintaining a rigorous, transparent and third-party certified ESD framework.

Management initiatives will include engagement of a Green Star Accredited Professional, engagement of an Independent Commissioning Agent (ICA), extended building commissioning and tuning, fitout information, commitment performance, smart energy and water metering and monitoring system (EMS), comprehensive construction environmental management and maximised recycling of operational waste.

6.2.2 Indoor Environmental Quality

In order to ensure that the Indoor Environmental Quality (IEQ) is achieved to a high standard, strategies to optimise indoor air quality, acoustic, lighting and thermal will be considered throughout the new fitout's design and construction.

The initiatives for indoor environmental quality include:

- Quality of Indoor Air – 50% above statutory minimum rates; separation of exhaust and elimination of pollutants and ease for maintenance and cleaning.
- Acoustic Comfort – Internal noise levels to be designed within 5 dBA of "Satisfactory" sound level of AS/NZS 2107.
- Lighting Control – flicker free, and high colouring rendering (CRI $\geq$ 80) lighting fixtures, lighting levels compliant with AS 1680.2
- Reduced Exposure to toxins – VOC levels in paints, sealants, adhesives, carpets and formaldehyde levels in engineered wood products will be specified below Green Star limits and procured accordingly.
- Thermal Comfort – The Predicted Mean Vote of the supermarket will be designed to achieve within +/- 1 and implemented accordingly.
- Quality of Amenities – An Amenity Room/space will be provided with high quality, universally accessible and a suitable size to the regular occupants / staff of the supermarket.
- Ergonomics – The work settings, e.g. workstation and seats, etc. will address the ergonomics needs of the regular occupants / staff.

6.2.3 Energy

The ongoing energy consumption and the associated carbon emissions of the new fitout will be reduced through high performance building facades designed to optimise the passive performance of the building architecture, thereby reducing the energy required for cooling, heating and lighting for the occupants. Best-in-class building services will further reduce the energy and water use of the fitout by optimising energy and water conservation in the design and equipment selections, and will also be actively controlled to operate only as and where required.

The new fitout will be designed to significantly reduce operational carbon emissions below that of an equivalent 2019 NCC Section J energy efficiency building code compliant reference building, with procurement of offsite renewable energy to promote and vitalise uptake of renewable energy and reduce carbon footprint.

6.2.4 Transport

The fitout is proposed to incorporate leading sustainable mobility features to reduce carbon emissions not only by its superior location for public transport accessibility but also by including features such as a high-quality end-of-trip facility, and electric vehicle charging car parks.

6.2.5 Water

The new fitout is proposed to be designed with best practice water efficiency fixtures and fittings into the design and equipment selections, air cooled heat rejection equipment, and other water efficiency measures.

6.2.6 Materials

The new fitout is proposed to go beyond simply sustainable material selection by using a comprehensive life cycle analysis to optimise its cradle-to-cradle materials and construction-related environmental impacts, implementing responsible material selection and sustainable products, targeting high diversion rates from landfill from construction and demolition wastes, with all initiatives maximising reused and recycled content in construction, as well as reducing embodied carbon in construction.

6.2.7 Land Use and Ecology

A comprehensive hazardous materials management plan including abatement of asbestos, lead (in paints) and polychlorinated biphynols (PCB's in fluorescent lighting magnetic ballasts) will be implemented through demolition and construction works.

6.2.8 Emissions

Light pollution - The external lighting design will comply with AS4282:1997 Control of the Obtrusive Effects of Outdoor Lighting. The external lighting design is proposed to demonstrate that no external luminaire has an upward light output ration (ULOR) that exceeds 5% relative to its actual mounted orientation.

Microbial control – Air cooled condensers will be specified and implemented such that no evaporative heat rejection or constant water movement, no water stored between 20-50°C & no aerosol spray will be within the supermarket to mitigate Legionella risk.

6.2.9 Innovations

The following innovations are proposed to be investigated to further distinguish the new development's leading environmental aspirations:

- Heat Rejection – Reducing potable water in heat rejection system.
- Microbial control – Warm water systems have been designed to manage the risk of microbial control.

- Soft Landing – BSRIA Soft Landings Framework for fitout commissioning and tuning will be considered to be incorporated in the commissioning and tuning requirements.
- Ultra low VOC paints with 50% of internally applied paints having no more than 5g/L TVOC content
- High Performance Site Office
- Financial Transparency – costs in the implementation of the sustainability initiatives will be available to GBCA.
- Community benefits – The social benefits proposed will be nominated to GBCA and sought for community benefits.
- LEED Integrative Design Process – The design process will be analysed with various process, e.g. Energy simulation, life cycle assessment and feedback to the design team to achieve better design solutions.
- Green Cleaning – A Green Cleaning Plan will be developed such that the operational cleaning of the supermarket will procure green cleaning products and achieve sustainability objectives of Green Cleaning in Green Star Performance.

Appendix A– Green Star Pathways

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Green Star Buildings Credit Analysis

PROJECT: 923-935 Bourke St, Waterloo — **Project Number:** 21473
REV: P2 — **Date:** 04-Nov-21

