

Consultant Advice Notice

Project:	Waterloo Metro Quarter Development – Building 1	Project No.	1024873
Subject:	Response to Submission CoS 15d	Doc No.	RPT-004
Author:	David Collins	Date:	25/01/2021
Attention:	Mirvac Development	Revision:	A

This Consultants Advice Notice has been developed to provide a response to the City of Sydney’s Response to Submission item 15d (as follows) and affirm the projects compliance with the Waterloo Metro Design and Amenity Guideline Section 3R Sustainability – Objective 3: reduce energy consumption, emissions and urban heat island effect.

(d) Sun-Shading and Urban Heat – Although passive shading is nominated as one of the measures in the Project’s Sustainability Framework (refer to page 36 App M, initiative 9.11.3), it is not delivered. The initiative is: Passive design of facades to improve thermal performance and reduce impact of extreme weather days. While the proposed design may achieve the requirements of the applicable energy rating systems, these govern internal thermal performance only, and do not consider occupant comfort for extreme weather days. Additionally, unshaded facades tend to rely on performance glazing to reduce internal heat load which has the negative impact of reflecting heat and glare back into the public domain, causing both a nuisance and excessive heating of the public domain (Urban Heat Island effect). The proposed buildings have essentially a fully glazed facade, particularly the west elevations which have no substantial external shading devices. Best practice design should target the achievement of 100% shading through operable devices to combat extreme heat events. The development is inconsistent with the Waterloo Metro Design and Amenity Guideline Section 3R Sustainability – Objective 3: reduce energy consumption, emissions and urban heat island effect;

Energy Consumption and GHG Emissions

The Waterloo Metro Design & Amenity Guideline design criteria for 3R Sustainability states: “comply with the performance targets specified in development consent SSD-9393.” The building has been designed to achieve the 5.5 star NABERS Energy Base Building and 5 star Green Star Design and As-Built v1.3 fully in accordance with the performance requirements of the guidelines for energy consumption and GHG emissions.

The façade has been designed in conjunction with the sustainability targets and provides high performance double glazing, horizontal shading and optimised window to wall ratios, forming a key component of the energy strategy to deliver an energy efficient building exceeding the requirements on NCC 2019 Section J1. This energy strategy considers the building as an integrated whole – building envelope, building services, energy sources, controls and renewable energy.

We therefore do not agree with the statement that the development is inconsistent with objective 3 to reduce energy consumption and emissions.

Thermal Comfort

The building has been designed to achieve the thermal comfort credit set out in Green Star Design & As-Built v1.3.

Heat Island Effect

Heat builds up when solar energy is absorbed by hard surfaces and then radiated back into the local environment. Heat Island Effect in the public domain is influenced by multiple factors including extent and colour of hardscaped areas and roofs and extent and type of green areas (including shading from tree canopy and evapotranspiration). For roofs and hard landscaping (particularly roads and pavements) increased reflectivity is a key strategy to mitigate heat island effect.

Adding operable external shading to the facade will have limited impact on the heat island effect in the Waterloo Metro Quarter compared to the other design strategies being adopted in the building design:

- Green roofs – as per design guidance in the Design & Amenity Guidelines
- PV panels on roofs – these absorb solar energy and convert into electricity
- Light coloured roofs and terrace areas
- Light coloured pavements
- Tree canopy cover at street level

Based on the above response and design works completed during the concept phase we believe the project is compliance with the Waterloo Metro Design and Amenity Guideline Section 3R Sustainability – Objective 3: reduce energy consumption, emissions and urban heat island effect, in addition to the overall project sustainability guidelines and targets.