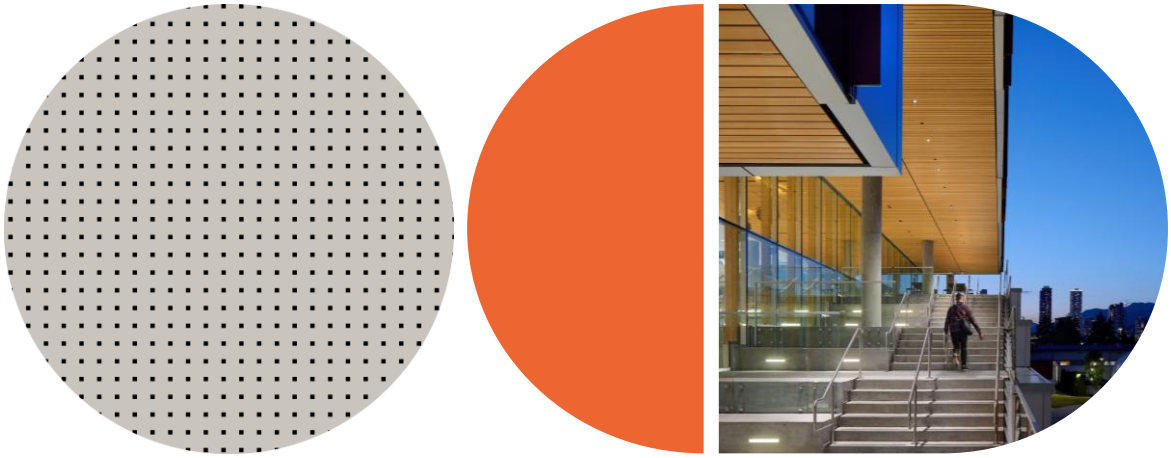
7-11 King William Street, Bayswater

Sustainability Strategy



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1. Introduction

This document has been prepared for PARC Developments to identify the sustainability initiatives that are being integrated for the new mixed use development project located at 7-11 King William Street, Bayswater WA 6053.

This report outlines the project's compliance with condition of the Development Approval by meeting the sustainability requirements of Residential Design Codes Volume 2 (Sections 4.15 and 4.16) and demonstrating the project's potential to target a Tier 2 (5-Star Green Star) benchmark under Development Policy 1 - Green Building in accordance with DevelopmentWA Design Guidelines.

A preliminary assessment of the project's potential to achieve a 5-star Green Star Equivalency has been undertaken. Points that are easily achieved or present best value for money have been selected according to previous experience with similar projects.

For this project, Green Star is applied solely as a framework for sustainability evaluation. All initiatives will need to be coordinated with the Design Team to ensure compliance is achieved. A total of 40 points has been targeted, providing a 5-point buffer above the minimum 35 points required to achieve a 5- star Green Star Equivalency.

1.1 Site Description

The project is located at 7-11 King William Street, Bayswater WA 6053, within the Bayswater Activity Centre and in close proximity to the recently completed Bayswater Train Station. The surrounding precinct comprises a mix of residential, commercial, and light industrial uses, reflecting an established urban area with ongoing change and development.

The site benefits from strong access to public transport, major road networks, and local amenities, supporting higher-density residential development. The proposal comprises a multi-storey apartment building that contributes to housing supply, urban consolidation, and the continued activation of the Bayswater Activity Centre. The project site is shown in Figure 1.

Figure 1: Site location and surroudings (Source: Google maps)

2. NCC 2022 Section J Requirements

It is understood that the project will be required to be designed in accordance with the NCC 2022 Section J – Energy Efficiency provisions.

The development will be reviewed against the NCC (2022) Section J Requirements utilising the following methodology:

- Part J4 – J4D1 Deemed-to-Satisfy Prescriptive requirements
- Part J1 – J1V3 Performance Engineered Approach
- Nationwide House Energy Rating Scheme (NatHERS) for Residential Areas
    - Area weighted average: Achieve NatHERS energy rating of at least 8 stars.
    - Sole Occupancy rating: Achieve a NatHERS energy rating of at least 7 stars.

2.1 Conditions and Requirements

Overall thermal performance of the building fabric is shown below.