Credit		Number	Level	Points Available	5 Star Pathway	To Be Confirmed	Additional Remarks
			Minimum Required		35		
			Total Points Targeted	105	**39**	**19**	**Pathways include buffer points for risk management**
Responsible							**Rev A**
Industry development	The building owner or developer - appoints a Green Star Accredited Professional (GSAP) - discloses the cost of sustainable building practices to the GBCA, and - markets the building's sustainability achievements.	1.0	Credit Achievement	1	1		**GSAP** contractually engaged since early design stages. GSAP must deliver workshop and hold follow up meetings. Floth staff are Green Star Accredited Professionals. **Financial Transparency:** Head contractor to agree on a disclosure template that comprehensively itemises design, construction, documentation and project costs. Building owner to partake in yearly GBCA report using anonymised data. **Marketing Sustainability Achievements:** Building owner to produce marketing material samples on sustainability achievements and display Green Star certificate prominently on project.
Responsible construction	The builder or head contractor: - has an environmental management system in place to manage its environmental impacts on site; - diverts at least 80% of construction and demolition waste from landfill; and - provides training on the sustainability targets of the building.	2.0	Minimum Expectation	Mandatory	Mandatory		**Environmental Management System:** 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. **Environmental Management Plan**: Head contractor to create and implement a Construction Environmental Management Plan. Regular inspections must take place during construction. **Sustainability training:** Head contractor must provide training to 95% of all contractors and subcontractors present onsite **Cumulative waste report** generated from the monthly waste reports must be provided by the waste contractor over the entire duration of construction and demolition works proving minimum 80% diversion rates from landfill. Waste contractor and waste processing facilities must have a Compliance Verification Summary.
Responsible construction	90% of construction and demolition waste is diverted from landfill, and waste contractors and facilities comply with the Green Star Construction and Demolition Waste Reporting Criteria.	2.1	Credit Achievement	1	1		Cumulative waste report generated from the monthly waste reports must be provided by the waste contractor over the entire duration of construction and demolition works proving **90%** diversion rates from landfill. Waste contractor and waste processing facilities must have a Compliance Verification Summary.
Verification and handover	The building has been commissioned and will be tuned. The building was set up for optimum ongoing management due to its appropriate metering and monitoring systems. The project team create and deliver operations and maintenance information to the facilities management team at the time of handover. Information is available to building users on how to best use the building.	3.0	Minimum Expectation	Mandatory	Mandatory		**Metering and monitoring:** Water and Energy metering and monitoring system to be in place and be commissioned and validated to support future achievement of a NABERS rating. The monitoring system must raise an alarm and alert FM automatically if energy or water use increases beyond certain parameters, with a detailed assessment, correction and validation process. **Commissioning and tuning:** - Environmental Performance Targets to be nominated under Design Intent / Owner Project Requirements - "Service and Maintainability Report' with coverage of commissionability, controllability, maintainability, operability and safety. (expected from Head Contractor or ICA where appointed) - Includes 'Commissioning Plan' (expected from ICA where appointed). Commissioning Plan includes Air Permeability Performance Testing. Airtightness must be included as part of the commissioning process during schematic design, design development, construction and DLP. - Includes 'Building Tuning Plan' (expected from ICA where appointed) **Building Information:** - Comprehensive operations and maintenance information is developed and made available and relevant and current building user information is developed and made available to the FM, body corp and building owners.
Verification and handover	An independent level of verification is provided to the commissioning and tuning activities through the involvement of an independent commissioning agent, or through a soft landings approach that involves the future facilities management team. For large projects (Total building services value of over $20M), both must occur.	3.1	Credit Achievement	1	1		**Soft Landings Approach:** the facilities management team (or building owner's representative) must be involved in the commissioning and handover process, take part in the development and signoff of the O&M manual and receive handover training. They must have continued access to critical design and construction team members for 2 years after PC. **Independent Commissioning agent:** Appoint ICA or FM to advise, monitor, and verify commissioning from design to tuning phases.
Operational waste	The project team must demonstrate the building is designed to allow effective management of operational waste by: - Separating waste streams; - Providing a dedicated and adequately sized waste storage area; and - Ensuring easy and safe access to waste storage areas for both occupants and waste collection contractors.	4.0	Minimum Expectation	Mandatory	Mandatory		**Operational Waste Management Plan** required to show calculations used to calculate waste space and details on how the waste collection areas meet best practice guidelines. One additional waste stream identified by the project team. This may include collecting any of the following waste types: organics, e-waste, batteries etc.
Responsible procurement	The building's design and construction procurement process follows ISO 20400 Sustainable Procurement - Guidance and at least one identified supply chain risk and opportunity is addressed.	5.1	Credit Achievement	1	1		Prior to Head Contractor appointment, the project team must undertake a **supply chain risk and opportunity assessment** regarding human rights, labour practices, the environment, fair operating practices, consumer issues and community involvement and development. Based on this assessment, the project must then develop and implement a **responsible procurement plan.** Contracts must required data collection, monitoring and reporting and a framework for incentivising the achievement of the plan. At least 10 key items mist be assessed, covering building services, plant & equipment and materials.
Responsible structure	80% of all structural components (by cost) meet a Responsible Products Value score of at least 10.	6.1	Credit Achievement	3			Structural materials (e.g. concrete, steel, formwork, structural timber) selected to be compliant with one or more initiatives below and each adds to the product's total score: Reused products or building components Climate Active Carbon Neutral Standard for Products & Services Environmental Product Declarations (Industry-wide) Environmental Product Declarations (Product-specific) FSC Forest Stewardship Standard of Australia (FSC-STD-AUS-01-2019 EN) Global GreenTag International Standard v4 (Green Rate - Level A) Literature Review and Best Practice Guidelines for the Life Cycle of PVC Building Products Good Environmental Choice Australia (GECA)
Responsible structure	In addition to the Credit Achievement, one of the following is met: - 10% of all products in the structure (by cost) meet a Responsible Products Value score of at least 15 minimum; - **OR** 30% of all products in the structure (by cost) have an average Responsible Products Value score of at least 12 average.	6.2	Exceptional Performance	2			Structural materials (e.g. concrete, steel, formwork, structural timber) selected to meet additional sustainability initiatives compared to the credit achievement.
