

Lakeside Joondalup Office Development

Joondalup

Sustainability Statement for Development Application



CLIENT

Lend Lease



ARCHITECT

Hames Sharley



Amendment Register

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EXECUTIVE SUMMARY

Lendlease proposes to develop a new commercial office building at 420 Joondalup Drive, Joondalup 6027. Floth Pty Ltd (Floth) has been commissioned by Lendlease to provide Sustainability Engineering Services for the development.

This report summarises the environmental sustainability strategy for the proposed development as part as part of the Development Application to the local authority, City of Joondalup. The Sustainability Statement has been prepared to exceed the requirements of the City of Joondalup Environmentally Sustainable Design Checklist.

This document is organised around a key project environmental target using the Green Star environmental rating system:

5 Star Green Star - Design and As-Built v1.3 certified rating, representing ‘Australian Excellence’.

This report has been prepared by a Green Star Accredited Professional and references a Design Review pre-assessment undertaken to demonstrate that a minimum 5 star Green Star - Design and As-Built rating can and will be achieved. We understand that the project does not need to be formally registered with the GBCA at time of Development Approval submission.

This document is structured as follows:

- Development description and project synopsis;
- A discussion of the Green Star rating scheme;
- A list of the initiatives targeted by the design to achieve the project’s environmental goals. These initiatives have been developed in collaboration with the design team and have been incorporated throughout the design being conducted to date.

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1. INTRODUCTION

Lendlease proposes to develop a new commercial office building at 420 Joondalup Drive, Joondalup 6027. Floth Pty Ltd (Floth) has been commissioned by Lendlease to provide Sustainability Engineering Services for the development.

This Sustainability Statement has been prepared for the proposed Joondalup SC Office Development commercial tower project to exceed the requirements of the City of Joondalup Environmentally Sustainable Design Checklist, and summarises the sustainability targets and strategies used to minimise the development’s environmental impact throughout design and construction.

1.1 Development Description

Location: The project site is at the proposed 420 Joondalup Drive, Joondalup.

The subject site and surrounding area are presented in Figure 1 and for an aerial view of site. The PlanWA interactive map by the WA Department of Planning, Lands and Heritage indicates that the site is located within a *Central city area* zone, with property details as presented in Table 1.

Table 1: Property Details of the Subject Site

PROPERTY DETAILS	DESCRIPTION
Property Address	420 Joondalup Drive, Joondalup
Lot Number	708
R Code	Joondalup Activity Centre Plan
Planning Scheme	Metropolitan Region Scheme (MRS)
LG Zoning	Centre
Structure Plan No	Joondalup Activity Centre Plan
MRS Zoning	Central city area
Local Planning Scheme	City of Joondalup Scheme No.3

1.2 Project Synopsis

Lendlease proposes to develop a multi-storey commercial building that includes a Ground Floor café and childcare facility. For details of the proposed design, refer to the architectural drawings prepared by Hames Sharley.

The subject site and surrounding area is presented in Figure 1 below.



Figure 1: Aerial View of Site (Ref. Nearmap)

A primary aim of the development is to create a commercial office tower with leading yet practical sustainable design and construction for the temperate climate. The project will be developed in line with firmly established leading practice ESD design. The Joondalup SC Office Development development will target minimum 5 Star Green Star Design and As-Built v1.3 certification.

This sustainability performance is achieved by the holistic integration of ESD elements throughout the building and site design. Wherever possible the ESD elements have been integrated into the building function to achieve the desired level of sustainable performance.

1.3 Green Star – Design and As-Built Sustainable Building Rating Scheme



Green Star is a comprehensive, national, voluntary environmental rating system administered by the Green Building Council of Australia¹ 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.

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

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

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.

¹ <http://www.gbca.org.au>

Each category is divided into credits, each of which addresses an initiative that improves or has the potential to improve environmental performance. Points are awarded in each credit for actions that demonstrate that the project has met the overall objectives of Green 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.