NCC Part	Building Element	Total Minimum Construction Thermal Performance Requirement	Insulation Example	
J4D4	Roof & Ceiling Construction	Metal Deck Roof - R4.2	R1.3 60mm Anticon or equivalent & R4.1 215mmGlasswool Ceiling Batts	
		Concrete Roof – R4.2	R4.1 Glasswool Ceiling Batts	
J4D6	External Wall	R1.4	R2.5 90mm Glasswool Wall Batts including R0.2 thermal break	
J4D7	Floor	R2.0	R2.0 4mm Rigid Board	
J4D6	External Glazing	Double Low-e Glazing in Aluminium Frame	U-value (W/m^2K)	SHGC
			3.0	0.30
J5	Building Sealing	Refer Architectural Specification and/or notes on Drawings		

Note: The above requirements will be co-ordinated with the design team in the next design stage.

Air barrier to all building envelope walls, separating conditioned from unconditioned spaces, to be coordinated at SD stage.

2.2 NatHERS ratings

Given that this development is targeting a 5- Star Green Star equivalency rating the weighted-area average of all sole occupancy units in the building will target a NatHERS energy rating of at least 8.0 Stars and, each sole-occupancy unit must achieve a NatHERS rating of at least 7.0 Stars.

2.3 NatHERS Whole of Home Assessment

The NatHERS Whole of Home assessment is an evaluation designed to measure the energy efficiency of a residential building. This assessment considers both the thermal performance of the building fabric and the energy use of fixed appliances and on-site renewable energy systems.

The following recommendations are provided to ensure compliance with the Whole of Home assessment for 7-11 King William Street, Bayswater:

- **Thermal Performance:** High-performance building fabric in accordance with the NCC Section J Report, including light-coloured roof and wall finishes with solar absorptance ≤0.60.
- **Heating and Cooling Systems**: High-efficiency HVAC systems with a minimum COP/EER >3. Systems to achieve a Zoned Energy Rating Label (ZERL) rating of at least 3 stars for both heating and cooling.
- **Water Heating Systems**: Recommended Centralised Heat Pump Hot Water system
- **Lighting:** Energy-efficient lighting with a maximum power density of 5 W/m².
- **Renewable Energy Systems**: Solar PV system (individual or embedded network) with a minimum provision of 0.5 kW per apartment (TBC).
- **Appliances:** Energy-efficient appliances, including induction cooktops and electric ovens.

3. Sustainability Strategy

3.1 Strategy Overview

The set of ratings tools have been compiled by the Green Building Council of Australia to assess the level of environmentally sustainable design that may be incorporated into a building. This project will be assessed using the Buildings V1.1 rating tool which can be used to rate any new building or collection of buildings.

Under the Buildings V1.1 tool, the following ratings can be achieved:

- 15-34 points = 4 Star rating ("Australian Best Practice")
- **35-69 points = 5 Star rating ("Australian Excellence")**
- Above 70 points = 6 Star rating ("World Leader")

3.2 Feasibility Analysis

A feasibility study was conducted to evaluate the project's potential to meet Australian Excellence requirements. The objective of this comparison was to investigate applicable initiatives to target a performance equivalent to a 5 Star rating and to create a plan for the most effective points to target.

The total number of points available for each of the categories are:

Table 1: Category Points

Category	Available Points	Targeted Points 5 Star
Responsible	17	5
Healthy	14	9
Resilient	8	2
Positive	30	11
Places	8	4
People	9	7
Nature	14	0
Leadership	5	1
Sector Specific	1	1
Total	**106**	**40**

3.3 Identified Gaps

The following initiatives are reflected in the Sustainability Pathways as to be targeted, however, there is a performance gap between the proposed design and the specific requirements of the GS guidelines.

Sustainability Initiative	Points Claimed	Identified Gaps
Industry Development	**1**	Stantec is fulfilling the Green Star Accredited Professional (GSAP) role for the project. The financial disclosure and marketing requirements associated with this credit are not applicable, as the project is being pursued under a Green Star equivalency pathway.
Verification and Handover- Airtightness Testing	**Minimum Expectation**	Airtightness (air infiltration) testing is recommended to be undertaken by a suitably qualified consultant. If testing is not carried out, the project must demonstrate compliance through an air permeability design approach, supported by coordinated review across all disciplines to control potential air leakage paths at design stage. This includes assessment of façade and fire services elements such as ceiling and façade penetrations, internal separations between conditioned and unconditioned spaces, and full integration of HVAC, electrical, communications, and plumbing systems to ensure a continuous air barrier is maintained.
Movement and Place	**1**	A project-specific Transport Plan is not being developed; however, the design includes bicycle parking, and the site is well connected to public transport. EV charging is to be provided for at least 5% of parking spaces (2 out of 24), with infrastructure in place for future provision to all remaining bays, in line with NCC 2022 requirements.
Enjoyable Places	**1**	The project delivers new, publicly accessible spaces that support community activity and interaction. However, no activation strategy will be implemented to sustain placemaking outcomes beyond practical completion.

