

Walker Corporation

Adelaide Festival Plaza Tower 2

Sustainability Strategy Report

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Our Vision is to think beyond the square.

Our Mission is to create spaces, places, and communities that are positive for both the environment and for people. We will do this by providing our clients with sustainable and bespoke solutions that are innovative, challenge perceived ideas, and push the boundaries of achievement and excellence.

We confirm that all work has been undertaken in accordance with our ISO 9001 accredited quality management system.

Acknowledgement of country

The dsquared team wish to acknowledge the Traditional Custodians of all country throughout Australia, and their cultural, spiritual, physical, and emotional connection with their land, waters, and community. We pay our respects to all Elders past, present, and emerging.

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1 Introduction

1.1 Introduction

This report summarises the Sustainability Strategies and ESD initiatives which will be applied to the new commercial office tower 2 at Adelaide Festival Square, in order to reduce the development's impact on the environment in both construction and operation.

This report follows the development of the building design by the integrated design team lead by JPW on behalf of Walker Corporation.

1.2 Vision

The sustainability vision and outcomes proposed are summarised as follows:



1.3 Author

This report has been prepared by Jarrad Braham, a Senior ESD Consultant at dsquared Consulting.

Jarrad has 8 years' experience in the design and construction of sustainable buildings in South Australia and across Australia. Jarrad's relevant South Australian experience includes Lot Fourteen, the Central Market Arcade Redevelopment, 150 Grenfell Street, and Adelaide Festival Square Tower 1. Jarrad is a Green Star Accredited Professional, NABERS Accredited Professional, and WELL Accredited Professional.

2 Sustainability Strategy

The sustainability strategy for the development is summarised as follows:



The sustainability performance outcomes which the project is targeting are summarised in Section 3 of this report.

Full details of all sustainability initiatives proposed to be implemented to deliver this strategy are included in Section 4 of this report.

3 Performance

3.1 Green Star Certification

The project will obtain a minimum 5 Star Green Star certification from the Green Building Council of Australia (GBCA) using the Buildings v1 Tool.

The GBCA defines 5 Stars as 'Australian Excellence in Sustainable Buildings'.

3.2 Carbon Neutral Ready

The building will be carbon neutral ready following the Green Building Council of Australia Climate Positive Pathway, with a zero net energy carbon outcome, embodied carbon reduced by at least 20%, and water and refrigerant emissions offset to zero via the purchase of Australian A-Grade carbon offset credits.

3.3 Energy and GHG Emissions

The building is being designed and will be constructed to achieve a 6 Star NABERS Energy rating.

NABERS defines 6 Stars as 'Market Leading' energy and GHG performance.

The building is also being designed to achieve an overall reduction in energy consumption of at least 20% lower than a 2022 NCC deemed-to-satisfy building.

3.4 Water

The building is being designed and will be constructed to achieve a minimum 5 Star NABERS Water rating.

NABERS defines 5 Stars as 'Excellent performance' amongst the Australian market.

The building will also achieve a minimum 10% reduction in potable water usage compared to a GBCA reference case.

3.5 Health and Wellbeing

The project will obtain WELL Gold certification from the International WELL Building Institute (IWBI) using the WELL Building Standard v2 Tool.

This signifies the building's exemplary health and wellbeing attributes which will benefit all building users, across all 9 categories of the WELL Building Standard including Air, Water, Nourishment, Movement, Light, Thermal Comfort, Sound, Mind, and Community.

3.6 Façade

The façade design is a thermally broken double-glazed curtain wall system and comprises a carefully engineered balance of insulated spandrel panels (35%) and vision glazing panels (65%) which optimises the balance between energy performance, thermal performance, and daylight amenity.

The façade will be air leakage pressure tested in-situ in accordance with AS/NZS ISO 9971:2015 using an ATTMA Licenced testing contractor.

Performance criteria adopted for the façade are as follows: System U-value 2.7, SHGC 0.25, VLT \geq 45%.

3.7 Daylight

The building provides excellent daylight access to all occupied areas which meets the following performance outcomes as demonstrated through computer simulation modelling:

- 1. exceeds the requirements of Green Star Buildings v1 Daylight Credit criteria for Exceptional Performance, being a daylight autonomy of 160 lux during 80% of daylight hours, and
- 2. exceeds the WELL Building Standard v2 daylight criteria for the Optimisation tier, being a daylight autonomy of 300 lux during 50% of daylight hours.

3.8 Climate Change

An analysis of the climate change impacts specific to the site has been undertaken to identify any risks that the development will need to respond to, including the following topics:

- Rainfall
- Temperature
- Humidity
- Flooding
- Solar radiation

- Bushfire severity
- Evapotranspiration
- Synoptic systems and storms
- Wind speed
- Soil conditions

Climate change risks to the project have been identified using the SA Government Department for the Environment & Water Guidelines for Climate Change Risk Assessment, and have been communicated to the project team to ensure the design and systems respond to a changing climate.

Climate change risk	Project response
Temperature rise – leading to an increase in loading on air conditioning systems, electricity supply infrastructure, and thermal impact on	The facade systems are designed to provide a higher level of thermal comfort than code, aligning with the WELL Building Standard thermal comfort criteria.
equipment and occupants	Systems infrastructure including air conditioning systems will be sized to cater for future load increases.
	Energy-efficient centralised chilled water plant and integrated Building Management System controls will reduce the building's electrical demands during peak summer periods.
Increased storm intensity – increase in peak storm frequency and impact, leading to an	The stormwater infrastructure is sized to cater for future predicted peak stormwater events.
increase stormwater loading and potential back- flood risk	Soft landscaping around the plaza will reduce stormwater runoff.
Reduction in rainfall – reduction in annual rainfall leading to an increase in irrigation water demand for landscaping	All landscaping will consist of drought resistant native plants to minimise the need for irrigation in general.

