dsquared

Helping Hand

Childers Street Apartments (Stage 1A)

Sustainability Summary for Development Approval

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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 Summary

This document summarises the sustainability strategies and Environmentally Sustainable Design (ESD) initiatives which have been included in the design of the Stage 1A Childers Street apartments for Helping Hand. These initiatives have been selected to reduce the building's impact on the environment in both construction and operation, and deliver spaces that prioritise health and wellbeing of building occupants.

The sustainability themes for the Helping Hand precinct in North Adelaide have been developed based on the Helping Hand corporate priorities:

The key sustainability principles for the precinct were workshopped with the team and are summarised here:

- Energy efficient and comfortable living spaces, all-electric and fossil fuel free;
- Powered by renewable energy through a combination of onsite and offsite solar PV;
- Water efficient through low water use fixtures, drought tolerant planting, and recycled water connection for precinct irrigation;
- Built form that reduces ongoing energy consumption and embodied carbon emissions;
- Prioritise health and wellbeing in design, including daylight access, natural ventilation and materials (i.e., timber), and reduced urban heat island through light colours and plantings;
- Support sustainable transport via strategies that encourage walking, public transport and transition to electric vehicles.

1.2 Author

This report has been prepared Deborah Davidson, a Director of consultancy firm dsquared.

Deborah is an experienced ESD consultant with over 20 years' experience in the field. Deborah is a Green Star Accredited Assessor and is often called upon by the Green Building Council of Australia for her experience in the delivery and assessment of sustainable buildings. Deborah is an Accredited Professional in Green Star, WELL and LEED.

2 Sustainability Initiatives

2.1 Energy and emissions

Energy efficiency is a key driver for the precinct, to provide a standard of living that is energy efficient in operation, whilst being comfortable to occupants. The following energy efficiency initiatives being implemented:

- The apartments will be all-electric for all energy systems, allowing 100% of the building's energy needs to be supplied with renewable energy (through off-site renewables). No fossil fuels (natural gas) to be used for building heating, cooling, hot water, or cooking.
- The building will incorporate on-site solar PV to offset energy emissions.
- Passive design and a high-performance façade with double glazing as well as external shading devices where required. Shading and glazing system specifications will be optimised using computer simulation techniques. Air tightness testing will be carried out during construction.
- An average 7.5 Star NatHERS rating will be achieved for all apartments.
- Daylight access is prioritised to regularly occupied areas, reducing the reliance on artificial lighting.
- Fresh air provided though openable windows.
- Selection of energy efficient, flicker-free lighting fittings (LED) with automated lighting control systems.
- Each apartment will be served by energy efficient in-ceiling fan coil units connected to a VRV air cooled condenser dedicated to each apartment.
- Energy efficient centralised heat pump for hot water.
- Smart metering will be installed for energy management.
- Refrigerants with low Global Warming Potential (GWP) values will be specified.
- Using light-coloured external finishes (hardscaping and roof coverings) to reflect heat and reduce solar gain, reduce the heat island effect and increase the wellbeing of the community. External features may also include fixed and natural shade, green and blue infrastructure etc.
- All external lighting shall eliminate light spill to the night sky and site boundary.

2.2 Health & Wellbeing

The development will include significant areas of open space, including resident gardens and public open space. The following additional health and wellbeing initiatives shall be included in the development:

- The buildings' design allows for connection the local environment through passive design and natural ventilation via opening windows, allowing residents to connect to nature and to adjust how they live in their rooms according to the seasons.
- Provision of thermally comfortable spaces throughout the year using mixed mode ventilation to offer user options (use of air conditioning or openable windows in each room), flexibility and allowing the internal conditions to follow the climatic conditions when preferable.
- Outside air will be provided through openable windows, with cross ventilation to living areas.
- Using paints, sealants, adhesives, carpets, coverings, furniture, and composite timbers that have low off-gassing properties (low VOC, low formaldehyde).

- Preference shall be given to natural materials and colour schemes inside the building in order to promote biophilic design. This could include (but is not limited to) the following:
  - Plants and landscape into the interior spaces.
  - Materials or finishes which are made of natural materials or evoke natural elements or ecology.
  - Colour palettes which evoke natural landscapes or culturally significant elements.
- Design of external and internal spaces that encourage social interaction, contribute to a sense of place, and create a strong indoor-outdoor connectivity. A common dining area is included for social events.
- Acoustic design and testing to verify internal noise levels, reverberation levels, and sound privacy levels in enclosed occupied spaces.
- Extensive planting and shading elements incorporated into the design of the communal areas to achieve a positive impact on the occupants and their connection to nature.
- Ample space is included in the garage design should residents wish to store a bike.

2.3 Materials and waste

An assessment of all building materials based on their life cycle performance will allow for a meaningful reduction in the embodied energy of the building compared to a standard new building. The following will be considered in the detailed design stage:

- Concrete mix to have minimum 30% flyash content, or comprise a low-carbon concrete mix such as Holcim Ecopact.
- Specify responsible building materials:
  - Timber products must be reused or included on the Forest Stewardship certification scheme.
  - Steel sourced from a responsible steel manufacturer.
  - All common uses of PVC must be either PVC products sourced from manufacturers which meet the Best Practice Guidelines for PVC in the Built Environment or are products that do not contain PVC.
- Prioritise use of sustainable products:
  - Products that have been re-used, re-purposed, have recycled content, have an Environmental Product Declaration (EPD), or a third-party certification (such as GECA, Global Greentag, etc.).
  - Recycled content materials and finishes including carpets, ceilings, plasterboard, acoustic wall and ceiling treatments, and insulation.
- The total life cycle cost of finishes shall be optimised by selecting low maintenance, long life materials, with product stewardship agreements in place.
- Prioritise the use of materials of Australian manufacture, and local supply.
- 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.
- Separate bins will be provided for organic waste, recyclable waste, and general waste, to encourage and facilitate diversion of waste from landfill. An operational Waste Management Plan has been developed by Cirqa.

2.4 Water conservation

The following water conservation initiatives are included:

- Fixture and fitting to have the following minimum WELS ratings:
    - Shower – 4 Stars, max 7.5L/min
    - Taps – 5 Stars, max 6L/min
    - WC – 4 Stars (dual flush), max 3.5L/flush
- Stormwater is managed for quantity and quality, using an underground detention basin and Gross Pollutant Trap to treat water to high levels for discharge to the local stormwater system, reducing stormwater runoff that the peak stormwater discharge rate from the site post-development does not exceed the pre-development discharge rate. The strategies are captured in the Stormwater Management Plan (SWMP) by Innovis.
- Water sub-metering of potable water, recycled water, and hot water.