3.4 Sustainability Initiatives

The targeted strategies align with the preliminary pathway for a 5 Star equivalency rating. Below is a description of the targeted credits.

3.4.1 Responsible Category

Credit 1: Industry Development

- The building owner has formally appointed a Green Star Accredited Professional to lead and coordinate the development and implementation of the Sustainability strategy.

Credit 2: Responsible Construction

- The head contractor must provide the following:
    - Environmental Management System
    - Environmental Management Plan
    - Construction and Demolition Waste
        - At least 90% of construction and demolition waste must be diverted from landfill
        - Consideration of waste monitoring throughout the project construction phase, with monthly reports detailing the volumes, categories of materials, and waste.
    - Sustainability Training

Credit 3: Verification and Handover

- Appropriate energy and water metering and monitoring systems are designed for all common, major, and high-consumption uses.
- Appropriate Commissioning and Tuning plan to be developed in collaboration with the project team to ensure systems are commissioned and tuned to operate as intended.
- Air permeability design considerations included into the design.
- Airtightness (air infiltration) testing is recommended to be undertaken by a suitably qualified consultant (TBC).
- Building operations and maintenance information will be made readily available by the head contractor.
- Building User Guide and Logbook will be prepared by the head contractor.
- Services and maintainability review to be conducted prior to construction involving key stakeholders.
- An Independent Commissioning Agent is recommended to undertake Commissioning and Tuning (TBC).

Credit 4: Responsible Resource Management

- Separate waste and resource streams.
- Dedicated and adequately sized waste and resource storage area.
- Safe and efficient access to waste and resource storage areas.

Credit 9: Responsible Finishes

- At least 60% of all internal building finishes (by cost) must hold environmental certificates. Internal finishes include flooring, plasterboard, paints, ceilings, partitions, doors, internal windows or similar.

3.4.2 Healthy Category

Credit 11: Clean Air

For Class 2 (residential) spaces:

- The building ventilation systems must be designed to comply with the separation distances as outlined in Australian Standards 1668.2:2012 (table 3.4).
- All apartments are naturally ventilated building requirements as per AS1668:4:2012.
- The building also provides a dedicated make-up air path for kitchen, bathroom and laundry spaces that meets Clause 2.3 from AS 1668.2:2024.
- For each unit, pollutants from cooking processes and bathroom areas must be limited from the units' areas by exhausting the pollutants directly to the outside of the project.

For Commercial spaces:

- The building meets the minimum separation distances determined by one of the following:
  - The greater distance from either Table 5-1 in ASHRAE Standard 62.1:2022 – Ventilation for Acceptable Indoor Air Quality or Table 2.1 in AS 1668.2:2024. Distances are measured in accordance with the relevant standard.
  - The distance determined by the analytical method in Appendix B of ASHRAE Standard 62.1: 2022.
- Effective outdoor air is provided either by mechanical ventilation where there is a 50% improvement of outdoor air required by AS 1668.2:2024 to regularly occupied areas based on the design occupancy.

  OR
- Demand controlled ventilation by providing CO2 sensors to maintain CO2 levels at or less than 700ppm within each space in the regularly occupied areas.

- Levels of indoor pollutants are maintained at acceptable levels.
- Pollutants entering the building are minimised.
- All new and existing ductwork that serves the building must be cleaned prior to occupation in accordance with a recognised Standard (ACR 2021, SMACNA, etc.)

Credit 12: Light Quality

For Class 2 (residential) spaces:

- Colour Rendering Index Min of 85
- MacAdam Ellipses or a Standard Deviation Colour Matching (SDCM) 3 or lower.
- Flicker free lighting in accordance with IEEE 1789-2015 Recommended Practices for Modulating Current in High-Brightness LEDs for Mitigating Health Risks to Viewers.