Responsible envelope	60% of all building envelope components (by cost) meet a Responsible Products Value score of at least 10.	7.1	Credit Achievement	2			Envelope materials (e.g. facade, external shading, insulation, suspended slabs, roofing systems) selected to be compliant with one or more initiatives below and each adds to the product's total score: Reused products or building components Climate Active Carbon Neutral Standard for Products & Services Environmental Product Declarations (Industry-wide) Environmental Product Declarations (Product-specific) FSC Forest Stewardship Standard of Australia (FSC-STD-AUS-01-2019 EN) Global GreenTag International Standard v4 (Green Rate - Level A) Literature Review and Best Practice Guidelines for the Life Cycle of PVC Building Products Good Environmental Choice Australia (GECA)
Responsible envelope	In addition to the Credit Achievement, one of the following is met: - 10% of all products in building envelope (by cost) meet a Responsible Products Value score of at least 15 minimum. - **OR** 25% of all products in the building envelope (by cost) have an average Responsible Products Value score of at least 12 average.	7.2	Exceptional Performance	2			Envelope materials selected to meet additional sustainability initiatives compared to the credit achievement. Additional requirements: carbon neutral façade
Responsible systems	20% of all active building systems (by cost) meet a Responsible Products Value score of at least 6.	8.1	Credit Achievement	1			The selected materials for building's mechanical, hydraulic, fire, vertical transportation and electrical systems to be compliant with one or more initiatives below and each adds to the product's total score: Reused products or building components Climate Active Carbon Neutral Standard for Products & Services Environmental Product Declarations (Industry-wide) Environmental Product Declarations (Product-specific) FSC Forest Stewardship Standard of Australia (FSC-STD-AUS-01-2019 EN) Global GreenTag International Standard v4 (Green Rate - Level A) Literature Review and Best Practice Guidelines for the Life Cycle of PVC Building Products Good Environmental Choice Australia (GECA) Require: glass with high recycled content
Responsible systems	In addition to the Credit Achievement, one of the following is met: - 5% of all active building systems (by cost) meet a Responsible Products Value score of at least 11 minimum. - **OR** 15% of all active building systems (by cost) have an average Responsible Products Value score of at least 8 average.	8.2	Exceptional Performance	1			Building services materials selected to meet additional sustainability initiatives compared to the credit achievement. Additional requirements: carbon neutral building services systems
Responsible finishes	60% of all internal building finishes (by cost) meet a Responsible Products Value score of at least 7.	9.1	Credit Achievement	1	1		Building internal finishes materials selected to be compliant with one or more initiatives below and each adds to the product's total score: Reused products or building components Climate Active Carbon Neutral Standard for Products & Services Environmental Product Declarations (Industry-wide) Environmental Product Declarations (Product-specific) FSC Forest Stewardship Standard of Australia (FSC-STD-AUS-01-2019 EN) Global GreenTag International Standard v4 (Green Rate - Level A) Literature Review and Best Practice Guidelines for the Life Cycle of PVC Building Products Good Environmental Choice Australia (GECA)
Responsible finishes	In addition to the Credit Achievement, one of the following is met: - 10% of all internal building finishes (by cost) meet a Responsible Products Value score of at least 12 minimum. - **OR** 20% of all internal building finishes (by area) have an average Responsible Products Value score of at least 9 average.	9.2	Exceptional Performance	1			Internal finishes materials selected to meet additional sustainability initiatives compared to the credit achievement. Additional requirements: carbon neutral finishes
Total Category Points				**17**	**5**	**0**	
Healthy							
Clean air	Pollutants entering the building are minimised, and a high level of fresh air is provided to ensure levels of indoor pollutants are maintained at acceptable levels.	10.0	Minimum Expectation	Mandatory	Mandatory		**Ventilation system attributes:** mechanical design to comply with AS 1668.2.2012 (table 3.4) separation distances btw pollution sources & outdoor air intakes, design for ease of maintenance & cleaning, clean ductwork. **Provision of outdoor air: for non-residential buildings**, the building must provide 50% improvement of outdoor air required by AS1668.2:2012 to each space in the regularly occupied areas; **for residential buildings**, the building must meet natural ventilation requirements as per AS1668.4.2012. Outside air must be provided to conditioned spaces via tickle vents or mechanical ducts which are constructed and commissioned at a rate of at least 2.5L/s per bedroom and per living space with minimum of 5L/s per apartment. **Exhaust or elimination of pollutants:** Limit source pollution or exhaust directly to the outside, nominated pollutants include: printing and photocopying equipment, kitchen stoves, vehicle exhaust.
Clean air	The building's ventilation systems allow for easy maintenance, and high levels of outdoor air are provided.	10.1	Credit Achievement	2	2		**Ventilation system attributes:** adequate access required to both sides of all moisture and debris-catching components for maintenance within the air distribution system. **Provision of outdoor air: for non-residential buildings,** the building must provide 100% improvement of outdoor air required by AS1668.2:2012 to each space in the regularly occupied space; **for residential buildings,** the building must provide a 50% increase over AS1668.4.2012. Outside air must be provided to conditioned spaces via ~~tickle vents or~~ mechanical ducts which are constructed and commissioned at a rate of at least 5L/s per bedroom and per living space with minimum of 10L/s per apartment.
Light quality	The building provides adequate levels of daylight and good lighting levels suitable for the typical tasks in each space.	11.0	Minimum Expectation	Mandatory	Mandatory		**Lighting Comfort and Glare:** Flicker-free, CRI>=85, CRI R9>= 50, best practice illuminance levels and uniformity, min 3 MacAdam Ellipses, limited glare **Daylight**: Narrative describing the building's daylight, view and external glare strategy. Daylight must be calculated using Daylight Autonomy.
Light quality	The building provides either best practice Artificial Lighting **or** best practice access to daylight	11.1	Credit Achievement	2	2		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 (e.g. one wall mounted fitting in living, kitchen and bedrooms). The total area of illuminated wall must represent at least 20% of the area of walls in the field of view .
Light quality	The building provides both best practice Artificial Lighting **and** best practice access to daylight.	11.2	Exceptional Performance	2			**For non-residential buildings:** at least 40% of the regularly occupied areas across the building must receive high levels of daylight with no less than 20% on any floor or tenancy. Glare form from sunlight through all viewing facades and skylights must be reduced through a combination of blinds, screen fixed devices or other means. **For residential buildings**, 60% of the combined living and bedroom area of each apartment unit 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. Must provide room blackout blinds or curtains to all bedrooms. If blinds or curtains are part of a packaged décor, all blinds offered for the bedroom décor must be blackout blinds. Daylight modelling to confirm. Provision of blockout blinds or curtains required if targeting the daylight option
Acoustic comfort	An Acoustic Comfort Strategy is prepared to describe how the building and acoustic design aims to deliver acoustic comfort to the building occupants.	12.0	Minimum Expectation	Mandatory	Mandatory		An acoustic comfort strategy must be prepared by a qualified acoustic consultant during the design stage and the design solutions described in the strategy must be incorporated into the Contract Documents.