This report has been prepared by a Green Star Accredited Professional and references a Design Review pre-assessment undertaken to demonstrate that a minimum 5 star Green Star - Design and As-Built rating can and will be achieved.

Green Star certification is awarded by the Green Building Council of Australia on the basis of Green Star Assessments undertaken by an Independent third-party Assessor. The 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 - Design and As-Built certified rating is assessed on the basis of As-Built documentation together with commissioning data. The Green Building Council of Australia would grant a certificate to confirm the rating achieved, which will be effective for the life of the building.

This Sustainability Statement confirms the design is articulated to target the nominated minimum 5 Star Green Star rating, but it acknowledges that, should the GBCA independent third party assessor disagree with the project approach to compliance with a credit requirement, the Sustainability Statement interpretation of the initiative would take precedence in so far as the interpretation was done "in good faith" and the design complies with the interpretation.

2. SUSTAINABLE DEVELOPMENT INITIATIVES

This section of the report addresses the sustainability components of the development and summarises the sustainability benefits of the new development.

The sustainability requirements of the building have been addressed with respect to:

- The project-specific environmental design initiatives incorporated.
- The Green Star rating tool.

Key passive design and building services initiatives proposed to be incorporated into the development are summarised.

The project team has identified these initiatives and design strategies, which are proposed to comply with the environmental rating requirements.

2.1 Sustainability Verification and Ratings

The project will verify compliance via the following approaches:

- Targeting a minimum 5 Star Green Star - Design and As-Built v1.3 certified rating, demonstrating 'Australian Excellence'.

2.2 Architecture

The commercial building envelope will incorporate insulated constructions and high-performance glazing systems designed to significantly reduce energy consumption within the building and address thermal discomfort issues. The building façade is required to adequately attenuate external noise intrusion to achieve an internal average sound pressure level that does not exceed 40 dB(A) for office spaces and 45 dB(A) for lobbies.

2.2.1 Passive Design

- High performance vision panel IGU glazing system. A glazed façade system with optimised solar heat gain coefficient (SHGC) and visual light transmittance (VLT) that can control solar ingress while providing excellent daylight penetration.
- Insulated, high air-tightness building envelope, to minimise thermal losses and leakage to the external environment.

2.2.2 Reduction of Thermal Load

Various sunshading devices have been explored to ensure that heat load will be reduced on the external façade and control solar penetration as required.

2.2.3 Ecology

Native planting has been incorporated in landscape design undertaken to date to maintain the ecological value of the site.

2.3 Energy and Water Efficiency Strategies

To complement the passive and low embodied carbon design initiatives incorporated into the built form, the following energy and water efficiency measures will be implemented in the engineering services provided within the development to minimise utilities consumption and therefore greenhouse gas emissions and peak demands.

2.3.1 Mechanical Services

The air conditioning systems will be designed to respond to the environmental performance of the building’s façade in order to maximise thermal comfort and reduce energy costs.

The following energy initiatives are intended to be adopted:

- High efficiency electric centrifugal chillers with a high COP and full load efficiency in a parallel configuration;
- Variable speed chilled water pumps controlled so that they always operate at the minimum possible speed to satisfy the load.
- Variable speed fans controlled so that they always operate at the minimum possible speed to satisfy the load.
- Low temperature variable-air volume air conditioning system that matches the air supply to the actual load (not the peak load).
- Separate air handling units for each façade and the interior zone to eliminate re-heat and maximise economy cycle operation.
- Design outside air quantity improvement by 50% beyond NCC requirements and demand control in response to CO2 sensors to adjust outside air rates to occupancy rates while maintaining high indoor air quality.
- High quality return air filtration and an allowance for future carbon filtration.
- Fresh air dampers shut during early morning warm-up.
- Low bleed rate cooling towers to minimise water consumption.
- Variable speed car park ventilation fans controlled by CO sensors.
- Unoccupied areas isolated to prevent air conditioning to these areas.
- Variable speed fan for the tenants’ fresh air system.
- Variable speed pumps for the tenants’ condenser water system.