For Commercial Spaces:

- In addition to the above, uniformity of no less than that specified in Table 3.2 of AS/NZS 1680.1:2006, with a maintenance factor method as defined in AS/NZS 1680.4.

- Glare from light sources must be limited within regularly occupied areas.
- Adequate daylight levels are provided
    - For residential spaces, at least 60% of the combined regularly occupied areas of each unit receives high levels of daylight with at least 20% of each bedroom and living area having high levels of daylight.
    - For all other spaces, at least 40% of the regularly occupied areas must comply with the daylight requirements.
    - The blinds must provide glare reduction to at least 95% of the area of viewing façades and skylights, can be controlled by occupants and have a VLT of ≤ 10%.

Credit 13: Acoustic Comfort

- The building achieves two of the following for residential spaces:
    - Maximum internal noise levels
    - Acoustic separation
    - Impact noise transfer
- For commercial spaces, the building is required to achieve compliance with the following:
    - Maximum internal noise levels
    - Acoustic separation

Credit 14: Exposure to Toxins

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

Credit 15: Amenity and Comfort

- The building has dedicated amenity space on the ground floor.

Credit 16: Connection to Nature

- At least 60% of regularly occupied areas must have a clear line of sight to a high quality internal or external view.
- At least 5% of the building's regularly occupied areas within the site boundary must be planted area.

3.4.3 Resilient Category

Credit 17: Climate Change Resilience

- The project develops a project- specific climate risk and adaptation assessment for the building where extreme and high risk are addressed. All adaptation measures are expected to be implemented and integrated into the design.

  The project team must design systems that account for:
    - Increased risk of power outages during peak demand periods, which could disrupt essential services and leave occupants without power.

        - Allow for future connection of emergency generators to maintain critical services (e.g. lighting, comms, security, HVAC for essential zones).
        - Roofspace to accommodate solar PV, which can help reduce grid dependency during peak events.
    - Increased frequency and intensity of heatwaves, combined with urban heat island effects, posing risks to occupant comfort, energy demand, and overall site resilience.
        - Include vegetation, light coloured roofing materials (for roof pitches <15°, a three-year Solar Reflectance Index (SRI) of minimum 64, including finishes such as Surfmist or Whitehaven for metal decking and white reflective paint for concrete roofs), shading structures, unshaded hardscaping elements to reduce heat island effect.

Credit 19: Community Resilience

- The project considers the surrounding community, including directly and indirectly impacted groups, and addresses relevant social factors to support community resilience.

3.4.4 Positive Category

Credit 22: Energy Source

- No Fossil fuels on site.
- Integration of solar photovoltaic (Minimum 50kW PV) system.

Credit 23: Energy Use

- The building has low energy consumption building services and a high performing façade with 10% improvement when compared to a NCC 2022 reference building.
- NatHERS rating requirements for Class 2 defined for Residential pathway:
    - Each sole-occupancy unit must achieve a NatHERS energy rating of **at least 7.0 stars**
    - The weighted-area average of all sole occupancy units in the building must achieve a NatHERS energy rating of **at least 8.0 stars**

The following building services efficiencies are recommended for building services:

- Domestic Hot Water
    - All showers have a minimum WELS rating of 4 Stars with a maximum flow rate of 7.5L/min.
    - All hot water pipes outside of the sole-occupancy units are insulated with a minimum R-value of 1.0. All hot water pipes inside sole-occupancy units are insulated with a minimum R-value of 0.5.
    - Centralised heat pumps hot water system (TBC).
- The building provides efficient outcomes for heating and cooling.
    - DX split systems: a minimum 3.5 Star ZERL Cooling Star Rating (average zone).
    - DX split systems: 3 Star ZERL Heating Star Rating (average zone).
- Ceiling fans are installed in all bedrooms and living rooms.
- Clothes drying facilities.

- Lift Energy Efficiency in accordance with ISO 25745-2.
- Lift Lobbies and Corridors are naturally ventilated.

Credit 24: Upfront Carbon Emissions

- Upfront carbon emissions must be reduced through good design and material selection and provide a **20%** improvement on a reference building. This will include:
    - Maximizing concrete replacement or low carbon concrete in all structural elements.
        - Recommendation to have at least 30-40% replacement for all concrete uses (i.e. slabs, foundations, etc)
    - Selection of sustainably manufactured reinforcing steel with high recycled content and Environmental Product Declarations (EPDs)
- No performance modelling will be undertaken.