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Green Star Buildings Credit Analysis

PROJECT: 923-935 Bourke St, Waterloo
REV: P2
Project Number: 21473
Date: 04-Nov-21

Credit		Number	Level	Points Available	5 Star Pathway	To Be Confirmed	Additional Remarks
			Minimum Required		35		
			Total Points Targeted	105	**39**	**19**	**Pathways include buffer points for risk management**
Acoustic comfort	The building is designed and tested to achieve minimum acoustic performance requirements aligned with the Acoustic Comfort Strategy.	12.1	Credit Achievement	2			**Requires at least 2 of the following:** **> Internal Noise:** For Class 2 dwellings, noise levels must not exceed recommended Sleep Disturbance criteria as defined in the NSW EPA Road Noise Policy 2011. Up to two noise events per night: maximum internal noise levels below 70 dB LAmax. All other events: maximum internal noise levels below 55 dB LAmax. Internal ambient noise levels can exclude those services under the direct control of the occupant such as split system air-conditioning units and switchable exhaust fans (e.g. toilet, kitchen hoods and laundries). **> Acoustic Separation:** The project must address noise transmission between enclosed spaces within the nominated area: - All walls and floors (excluding riser walls) separating enclosed spaces must exceed the minimum NCC requirements by 5 points (excluding impact noise – refer impact noise transfer credit) - Party walls separating open plan kitchens (where joinery units are fixed) from another open plan kitchen/living room shall be discontinuous in construction (discontinuous in accordance with the National Construction Code) - Entry doors must have perimeter and threshold seals **> Impact noise transfer:** Limit Impact noise transfer through a floor as measured in accordance with ISO 16283-2 **> Reverberation:** Reverberation time in the regularly occupied area must be below the maximum stated in the 'Recommended Reverberation Time' provided in Table 1 of AS/NZS 2107:2016. This criterion does not apply to **residential spaces.** Acoustic requirement is slightly above code requirement.
Exposure to toxins	The building's paints adhesives, sealants, carpets, and engineered wood products are low or non-toxic. Occupants are not exposed to banned or highly toxic materials in the building.	13.0	Minimum Expectation	Mandatory	Mandatory		Adhere to VOC limits for paints, adhesives, sealants and carpets. All engineered wood products meet low formaldehyde limits. Any identified asbestos, lead or PCBs in any existing buildings or structures must be stabilised, or removed and disposed of in accordance with best practice guidelines.
Exposure to toxins	On-site tests verify the building has low Volatile Organic Compounds (VOC) and formaldehyde levels.	13.1	Credit Achievement	2			Testing must take place after practical completion and prior to occupants moving into the building. Testing must be done with ventilation operational, on lowest and highest floors as well as floors with highest occupants.
Amenity and comfort	The building has dedicated amenity rooms to act as parent room, a relaxation room, or an exercise room.	14.1	Credit Achievement	2	2		The size of the room is calculated at a ratio of 1m² per every 10 occupants or staff; Assuming 500 occupants, total size required is 50m2
Connection to nature	The building provides views, includes indoor plants, and incorporates nature-inspired design.	15.1	Credit Achievement	1	1		**Views**: 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. **Nature-inspired design:** Five (5) additional nature-inspired design interventions must be provided **Plants:** Indoor plants must be provided and properly maintained in the nominated spaces. One or more plants in pots with a soil surface area totalling at least 500cm² for every 15m² of the primary spaces is required.
Connection to nature	5% of the building's floor area/ or site area (whichever is greater) is allocated to nature in which occupants can directly engage with.	15.2	Exceptional Performance	1	1		**Interaction with Nature:** At least 5% of the building's floor area/or site area (whichever is greater) must be planted area (either vertical or horizontal). 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).
Total Category Points				**14**	**8**	**0**	
Resilient							
Climate change resilience	The project team completes the climate change pre-screening checklist. The project team communicates the building's exposure to climate change risks to the applicant.	16.0	Minimum Expectation	Mandatory	Mandatory		Project team members must consider potential impacts from climate change when completing the checklist and both historic and future data must be used.
Climate change resilience	The project team develops a project-specific climate change risk and adaptation assessment for the building. Extreme and high risks are addressed.	16.1	Credit Achievement	1	1		Adaptation Plan' to AS 5334:2013 required and incorporated into design. Recommend to perform review before tender if targeted.
Operations resilience	- The project team undertakes a comprehensive review of the acute shocks and chronic stresses likely to influence future building operations. - The building's design and future operational plan addresses any high or extreme system-level interdependency risks. - The building's design maintains a level of survivability and design purpose in a blackout.	17.1	Credit Achievement	2	2		Shocks be addressed in the assessment include: Failure of critical infrastructure (power, water and digital); Health pandemic; Water security; Geological hazards (landslides, earthquakes, tsunamis); and Direct attack (cyber and physical). Stresses be addressed in the assessment include: Ageing infrastructure; Rising cyber dependency; Increasing energy costs; and Lack of transport accessibility and availability Recommend to perform review before tender if targeted.
Community resilience	The project team undertakes a needs analysis of the community, identifies shocks and stresses that impact the building's ability to service the community, and develops responses to manage these.	18.1	Credit Achievement	1	1		The project team must undertake at least one community capacity building activity prior to or during construction in developing the community resilience plan Recommend to perform review before tender if targeted.
Heat resilience	At least 75% of the whole site area comprises of one or a combination of strategies that reduce the heat island effect.	19.1	Credit Achievement	1		1	At least 75% of total project site area comprises building or landscaping elements that reduce impact of heat island effect. Requires >82% solar reflectance for a flat roof or green roof. Site may achieve; site consists of an abundance of green roof, vegetation, and water bodies.
Grid resilience	The building meets one or several of the following: - Provides active generation and storage systems; - Has the infrastructure to deliver an appropriate demand response strategy; or - Has reduced its electricity consumption through passive design	20.1	Credit Achievement	3			**Active generation and storage systems:** The building has the capacity to reduce its electricity peak demand by 10% of the building's annual peak electricity demand for at least a one-hour period. (through chilled water storage systems, batteries or onsite renewable generation) **AND/OR** **Demand response:** The demand response strategy must show how at least 10% of the building's annual peak electricity demand is being shed without affecting occupant amenity (comfort, lighting, movement) for at least 4 hours. **Passive Design:** The building's facade demonstrates a 10% improvement over a reference building modelled to Section J requirements AND The building is mostly naturally ventilated AND The building's occupiable area is less than 3,000sqm.
Total Category Points				**8**	**4**	**1**	
Positive							