The relevant climate change risks and project responses are summarised as follows:

4 Initiatives

4.1 Energy and GHG Emissions

The following Energy and greenhouse gas reduction initiatives are included:

- 1. The building will be fully electrified and will not use gas or other fossil fuels for heating, cooling, hot water, or cooking.
- 2. A central chilled water HVAC system comprising water-cooled chillers and electric air-source heat pumps with heat recovery.
- 3. Using low or mid GWP refrigerants in all HVAC thermal plant (e.g. R32 or lower).
- 4. Automated ventilation controls including outdoor air economy cycles for free cooling, and demand control ventilation using CO₂ sensors to reduce ventilation loads when the building is not at full occupancy.
- 5. Thermally zoned Air Handling Units which allow independent temperature controls per thermal zone, providing improved temperature control and avoiding over-cooling and over-heating of zones.
- 6. No centralised domestic hot water system will be included. Instead, domestic hot water to bathrooms and amenities throughout the tower is supplied by localised electric hot water units located at point-of-use, which eliminates the pumping and circulation energy losses that occur in conventional centralised flow-and-return hot water systems.
- 7. Domestic hot water to the End of Trip facility is supplied by electric heat pumps which have a coefficient of performance of 300%.
- 8. A rooftop solar PV array of 130kW capacity will provide on-site renewable energy.
- 9. Energy efficient LED light fittings with automated lighting control systems.
- 10. Extensive metering and sub-metering for energy management, connected to a centralised Energy Management System.
- 11. Using light-coloured external finishes (in particular roof coverings) to reflect heat and reduce solar gain and reduce the heat island effect.
- 12. Using zero ODP refrigerants and insulation.
- 13. The façade will be subject to air leakage pressure testing to ATTMA standards to verify that the façade achieves a high air-tightness performance, thereby reducing heating and cooling energy and improving the indoor air quality, particularly during high external air pressure conditions.

4.2 Water

The following Water initiatives are included:

- 1. The use of Adelaide's recycled water scheme (Glenelg to Adelaide Parklands scheme) for toilet flushing throughout the building and landscape irrigation around the plaza.
- 2. Water efficient fittings with minimum WELS ratings as follows:
 - Taps 6 Stars
 - WCs 4 Stars
 - Urinals 6 Stars
 - Showers 4 Stars

- 3. Selecting appropriate landscape planting to minimise irrigation water use, with a focus on native and indigenous planting species.
- 4. All drinking water tap outlets will be lead-free in accordance with AS 3688-2015 and the WELL Building Standard.

4.3 Indoor Environment Quality

The following Indoor Environment Quality initiatives are included:

- 1. Mechanical ventilation system will provide 50% more outside air than NCC requirements.
- 2. Indoor air quality will meet or exceed the requirements of the WELL Building Standard. Outdoor air will be filtered using high grade air filtration (MERV 12 filter grade or better).
- 3. Daylight access will be maximised in all occupied areas.
- 4. High quality views to the outside will be provided throughout the building, including views to the parklands, riverbank, and CBD.
- 5. Using paints, sealants, adhesives, carpets, coverings, and furniture which have low off-gassing properties (low VOC, low formaldehyde).
- 6. A high quality acoustic environment will be provided which meets or exceeds the Australian Standards, Green Star standards, and WELL Building standards for interior noise levels, reverberation, and sound privacy. The building façade, envelope, services and internal finishes will be designed specifically to meet these acoustic targets.
- Thermal comfort performance will meet or exceed the requirements of the WELL Building Standard and the NCC, achieving a thermally comfortable environment throughout all occupied areas of the building for >98% of operating hours.

4.4 Transport

The following Transport initiatives are included:

- 1. A premium End of Trip facility will be available to all tenants including secure bicycle storage, showers, and lockers, to encourage cycling, e-mobility, and other active transport forms.
- 2. The site location is very well connected to public transport infrastructure including trains, buses, and trams, offering convenient sustainable transport options to all building users.
- 3. On-site car parking is limited, particularly for commercial tenants, which encourages tenants and visitors to use alternative forms of transport in lieu of car driving.
- 4. Electric Vehicle charging capacity will be provided to accommodate charging stations for a minimum of 10% of car parking spaces.

4.5 Waste

The following Waste initiatives are included:

- 1. Construction waste will be minimised through efficient design techniques including standardisation and wherever practicable off-site pre-fabrication. A minimum 90% diversion from landfill rate will be targeted.
- 2. Separate bins and collection services will be provided for recyclable, organic and general waste generated by all tenants and building users. Bins for each waste type will be stored in a dedicated waste management room in the basement to facilitate ease of separation of waste streams for recycling.

4.6 Construction

The following Construction initiatives are included:

- 1. The building will achieve a minimum 20% reduction in embodied carbon compared to a standard practice GBCA reference case. This will be achieved by optimising the structural and architectural designs to improve their efficiency and reduce materiality, as well as by selecting materials with a low embodied carbon and those which are made from recycled materials.
- 2. Seeking locally sourced materials and labour wherever viable.
- 3. Using off site pre-fabrication techniques to reduce on site construction time, waste, and greenhouse gas emissions, wherever practicable.
- 4. Using BIM as a design and construction management tool to minimise on-site clashes and abortive/ wasteful work.
- 5. The head contractor will be required to implement an Environmental Management System certified to ISO 14001 and a site-specific Environmental Management Plan to minimise the environmental impacts associated with construction.