- Major fans to have efficiencies greater than 69%.
- High efficiency motors used throughout.
- Multiple chillers selected to allow the chillers to operate at an efficient band during medium and low cooling load periods.
- Low duct velocities employed to reduce fan energy.
- Mechanical equipment sound levels to open offices and lobbies to not exceed an internal average sound pressure level of 40 dB(A) and 45 dB(A), respectively.

2.3.2 Lighting

The following lighting initiatives are intended to be adopted:

- Energy efficient LED light sources will be used for the office lighting which does not contain any mercury; any fluorescents included in the design will be specified as low-mercury.
- Office lights will be installed to provide illumination and glare control better than Australian Standard requirements. Power for lighting will be less than 4.5 W/m2.
- Intelligent programmable, digitally addressable lighting control system incorporating movement and ambient light sensors and enabling individual occupant control by commercial office tenants.
- Lighting system will be designed to limit glare.
- Amenities on office floors will be activated by movement sensors in the access corridors.
- Lighting in car parks will be controlled after hours by movement sensors.

2.3.3 Power Factor Correction

- Power factor correction plant will be provided as required to reduce the kVA electrical demand of the building on the external electricity distributor’s network.

2.3.4 Hydraulic Services

The energy used for the hydraulic services is low in an office building. Efficient domestic hot water plant will be provided for the End of Trip facilities and for the office floors.

Water efficient fittings and fixtures reduce the pumping otherwise required.

Circulating pumps will be shut off after business hours.

The following features will be incorporated to significantly reduce potable water consumption:

- 5 Star WELS rated urinals.
- 4 Star WELS rated toilets.
- 5 Star WELS rated tapware.
- 3 Star WELS rated showers for EOT facilities.
- Rainwater harvesting.
- Fire test water storage/reuse.

2.3.5 Lift Services

The lifts are not large energy consumers. Nevertheless, the following features will be incorporated:

- High efficiency drives with a power factor greater than 0.9.
- Sophisticated control system to optimise the movement of the lifts.
- Re-generative electrical control which reduces energy usage.
- Switching off lift car lights and ventilation during periods of inactivity.

2.3.6 Building Control Systems

The following control facilities will be incorporated in the design to assist the building managers optimise the operation of the various building services systems and therefore avoid energy and water wastage.

- Building management and control system (BMCS) incorporated to optimise building control.
- Dedicated energy metering and management system (EMS) incorporated to optimise utilities consumption.
- Extensive electrical, thermal energy, gas and water metering connected to the EMS to facilitate management of utilities usage.
- Facilities for offsite monitoring of the building performance via the internet.

2.4 Green Star Strategy

Initiatives are targeted by the development to meet the project environmental minimum **5 Star Green Star ‘Australian Excellence’** targets, and it is confirmed that a minimum 5 Star Green Star - Design and As-Built rating can and will be achieved. These initiatives have been developed in collaboration with the design team and have been incorporated throughout the design being conducted to date. The project will target minimum 5 Star Green Star certification following a verified strategy to target a minimum of 60 credit points across the rating system’s nine environmental impact categories:

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



floth.com.au



BRISBANE

Level 2
69 Robertson St
Fortitude Valley QLD 4006
+61 7 3513 8000
bne@floth.com.au

SYDNEY

Level 8, Tower A
799 Pacific Hwy
Chatswood NSW 2067
+61 2 9406 4555
syd@floth.com.au

PERTH

Level 6
66 St Georges Tce
Perth WA 6000
+61 8 6162 2396
perth@floth.com.au

MELBOURNE

Suite 13.04, Level 13
470 Collins St
Melbourne VIC 3000
+61 3 9448 8755
mel@floth.com.au

JAKARTA

Wisma Kemang Level 2
JL Kemang Selatan Raya No. 1
Jakarta Selatan 12560, Indonesia
+62 21 781 9446
floth@flothindonesia.com