Upfront carbon emissions	The building's upfront carbon emissions are at least 10% less than those of a reference building.	21.0	Minimum Expectation	Mandatory	Mandatory		Upfront carbon emission 10% reduction to be achieved by material reduction (e.g. structural, finishes, envelope), low impact material selection (EPD, Carbon Neutral). Carbon offsets purchase cannot be used.
Upfront carbon emissions	The building's upfront carbon emissions are at least 20% less than those of a reference building.	21.1	Credit Achievement	3			Upfront carbon emission 20% reduction to be achieved by material reduction (e.g. structural, finishes, envelope), low impact material selection (EPD, Carbon Neutral). Carbon offsets purchase cannot be used. **This Credit Achievement is mandatory for 6-star projects.** Required selection of low-carbon materials and design. To be confirmed with life cycle modelling.
Upfront carbon emissions	The building's upfront carbon emissions are at least 20% less than those of a reference building, and all remaining emissions from Modules A1 – A5 are offset.	21.2	Exceptional Performance	3			Upfront carbon emission 40% reduction to be achieved by material reduction (e.g. structural, finishes, envelope), low impact material selection (EPD, Carbon Neutral). Carbon offsets purchase cannot be used. Material and design optimisation, EPD or carbon neutral certification for various materials including but not limited to concrete, steel, glass, finishes would contribute to this achievement.
Energy use	The building's energy use is at least 10% less than a reference building.	22.0	Minimum Expectation	Mandatory	Mandatory		**Non-residential Projects:** The building's energy use is at least 10% less than a reference building. **Residential Projects:** The sole occupancy units must achieve an minimum NatHERS rating of 5 stars and average of 6.5 stars. Showers (3 Star WELS - 9L/min), Taps (5 Star WELS - 6L/min) Heated pools must have a pool cover with a minimum R-value of 0.075 Compliance with NCC Parts J3 to J8
Energy use	The building's energy use is at least 20% less than a reference building	22.1	Credit Achievement	3	3		**Non-residential Projects:** The building's energy use is at least 20% less than a reference building. **Residential Projects:** The sole occupancy units must achieve an minimum NatHERS rating of 5.5 stars and average of 7 stars. Must achieve **at least four (4)** of the following for this project: 1. Showers (4 Star WELS - 7.5L/min), Taps (5 Star WELS - 6L/min). Hot water pipes lagged with insulation - R2.0 (outdoors) & R0.5 (indoors) 2. Domestic Hot Water: Electric heat pump COP 3.0 OR solar thermal heating system (at least 30% of the requirement) 3. Air Conditioning: chiller and pumps exceed NCC by 10%; Electric heating exceeds NCC by 10% 4. Clothes Drying: external clothes drying facility AND heat pump clothes dryer with auto-sensing feature & vented to outside (or no space provided for clothes dryer) 5. Ceiling Fans: In all bedrooms and living rooms as per NCC J0.3 6. Car parking: requirement not achievable 7. Vertical Transport: Lift energy efficiency is class A or B, Idle and standby energy performance level is 1 8. Lift lobbies and corridors (excluding main entrance lobby to the building) are either Naturally Ventilated OR provided with supply/exhaust air only with no heating or cooling (A/C or tempered) 9. A minimum of 500kWh of solar generation(~0.4kW system) per dwelling
Energy use	The building's energy use is at least 30% less than a reference building.	22.2	Exceptional Performance	3		3	**Non-residential Projects:** The building's energy use is at least 30% less than a reference building. **Residential Projects:** The sole occupancy units must achieve an minimum NatHERS rating of 6 stars and average of 7.5 stars. Must achieve **at least six (6)** of the following for this project: 1. Showers (4 Star WELS - 7.5L/min), Taps (5 Star WELS - 6L/min). Hot water pipes lagged with insulation - R2.0 (outdoors) & R0.5 (indoors) 2. Domestic Hot Water: Electric heat pump COP 3.0 OR solar thermal heating system (at least 30% of the requirement) 3. Air Conditioning: chiller and pumps exceed NCC by 10%; Electric heating exceeds NCC by 10% 4. Clothes Drying: external clothes drying facility AND heat pump clothes dryer with auto-sensing feature & vented to outside (or no space provided for clothes dryer) 5. Ceiling Fans: In all bedrooms and living rooms as per NCC J0.3 6. Car parking: requirement not achievable 7. Vertical Transport: Lift energy efficiency is class A or B, Idle and standby energy performance level is 1 8. Lift lobbies and corridors (excluding main entrance lobby to the building) are either Naturally Ventilated OR provided with supply/exhaust air only with no heating or cooling (A/C or tempered) 9. A minimum of 500kWh of solar generation(~0.4kW system) per dwelling
Energy source	The building provides a Zero Carbon Action Plan.	23.0	Minimum Expectation	Mandatory	Mandatory		The Zero Carbon Action Plan must be done prior to the tender phase of the project. 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.
Energy source	100% of the building's electricity comes from renewable electricity.	23.1	Credit Achievement	3	3		All electricity under the control of the building owner or operator must be accounted for and sourced from renewables - 5 year Greenpower contract. Electricity use for tenant loads / apartments can be excluded.
Energy source	100% of the building's energy comes from renewables.	23.2	Exceptional Performance	3	3		No gas infrastructure anticipated to be allowed for 6-star projects (and 5-star projects registering from 2023). However, A small amount (1% of total energy use) of fossil fuels (diesel) is allowed for emergency purposes. In this case the building applicant must buy carbon offsets equal to 5 years of fossil fuel emissions. **This Exceptional Performance is mandatory for 6-star projects.**
Other carbon emissions	The building owner eliminates or offsets emissions from refrigerants.	24.1	Credit Achievement	2		2	Option 1: Only refrigerants with a GWP of 10 or less allowed. This includes where fridges or freezers are provided as part of a fitout package in a **residential setting.** Option 2: Purchase carbon offsets for 100% of carbon emissions from refrigerants. **This Credit Achievement is mandatory for 6-star projects.**
Other carbon emissions	All other emissions not captured in the Positive category are eliminated or offset.	24.2	Exceptional Performance	2			All buildings emissions to be offset through carbon offset purchase.
Water use	The building installs efficient water fixtures or uses 15% less potable water compared to a reference building. Multi-unit residential buildings use 10% less potable water compared to a reference building.	25.0	Minimum Expectation	Mandatory	Mandatory		WELS ratings min requirements: taps (5star), urinals (5star), toilets (4star), showers (3stars), washing machine (4star), dishwasher (5star).
Water use	The building uses 45% less potable water compared to a reference building. Multi-unit residential buildings use **40%** less potable water compared to a reference building.	25.1	Credit Achievement	3			WELS ratings min requirements: taps (6star), urinals (6star), toilets (4star), showers (3stars - 6l/min), washing machine (5star), dishwasher (5.5star). Pool cover to reduce evaporation No water used for heat rejection e.g. air cooled chillers Subsurface drip irrigation for landscaping Rainwater reuse for landscape irrigation High percentage of low water use plants - weighted average crop coefficient of 0.4 or less Greywater reuse (from showers) for toilet flushing
Water use	The building uses 75% less potable water compared to a reference building. Each unit in an apartment building uses 60% less potable water compared to a reference building.	25.2	Exceptional Performance	3			Requires blackwater systems and/or use of external recycled water
Life cycle impacts	The project demonstrates a 30% reduction in life cycle impacts when compared to standard practice.	26.1	Credit Achievement	2			30%+ Cumulative Lifecycle Analysis impact reduction required. Life cycle analysis required, including peer review.
Total Category Points				**30**	**9**	**5**	

