

Chasecrown

24-25 South Esplanade Stage 1

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 document summarises the Sustainability Strategies and ESD initiatives which will be applied to the Stage 1 of the 24-25 South Esplanade Glenelg development, in order to reduce its impact on the environment in both construction and operation.

This report follows the development of the new building design by the integrated design team lead by Chasecrown.

1.2 Vision

The sustainability vision and outcomes proposed are summarised as follows:



Health & Wellbeing

Connecting to the coast

- _all apartments naturally ventilated
- _all apartments have high quality daylight and views
- _walkable location with facilities for cyclists
- _well ventilated and daylit common areas

Energy and Emissions

Low impact and affordable energy efficiency

- _20% more energy efficient than building code
- _centralised hot water system approach
- _all-electric building
- _30kW solar PV

Verified Performance

Certified Outcomes

- _apartments certified 7 Star NatHERS average
- _apartments minimum 6 Star NatHERS certified

1.3 Author

This report has been prepared by Paul Davy, a Director of dsquared.

Paul has over 30 years' experience in the UK, Europe, Asia and Australia as an engineering, ESD, and sustainability consultant. Paul holds IEng and MCIBSE Accreditation, is a Green Star Certified Assessor, a Green Building Council of Australia Teaching Faculty Member, an Ambassador for the Living Futures Institute of Australia, a WELL Accredited Professional, and an Infrastructure Sustainability Accredited Professional.

Paul has been a member of the South Australian Government ODASA Design Review Panel since its inception.

2 Performance

2.1 NatHERS

All apartments have been designed to achieve a minimum 6 Star NatHERS rating, with the building as a whole achieving 7 Stars average.

2.2 Energy and GHG Emissions

The development will be designed to achieve an overall reduction in building energy consumption by at least 20% lower than a NCC2022 deemed-to-satisfy building, through a combination of energy efficient façade design and services systems selection, and the provision of on-site renewable energy generation.

2.3 Façade

The façade glazing proposed is argon-filled double glazed.

2.4 Daylight

All apartments exceed the minimum NCC/BCA requirements for daylight access, with a minimum 40% of the floor area of all living rooms and bedrooms meeting a daylight autonomy of 160 Lux during 80% of daylight hours.

2.5 Heat Island and Microclimate

The building comprises more than 80% coverage of either landscaping or roofs with a high Solar Reflective Index (SRI) finish. As such, the heat island effect of this site is expected to be reduced by more than 80%.

2.6 Climate Change

An analysis of the climate change impacts has been undertaken to identify any risks that the development will need to respond to and will include 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.

These are summarised as follows:

Climate change risk	Mitigation Strategy
Temperature rise – leading to an increase in loading on air conditioning systems, electricity supply infrastructure, and thermal impact on equipment and residents	The facade systems are designed to provide a high level of thermal comfort, with a 7 Star NatHERS average outcome. Systems infrastructure including air conditioning systems will be sized to cater for future load increases. The deployment of high SRI finishes, in combination with external shading devices, will help to minimise heat island effect and human comfort stress in the public realm.
Increased storm intensity – increased peak storm frequency and impact, leading to an increase stormwater loading and potential back-flood risk	The stormwater infrastructure will be sized to cater for future predicted peak stormwater events.
Reduction in rainfall – reduction in annual rainfall leading to an increase in irrigation water demand for landscaping	Any irrigation system will be designed with the integration of a potable water feed service, such that water is available at all times when rainfall harvesting is insufficient.

3 Initiatives

3.1 Community and Social Sustainability

The following social sustainability initiatives are included:

1. Materials and labour used in the construction of the building will be preferentially sought from the local supply chain. This may include but will not be limited to façade screening systems, bricks, and solar PV systems.
2. The apartment buildings' design affords views from and to dwellings to provide transparency and a visual connection between residents and the community and environment.
3. The apartment buildings' design allows for connection the local environment through passive design and natural ventilation via opening windows, with open air balconies provided to apartments, allowing residents to connect to nature and to adjust how they live in their dwellings according to the seasons.
4. Bicycle storage facilities are provided for apartment residents, and visitors to the buildings.
5. All common areas have good access to daylight and ventilation.

3.2 Energy

The following Energy initiatives are included:

1. The apartments will be fully electrified and will not utilise fossil fuels (natural gas) for heating, cooling, hot water, or cooking.
2. The deployment of rooftop solar PV will be maximised, with a minimum of 30kW capacity provided.
3. The apartment buildings design allows for the full natural ventilation of all apartments through openable windows and balconies.
4. All residential common areas will be provided with daylight access to reduce artificial lighting energy use.
5. Selection of energy efficient lighting fittings (LED) with automated lighting control systems to public spaces.
6. Electricity metering and sub-metering for energy management.
7. Using light-coloured external finishes (in particular roof coverings) to reflect heat and reduce solar gain and reduce the heat island effect.
8. Using zero ODP refrigerants and insulation.
9. Using electric heat pump hot water systems.
10. Using high-efficiency reverse cycle multi-head air conditioning systems.
11. In inset energy network will be provided allowing residents to obtain 100% renewable energy at a reduced rate via an embedded energy network contract.
12. Electric vehicle charging will be provided to resident car parking bays as a resident cost option, with a demand management in place providing preferential charging using the rooftop solar array when it is available to do so.
13. Designing the apartments to achieve an energy performance at least 20% better than current Building Code minimum.

3.3 Water

The following Water initiatives are included:

1. Water efficient fittings with the minimum WELS ratings:
 - Taps 5 Stars
 - WCs 4 Stars
 - Showers 4 Stars
2. The storage of rainwater in a dedicated 14kL water reuse tank. This will provide feed water for irrigation. A potable water feed will be provided to support the rainwater system at times of low rainwater availability.
3. Selecting appropriate landscape planting to minimise irrigation water use, with a focus on a native planting species palette.
4. In accordance with the WELL Building Standard, all drinking water tap outlets will be lead-free in accordance with AS 3688-2015.

3.4 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. The development will incorporate ventilated and weatherproof storage facilities for the collection and disposal of general, recyclable, organic waste, and bulky waste, which will be separated on site to facilitate ease of disposal for recycling.

Refer also to the separate Waste Management Plan.

3.5 Transport

The following Transport initiatives are included:

1. Dedicated bicycle storage will be provided for residents.
2. Bike racks for visitors/guests will be provided.

Refer also to the separate Transport Plan.

3.6 Indoor Environment Quality

The following Indoor Environment Quality initiatives are included:

1. Using paints, sealants, adhesives, carpets, coverings, and furniture which have low off-gassing properties (low VOC, low formaldehyde).
2. Maximising access to daylight to all areas whilst minimising glare.
3. All apartments will be naturally ventilated.

3.7 Construction

The following Construction initiatives are included:

1. Select materials with a comparatively low embodied energy/carbon profile wherever practicable, e.g. fly ash in concrete, recycled content in thermal insulation, and reinforcement bar.
2. Using off site pre-fabrication techniques to reduce on site construction time, waste, and greenhouse gas emissions, wherever practicable.
3. The development will seek to select locally sourced materials and labour wherever viable.