Credit 26: Future Ready Refrigeration Equipment

- The building considers future-proofing the building for equipment that uses ultra-low GWP refrigerants
- The refrigerants in the building do not exceed GWP below the prescribed thresholds ≤700 for small and medium AC systems and ≤1000 for large AC systems (TBC).

Credit 27: Low-Emissions Transport

- Ready to charge EV charging points to at least 5% (2 car spaces of all 24 car parking spaces), with all remaining bays to be provided with infrastructure for future provision, in line with NCC 2022.

Credit 28: Design for Circularity

- The project adopts circular design strategies through participation in carpet take-back and recycling program, supporting end-of-use material recovery and diversion from landfill.

Credit 29: Water Use

- The following requirements for reducing water use:
    - Taps: 5 Star (≤ 6 L/min)
    - Toilets: 4 Star (≤ 3.5 L/flush)
    - Showers: 3 Star (≤ 7.5 L/min)
    - Clothes washing machine: 4 Star
    - Dishwasher: 5 Star

3.4.5 Places Category

Credit 30: Movement and Place

- A total of 32 bicycle parking spaces has been provided, with a dedicated bicycle access route to the safe and secure storage room on Level 1.
- The site is well-connected to public transport with Bayswater Train Station less than 1km.
- Ready to charge EV charging points to at least 5% (2 out of 24 car spaces), with all remaining bays to be provided with infrastructure for future provision, in line with NCC 2022.

Credit 31: Enjoyable Places

- The project provides new, publicly accessible spaces that are enjoyable and support community activity and interaction.

Credit 32: Contribution to Place

- Independent design reviews to be held at key points in the development of the design.

3.4.6 People Category

Credit 34: Inclusive Construction Practices

The head contractor must provide the following:

- Provide gender inclusive facilities and PPE.
- Implement policies to address issues of discrimination, racism, and bullying on-site.
- Conduct a Needs Analysis on potential site workers and sub-contractors prior to construction commencing.
- Implement physical and mental health programs.
- Conduct an evaluation of the program's effectiveness.
- Implementation of mental health and wellbeing policies on-site during the construction period to increase awareness and reduces instances of on-site incidents.

Credit 35: First Nations Inclusion

- The developer and operator maintain a Reconciliation Action Plan (RAP), and the project design incorporates relevant initiatives to align with its objectives.

Credit 36: Procurement and Workforce Inclusion

- The project implements a social procurement plan and at least 2% of the building's total contract value is directed to generating employment opportunities for disadvantaged and under-represented groups (TBC).

Credit 37: Design for Equity

- Provide equal access to the building for all principal entrance points and main thoroughfares inside and outside the building
- Introduce visual, physical, and auditory solutions to help individuals navigate the site
- Introduce internal and external spaces for a diverse range of users, and social interaction rooms.

3.4.7 Nature Category

Credit 38: Impacts to Nature

- The site currently has no ecological value as it is occupied by an existing building and will be enhanced through landscaping design.
- The building's light pollution will be minimised by downward-directed lighting fixtures to prevent upward light spill.

3.4.8 Leadership

Credit 43: Market Transformation: Dulux Envirosolutions

- The Contractor shall ensure participation for the Dulux Envirosolutions program initiative, by coordinating with the Design Team to confirm the recycling process and obtain approval before substituting any paint products.

3.4.9 Sector Specific – Residential

Responsible Building Management

- Residents User Guide to be circulated to all homeowners or tenants, outlining the building's sustainability initiatives.
- Building management team to be involved in handover milestone activities, including commissioning and tuning, if the owner will operate the building.
- Sustainability objectives to be included in building management contracts and tender documentation.
- Regular meetings to be held between building management and the building committee, with agendas and minutes recorded to demonstrate ongoing sustainability engagement.

3.4.10 Assessment method for Compliance

The above-mentioned strategies are indicative as this stage. These need to be further coordinated with the design team and integrated in the design. A project sustainability design specification will be produced on a later stage and will be included as part of the contract documents to integrate the above deliverables.

The above-mentioned contractual requirements do allow for minor modifications to the specific strategies but maintain the overall scheme amendment sustainability performance objective.

Appendix A Sustainability Pathway

Stantec

Stantec is a global leader in sustainable architecture, engineering, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

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