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Green Star Buildings Credit Analysis

PROJECT: 923-935 Bourke St, Waterloo
REV: P2
Project Number: 21473
Date: 04-Nov-21

Credit		Number	Level	Points Available	5 Star Pathway	To Be Confirmed	Additional Remarks
			Minimum Required		35		
			Total Points Targeted	105	39	19	Pathways include buffer points for risk management
Places							
Movement and place	The building includes showers and changing facilities for building occupants that are accessible, inclusive and located in a safe and protected space.	27.0	Minimum Expectation	Mandatory	Mandatory		This Minimum Requirement is not applicable to **residential projects.**
Movement and place	The building's design and location prioritises walking, cycling, and transport options that reduce the need for private fossil fuel powered vehicles.	27.1	Credit Achievement	3			**Bicycle Facilities:** the building's access must prioritise walking and cycling options; access must be well lit, weather protected and separated from vehicles. The building must also include access to bicycle parking that are separated from the primary vehicle entrance to ensure safety. The amount of bicycle parking facilities to be informed by the Sustainable Transport Plan. The access points must connect to the relevant bicycle storage facilities. **A Sustainable Transport Plan** must be prepared by a suitably qualified Transport Planner or Engineer. It must address spatial and electrical barriers to the roll out of future EV provisions. **Electric Vehicle Charging:** EV charging points to at least 5% of all car parking spaces and any car sharing parking spaces. Infrastructure and load management plan (including mix of slow and fast chargers assumptions) to allow for future of electric charging to 25% of all car parking spaces. **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 by 40%, encourage active transport use by 90%, and reduce vehicle kilometres travelled by 20% compared to a reference building. The building's design and location must encourage walking to and from a number of amenities.
Enjoyable places	The building delivers memorable, beautiful, vibrant communal or public places where people want to gather and participate in the community. The spaces are inclusive, safe, flexible and enjoyable.	28.1	Credit Achievement	2	2		Communal or public space must be provided at 0.25 m2/ occupant or 2.5% of GFA for building ≥ 1,000m2. The communal or public space must: • Accommodate community-based activities; • Have capacity and flexibility to operate in multiple modes of usage; • Demonstrate relevance of the space for local people (demographics, social profile, current needs); • Demonstrate the space has been designed for enjoyment; and • Be available to the community to use for free. It must be clearly demonstrated that the spaces are publicly accessible. Activation strategy must be provided to ensure placemaking continues after practical completion
Contribution to place	The building's design contributes to the liveability of the wider urban context and enhances the public realm.	29.1	Credit Achievement	2	2		There are two pathways for demonstrating compliance with this credit: • **Urban Context Report and public realm interface design;** OR • Independent design review
Culture and heritage	The building's design reflects and celebrates local demographics and identities, the history of the place, and any hidden or minority entities. This celebration was arrived through meaningful engagement with community groups early in the design process.	30.1	Credit Achievement	1			There are two pathways for demonstrating compliance with this credit: • The project team must show that they have undertaken local analysis including community engagement to identify culture, heritage and identity unique to the project site and area OR **• Design reviews are held at key points in the development of the design. It must be demonstrated that the Design Review Panel act independent of the project team.**
Total Category Points				**8**	**4**	**0**	
People							
Inclusive construction practices	During the building's construction, the head contractor provides gender inclusive facilities and protective equipment. The head contractor also installs policies on-site to increase awareness and reduces instances of discrimination, racism and bullying	31.0	Minimum Expectation	Mandatory	Mandatory		The head contractor must provide separate gender inclusive bathroom facilities and changing amenities onsite and implement policies and training to address issues of discrimination, racism, and bullying on-site;
Inclusive construction practices	The head contractor provides high quality staff support on-site to reduce at least five key physical and mental health impacts relevant to construction workers. They must also evaluate the effectiveness of their interventions.	31.1	Credit Achievement	1	1		The head contractor must show that they have introduced programs and solutions for at least 80% of the workforce to address 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. The project must provide an evaluation report to the client and sub-contractors on the program's effectiveness.
Indigenous inclusion	The building's design and construction celebrates Aboriginal and Torres Strait Islander people, culture and heritage by undertaking one or both of the following: - Playing an active role in the organisational Reconciliation Action Plan; and - Incorporating design elements using the Indigenous Design and Planning principles.	32.1	Credit Achievement	2		2	Reconciliation Action Plan Report (or similar) on the outcomes from the project's RAP demonstrating that at least 90% of the RAP targets have been met in the first reporting cycle; OR Inclusion of Indigenous Design including Evidence of Aboriginal and Torres Strait Islander engagement from concept design throughout the project's life cycle;
Procurement & workforce inclusion	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.	33.1	Credit Achievement	2		2	Groups include Aboriginal and/or Torres Strait Islander businesses; Social enterprises; and/ or Disability enterprises. Enterprise providers must be independently certified by third party organisations such as Supply Nation, Social Traders, BuyAbility and government chamber of commerce. 2% of total contract value.
Procurement & workforce inclusion	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.	33.2	Exceptional Performance	1			Groups include Aboriginal and/or Torres Strait Islander businesses; Social enterprises; and/ or Disability enterprises. Enterprise providers must be independently certified by third party organisations such as Supply Nation, Social Traders, BuyAbility and government chamber of commerce. 4% of total contract value.
Design for inclusion	The building is designed and constructed to be inclusive to a diverse range of people with different needs.	34.1	Credit Achievement	2	2		This applies to common spaces, bathroom facilities and amenities provided within the building. This include: - Equal access to the building: - Diverse wayfinding: Introduce visual, physical, olfactory, and auditory solutions - 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. This can be achieved through the building amenities
Design for inclusion	Engagement with target groups has informed the inclusive design.	34.2	Exceptional Performance	1			Requires consultation plan with disability community; incorporating the outcomes of the consultation have been incorporated into the buildings design; and Analysis of the building's designs against the Design for Dignity Guidelines: Principals for Beyond Compliance Accessibility in Urban Regeneration or other best practice guidelines. Access (DDA) Consultant to confirm requirements achieved.
Total Category Points				**9**	**3**	**4**	
Nature							
Impacts to nature	The building was not built on, or significantly impacted, a site with a high ecological value.	35.0	Minimum Expectation	Mandatory	Mandatory		There may be no critically endangered or vulnerable species, or ecological communities present on the site at the time of purchase. The project site does not contain a wetland, old growth forest or any "Matters of National Significance" Outdoor lighting to comply with AS 4282:1997 Control of Obtrusive Effects of Outdoor Lighting Upward Light Output Ratio (ULOR) no more than 5% or no more than 0.5Lux to site boundary and 0.1Lux to 4.5m into night sky
Impacts to nature	- The building's design and construction conserves existing natural soil, hydrological flows and vegetation elements; and - If deemed necessary by an Ecologist, at least 50% of existing site with high biodiversity value is retained.	35.1	Credit Achievement	2			The project team must show how ecological values will be protected. Ecological assessment report and Evidence that 50% of the biodiversity area has been retained.
Biodiversity enhancement	- The building's site includes an appropriate landscape area; - The landscaping includes a diversity of species and prioritises the use of climate-resilient and indigenous plants; and - The project team develops a site-specific Biodiversity Management Plan and provides it to the building owner or building owner representative	36.1	Credit Achievement	2	2		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 must be shown to be diverse and include multiple species/genus/etc. Biodiversity management plan required as part of the project's handover.
Biodiversity enhancement	- A greater area of landscaping is provided; and - The landscaping includes critically endangered and/or endangered plant species native to the bioregion.	36.2	Exceptional Performance	2	2		At 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 the GFA, whichever is larger. Vertical or horizontal landscapes are acceptable. Landscape must be shown to be diverse and include multiple species/genus/etc. Biodiversity management plan required as part of the project's handover.
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.	37.1	Credit Achievement	2	2		Strategy options: • 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. **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.
Nature stewardship	The building owner, as part of the project's development, undertakes activities that protects or restores biodiversity at scale beyond the development's boundary.	38.1	Credit Achievement	2		2	The area of offsite restoration must be equivalent to the total GFA of the development, or site area, whichever is greater. The project owner protecting or restoring an area offsite themselves; or The project owner supports an organisation that restores an area on their behalf, through a 5-year partnership.
Waterway protection	The building demonstrates an annual average flow reduction (ML/yr) of 40% compared to pre-development levels and meets specified pollutants targets.	39.1	Credit Achievement	2		2	Annual average flow reduction (ML/yr) of 40%. Runoff pollutant reduction as follows: TSS 85%, GP 90%, TN 45%, TP 65%. Stormwater management plan to demonstrate compliance
Waterway protection	The building demonstrates an annual average flow reduction (ML/yr) of 80% compared to pre-development levels and meets specified pollutants targets.	39.2	Exceptional Performance	2			Annual average flow reduction (ML/yr) of 80%. Runoff pollutant reduction as follows: TSS 90%, GP 95%, TN 60%, TP 70%. Not currently achieved.
Total Category Points				**14**	**6**	**4**	
Leadership							
Market Transformation	The project demonstrates: - How a building solution or process is considered leading in their targeted sector, nationally or globally; or - That the technology or process is not commonly used within Australia's building industry; or globally, depending on the context of the innovation claimed.	40.1	Credit Achievement	5		5	TBC through team consultation on project innovations e.g. Circular Economy
Leadership Challenges	The project meets a Leadership Challenge developed by the GBCA	41.1	Credit Achievement	Unlimited			1 point achieved through the Climate Positive pathway – Fossil fuel free, Powered by Renewables, High efficient, Built with lower upfront emissions, Offset with nature. Additional challenges TBC with GBCA.
Total Category Points				**5**	**0**	**5**	

Green Star - Interiors v1.3 Pathway

PROJECT: Woolworths Waterloo — **Project Number:** 21473

Rev: P2 — **Date:** 04-Nov-21

Credit	Aim of the Credit	Code	Criteria	Points Available	5-star targeted points	To Be Confirmed	Remarks
Management							
Green Star Accredited Professional	To recognise the appointment and active involvement of a Green Star Accredited Professional in order to ensure that the rating tool is applied effectively and as intended.	1.1	Accredited Professional	1	1		GSAP with Green Star Design & As Built training has been contractually engaged as a part of the project team. GSAP must deliver workshop and hold follow up meetings. Floth staff are Green Star Accredited Professionals.
Commissioning and Tuning	To encourage and recognise commissioning, handover and tuning initiatives that ensure all building services operate to their full potential.	2.0	Environmental PerformanceTargets	Credit Condition	Complies		Targets to be nominated under Design Intent.
		2.1	Services and Maintainability Review	1	1		"Service and Maintainability Report' with coverage of commissionability, controllability, maintainability & operability. (expected from ICA where appointed)
		2.2	Fitout Commissioning	1	1		Includes 'Commissioning Plan' (expected from ICA where appointed).
		2.3	Fitout Systems Tuning	1	1		Includes 'Fitout Tuning Plan' (expected from ICA where appointed)
		2.4	Independent Commissioning Agent	1	1		Appoint ICA or FM to advise, monitor, and verify commissioning from design to tuning phases.
Fitout Information	To recognise the development and provision of fitout information that facilitates operator and user understanding of fitout systems, operation and maintenance requirements, and environmental targets to enable the optimised performance.	3.0	Fitout User Information	1	1		Comprehensive operations and maintenance information is developed and made available and relevant and current fitout user information is developed and made available.
Commitment to Performance	To recognise practices that encourage building owners, building occupants and facilities management teams to set targets and monitor environmental performance in a collaborative way.	4.1	Environmental Fitout Performance	1	1		Building owner and tenants to commit to performance targets and measure and report on a min of 2 indicators: energy, water, indoor environment and waste. Innovation point to be awarded for all 4. Best practice green lease agreements required for all tenants to understand and comply with the commitment targets.
		4.2	End of Life Waste Performance	1	1		"Make-good" clauses required for tenant/owner leases which will include end-of-life reporting procedures and metrics.
		4.3	Ongoing Procurement	1	1		"Sustainable Procurement Guide" must be developed that covers the equipment,furniture and fixtures relevant to the principal use of the fitout and must consider four key items as minimum that include conumption and demand management strategies,environmental impact minimisation for goods &services,Suppliers socially responsible practices and value for money
Metering and Monitoring	To recognise the implementation of effective energy and water metering and monitoring systems.	5.0	Metering	Credit Condition	Complies		Water and Energy metering and monitoring system to be in place.Where the electrical load for a single item exceeds 5% of the total energy use for the project,or 100kW,it must be individually metered.Where a water use consumes 10% of the project's total water use, these msut be seperately metered..
		5.1	Monitoring Systems	1	1		
Responsible Construction Practices	To reward responsible construction practices that manage environmental impacts, enhance staff health and wellbeing and improve sustainability knowledge onsite.	6.0	Environmental Management Plan	Credit Condition	Complies		Create and implement a Construction Environmental Management Plan. Regular inspections must take place during construction.
		6.1	Formalised Environmental Management System	1	1		The system must be certified against one of the following standards: AS/NZS ISO 14001, BS 7750 or European Community's EMAS for large fitouts (GFA>500 m2), or AS/NZS ISO 14001 for small fitouts (GFA<500 m2). In all cases, an auditor report confirming evidence of effective use of formalised EMS must be provided to demonstrate compliance.
		6.2	High Quality Staff Support	1	1		High quality staff support practices are in place to promoto positive mental and physical health and site workers knowledge of sustainable practices are enhanced.
Operational Waste	To recognise projects that implement waste management plans that facilitate the re-use, upcycling, or conversion of waste into energy and stewardship of items to reduce the quantity of outgoing waste	7.0	Waste in Operations	1	1		Two options: Waste Management Plan by Qualified Auditor OR prescriptive approach inc separation of waste streams, dedicated area, access to area.
Total				**13**	**13**	**0**	
Indoor Environment Quality							
Quality of Indoor Air	To recognise projects that provide high air quality to occupants.	8.1	Ventilation System Attributes	1	1		Design to comply with ASHRAE 62.1 separation distances btw pollution sources & outdoor air intakes, design for ease of maintenance & cleaning, clean ductwork.
		8.2	Provision of Outside Air	2	1		1 /2 points for 50% O/A improvement on minimum requirement of AS1668.2 or if Co2 concentrations are maintained below 800ppm. Innovation credit for exceeding benchmark possible.
		8.3	Exhaust or Elimination of Pollutants	1	1		Limit source pollution or exhaust directly to the outside, nominated pollutants include: printing equipment, cooking equipment, vehicle exhaust.
Acoustic Comfort	To reward projects that provide appropriate and comfortable acoustic conditions for occupants.	9.1	Internal Noise Levels	1	1		Internal noise levels cannot exceed 5 dB(A) above the "satisfactory" sound levels provided in Table 1 of AS/NZS 2107:2000. May need acosutic engineer analysis on polished concrete performance. May need acoustic panels installation.
		9.2	Reverberation	1			Reverberation time below max. recommended in Table 1 of AS/NZS 2107:2016
		9.3	Acoustic Separation	1			Rw45 partitions which are fixed without a door & Rw35 for partitions that contain a door . Final testing will be required to confirm if achievable. (Recommend popin / popout room for private converstation.)
Lighting Comfort	To encourage and recognise well-lit spaces that provide a high degree of comfort to users.	10.0	Minimum Lighting Comfort	Credit Condition	Complies		Flicker Free , Minimum CRI of 80
		10.1	General Illuminance and Glare Reduction	1	1		Lighting levels to AS1680.2, compliance with luminaire selection system per section 8.3.4 of AS1680. Model required to verify.
		10.2	Surface Illuminance	1			Compliant surface illuminance values calculated per AS/NZS 1680.1:2006 Appendix B.
		10.3	Localised control	1			Applicable to fitouts > 500m2.Local control down to single lighting fitting, and project team must justify why and how, this is conducive to localised control.
Visual Comfort	To recognise the delivery of well-lit spaces that provide high levels of visual comfort to building occupants.	11.0	Glare Reduction	Credit Condition	Complies		Requires shading or blinds to all facades as part of base building. (TBC)
		11.1	Daylight	2	1	1	2% DF for 40% of NLA for 1 point or 60% for 2 points. 1 point claimable if shading or blinds to all facades provided as part of base building.
		11.2	Views	1	1		1 point for 60% of NLA within 8 metres of vision glazing.
Reduced Exposure to Pollutants	To recognise projects that safeguard occupant health through the reduction in internal air pollutant levels.	12.1	Paints, adhesives, sealants and carpets	2	2		Adhere to VOC limits for paints, adhesives, sealants and carpets.
		12.2	Engineered wood products	2	2		All engineered wood products meet low formaldehyde limits.
		12.3	Indoor Plants	2			Project teams should nominate that indoor plants are distributed across the nominated area and are reagularly maintained
Thermal Comfort	To encourage and recognise projects that achieve high levels of thermal comfort.	13.1	Thermal Comfort	1	1		PMV within +/-1
		13.2	Advanced Thermal Comfort	1		1	PMV within +/-0.5
Quality of Amenities	To recognise the provision of high quality amenities for fitout occupant's use	14A	Performance Pathway : Needs Analysis	1	1		1 point is available where a percentage of the nominated area is provided as a high quality, universally accessible, indoor/outdoor amenity space(s) intended for use by staff or regular occupants and suitable for their enjoyment. The size and qualities of the space(s) are determined via a needs analysis involving the target group.
		14B	Presciptive Pathway : Amenity Space				1 point is available where at least 5% of the nominated area comprises high quality amenity space(s) (a general amenity area or, additional breakout space), intended for use by staff or regular occupants, and which meet at least three of the specified criteria for; interaction, ventilation, daylight, views, landscaping and noise.
Ergonomics	To recognise the provision of equipment and spaces that provide good user comfort and avoid stress or injury	15.0	Ergonomics Strategy	1			1 point is available where the work settings in the nominated area address the ergonomic needs of the user, and information is provided to support continuous use.
Total				**23**	**13**	**2**	
Energy							
Greenhouse Gas Emissions	To encourage the reduction of greenhouse gas (GHG) emissions associated with the use of energy in building operations.	16A.0	Conditional Requirement	Credit Condition	Complies		* Lighting - 2.5% improvement om NCC Table J6.2a; * Mech Ventilation - 2.5% improvement for unitary A/C units; or 5% improvement for all other types; *IT equipment - All computer monitors have an Energy Star of at least 4 stars; * Applicanes - All major appliances relative to energy use have been specified as an above average perforamer by the project team.
		16A.1	Lighting	3	1		1 point for 5% improvement on NCC Table J6.2a; 2 points for 10% improvement on NCC Table J6.2a; 3 point for 15% improvement on NCC Table J6.2a.
		16A.2	Ventilation and Air conditioning	2			2 points for: * Fan motor 15% lower than NCC Part J5.4 (b),(c),(d) and (e); * Pump 10% lower than NCC Part J5.7 (b),© and (d); * Thermal efficiency of all isntalled gas water heater is at least 4% more than NCC Part J1.5(d); * EER (cooling) for all unitary A/C equipment is 5% higher than NCC Part J5.11, or MEPS; * EER and IPLV for all refrigerant chiller at least 15% higher than NCC Table J5.10a/b.
		16A.3	Domestic Hot Water	1			1 point for DHW systems powered by one of the following: * Renewable energy; * Electric heat pump (Min. COP 3.5); * Heat recovery from another process.
		16A.4	IT Equipment	3	3		* 1 point for thin-clients, ultrathin clients or energy efficient laptops for 95% of all workstations; * 1 point for all computer monitor have 6 star energy Star. Minimum; * 1 point for all workstaion equipment to go to stanby mode after 10 minutes of inactivity and all owrkstation to turn off at the end of working day.
		16A.5	Appliances and Equipemnt	1	1		* Appliances with Energy Star ratings - within one star of the highest energy star rating of the comparable equipment class; * Appliacnes without Energy Star ratings - Must be 20% more efficient than comprable equipment that is no more than 2 years of age.
		16A.6	Vertical Transportation	1			1 point for: * The minimum lift energy efficiency is class A or B in accordance with ISO 25745-2; * The minimum 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 25745-2.
		16A.7	Off-site Renewables	5	2	3	* 2 points for at least four points achieved, and a supply contract in place to procure at least 50% of electricity consumption through off-site renewable electricty solutions; * 5 points for at least five points achieved, and a supply contract in place to procure 100% of electricity consumption through off-site renewable electricty solutions;
		16D.1					
		16D.1					
Total				**16**	**7**	**3**	

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Green Star - Interiors v1.3 Pathway

PROJECT: Woolworths Waterloo **Project Number:** 21473

Rev: P2 **Date:** 04-Nov-21

Credit	Aim of the Credit	Code	Criteria	Points Available	5-star targeted points	To Be Confirmed	Remarks
Transport							
Sustainable Transport	To reward projects that implement design and operational measures that reduce the carbon emissions arising from occupant travel to and from the project, when compared to a reference fitout. This also promotes the health and fitness of commuters, and the increased liveability of the location.	17-A.1	Modelled Pathway	7			The points are determined by the transportation calculator.
		17-B.1	Access by Public Transport	3	3		Points are determined by the Public Transport calculator.
		17-B.3	Low Emission Vehicle Infrastructure	1	1	1	15% fuel eff. car (known type), carshare or 5% elec car parks.
		17-B.4	Active Transport Facilities	1	1		Cycle facilities for 7.5% of staff and 5% of visitors.
		17-B.5	Walkable Neighbourhood	1	1		8 amenities within 400m or Walkscore of at least 70 for Industrial fitouts (or 80 for all other fitouts).
Total				**7**	**6**	**1**	
Water							
Potable Water	To encourage fitout design that minimises potable water consumption in operations.	18-A.1	Potable Water - Modelled Pathway	5	2	1	Points to be verified based on a percent reduction via potable water calculator using WC (4 Star WELS), Urinal (6 Star WELS 0.8L/fl), Showers (3 Star WELS, 6L/min), Taps (6 Star WELS, 2L/min), rainwater & AHU condensate harvesting, cooling tower bleed water recycling and min.80% fire test water recovery.
		18-B.1	Sanitary Fixture Efficiency	1		1	MinWELS efficiency of taps is 6Star, urinals is 6 Star, Toilet is 5Star, Showers is 3Star, Clothes washing machines is 5Star and Dishwashers is 6 Star
		18-B.2	Domestic Appliances Efficiency	1	1		Min WELS efficiency of Clothes Washing Machines is 5Star and Dishwashers is 6Star.
		18-B.3	Commercial or Industrial Appliances	1	1		All water using commercial appliances installed are >1 WELS star of the comparable equipment class or 20% more efficient than comparable equipment that is no older than 2 years of age
		18-B.4	Shared Amenities	2	2		BASe building is awarded 3star NABERS Water or 3 Star Green Star -Water Category or shared amenities accessible to fitout occupants that complies with 18B.2
Total				**5**	**4**	**1**	
Materials							
Life Cycle Impacts	To reward projects that address life cycle impacts of construction materials and methods for the whole of fitout over its entire lifecycle	19.1	Comparative Life Cycle Assessment	18	4	2	50%+ cumulative Lifecycle Analysis impact reduction required. Note: max of 7 points are available for option 19.A.
		19.2	Additional Reporting	7			Requires using the LCA to inform design by: additional life cycle impact reporting, material selection improvent, construction process improvements and/or LCA design review.
		A	Additional Lifecycle impact reporting	1	1		
		B	Material Selection Improvement	2	2		
		C	Construction Process Improvement	2			
		D	LCA Design Review	2	2		
Responsible Building Materials	To reward projects that include materials that are responsibly sourced or have a sustainable supply chain.	20.1	Timber	1	1		All timber is certified or from a reused source
		20.2	Permanent Formwork, Cables, Pipes, Floors and Blinds	1	1		All permanent formwork, pipes, flooring, blinds, cables meet Best Practice PVC or do not contain PVC and have an Environmental Product Declaration.
Sustainable Products	To encourage sustainability and transparency in product specification.	21	Product Transperency & Sustainability	19			Up to 19 points available for varied % of sustainable products based on manufacturer documentation.
Construction and Demolition Waste	To reward projects that reduce construction waste going to landfill by reusing or recycling building materials	22	Conditional Requirement	Credit Condition	Complies		All waste contractors must hold a "Compliance Verification Summary" issued by a qualified auditor confirming Greenstar reporting compliance or "Disclosure Statement" confirming how much Greenstar reporting criteria is implemented
		22A	Fixed Benchmark				1.5 / 3 points awarded when the construction and demolition waste going to the landfill is in the range of 2.6 - 3.5 / 1.6-2.5 kg/m2 NLA
		22B	Percentage Benchmark	1	1		1 point for 90% diversion
Total				**22**	**12**	**2**	
Land Use & Ecology							
Sustainable Sites	To reward projects that choose to select sites with recognised sustainability benefits	23.1	Base Building Sustainability	5	2		5 points are awarded for 6 Star Green Star -Performance rating or Design & As Built, 4 points are awarded for 5 Star Green Star -Performance rating or Design & As Built, 3 points are awarded for 4 Star Green Star -Performance rating or Design & As Built, 2 points are awarded for 1,2 or 3 Star Green Star -Performance rating
		23.2	Base Building Cultural Heritage Significance	2			2 points awarded where project teams demonstrate that BB is registered on a state (Individual state governments) or national heritage (maintained by Department of Environment) register .
		23.3	Hazardous Materials	2		2	2 points awarded when hazardous materials survey has been conducted and any materials made or composed of lead ,asbestos and PCBs within the fitout have been removed or stabilisedas per the relevent legislation
Total				**5**	**2**	**2**	
Emissions							
Light Pollution	To reward projects that minimise light pollution.	24.0	Light Pollution to Neighbouring Properties	Conditional Requirement	Complies		Outdoor lighting to comply with AS 4282:1997 Control of Obtrusive Effects of Outdoor Lighting
		24.1	Light Pollution to Night Sky	1	1		Upward Light Output Ratio (ULOR) no more than 5% or no more than 0.5Lux to site boundary and 0.1Lux to 4.5m into night sky
Microbial Control	To recognise projects that implement systems to minimise the impacts associated with harmful microbes in building systems.	25.0	Legionella Impacts from Cooling Systems	1		1	No evaporative heat rejection or Constant water movement, no water stored btw 20-50deg.C & no aerosol spray (drift eliminators not acceptable). OR Legionella Plan and risk management.
Refrigerant Impacts	To encourage operational practices that minimise the environmental impacts of refrigeration equipment.	26.0	Refrigerant Impacts	1		1	Assessed by refrigerant impact calculator which limits global warming potential and ozone depletion potential.
Total				**3**	**1**	**2**	
Innovation							
Innovative Technology or Process	The project meets the aims of an existing credit using a technology or process that is considered innovative in Australia or the world.	27.A	Innovative Technology or Process	10		1	Examples of Potential Credits: *Onsite Renewable Energy - up to 2 pts for a min 10% renewable energy system. *Individual Comfort - 1 pt for providing individual comfort control in all primary spaces. *Building Integrated Photovoltaics - 1 pt for BIPV for a min of 15% ***Heat rejection - 1 pt where for reducing potable water in heat rejection system** *Fire Protection Systems -1pt where FPS are installed in addition to BB systems. *Passive Design - 1 pt for projects that use passive water treatment systems *** Microbial Control - Warm water systems have been designed to manage the risk of microbial control.**
Market Transformation	The project has undertaken a sustainability initiative that substantially contributes to the broader market transformation towards sustainable development in Australia or in the world.	27.B	Market Transformation		1		Examples of Potential Credits : ***BSRIA Soft Landings Framework for fitout commissioning and tuning**
Improving on Green Star Benchmarks	The project has achieved full points in a Green Star credit and demonstrates a substantial improvement on the benchmark required to achieve full points.	27.C	Improving on Green Star Benchmarks		1	1	Examples of Potential Credits: ***Indoor Pollutants - Ultra Low VOC paints** * LCA - 1 point is awarded where the cumulative impace reduction is increased by 20% to a total of 150%An additional 20% improvement is rewarded a second point. *Greenhouse Gas Emissions - Reference Building Pathway + 5% export *Potable Water - <10% Discharge to sewer *Potable Water - Performance Pathway : 1 point for each 10% reduction beyond 50% reductions as per the Potable Water Calculator. *Construction & Demolition Waste :1 pt when construction &Demolition waste to landfill meets a fixed benchmark of 1kg of waste sq.m of NLA.
Innovation Challenge	Where the project addresses a sustainability issue not included within any of the Credits in the existing Green Star rating tools.	27.D	Innovation Challenge		2	1	Examples of Potential Credits : * Marketing Excellence: Perform market research and provide information on the benefits of sustainability in a public and prominent way (eg. on hoarding and within leasing office) *** High Performance Site Office** *** Financial Transparency: Agree on a disclosure template that comprehensively itemises design, construction, documentation and project costs. Agree to partake in yearly GBCA report using anonymised data.** *** Community Benefits** * Culture, Heritage & Identity: adaptive re-use and uptake of heritage listed site features, celebrating the heritage value of the asset with signage/app. * Reconciliation Action Plan *Market Intelligence: Occupant Satisfaction Survey * Integrating Healthy Environments * Occupant Engagement * Social Return on Investment * Social Enterprise for Affordable Housing
Global Sustainability	Project teams may adopt an approved credit from a Global Green Building Rating tool that addresses a sustainability issue that is currently outside the scope of this Green Star rating tools.	27.E	Global Sustainability		2		Examples Potential Credits: ***LEED Integrative Design Process** *Living Building Challenge 3.0 Beauty ***Green Star Performance: Green Cleaning** *LEED Clean Construction
Total				**10**	**6**	**3**	
TOTAL				**104**	**64**	**16**	60 Points required for 5 Star Certification (4+ buffer points included, more likely from TBC points)

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