

ESD DIAGRAM

ENVIRONMENTALLY SUSTAINABLE DESIGN STRATEGIES

CLIMATE ADAPTATION PLAN

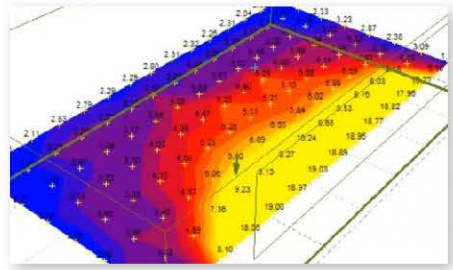
Climate Adaptation strategies have been developed to mitigate impacts of climate change. As a community facility, it is particularly important that the development is equipped to handle these changes.

In Melbourne's climate the primary climate change risks are defined as:

- Increase in peak and average temperatures – heat wave and drought risk; and
- Reduction in annual rainfall, and increase in rainfall intensity – drought risk and flood risk.

This includes provision of:

- High levels of thermal comfort as controlled with internal and external shading features, as well as light coloured roof and paving materials within the site and surrounds to mitigate impacts of increasing temperature;
- PV systems to provide on-site power generation, mitigating impacts of grid peak electricity demand (cause of blackouts); and
- Rainwater harvesting systems to capture rainwater runoff and reduce reliance on potable water sources, and provide a drought resilient facility.



1 DAYLIGHT & ACOUSTIC COMFORT

The development achieves high quality natural light, exceeding Best Practice daylight levels with more than 60% of the nominated primary areas having a Daylight Factor (DF) of at least 2%.

Spaces will be well lit through good access to daylight while control of glare is minimised. High quality internal or external views will be provided to all primary spaces. Appropriate acoustic comfort will be provided to occupants.

2 LIGHTING COMFORT

Spaces will be well lit through quality flicker free lighting with a minimum Colour Rendering Index of 80, best practice illuminance levels, glare reduction, good surface illuminance and localised lighting control.



3 LOW VOC'S & POLLUTANTS

All internally applied paints, adhesives and sealants will be considered low VOC and within maximum limits.



4 OPTIMISING INDOOR AIR QUALITY

The project will provide high indoor air quality to occupants by mitigating the entry of outdoor pollutants, a design that ensures simple maintenance, confirmation of cleaning prior to project final completion, providing additional outdoor air, mitigating generation of pollutants within the building. The buildings are designed for a high degree of air tightness with controls on HVAC when passively ventilated.



5 THERMAL COMFORT

A high degree of occupant thermal comfort will be achieved through provision of energy efficient building fabric and appropriate solar radiation rejection measures. Minimum R4.0 insulation for ceilings and walls*.



6 SUSTAINABLE TRANSPORT

Sustainable transport options will be supported by providing bicycle parking and end of trip change facilities. The proposed development incorporates significant reduction in car parking, supporting sustainable transport initiatives and encouraging lower carbon modes of transport.

The development will include at least three disabled car parking spaces and above the required bicycle parks.



7 ON-SITE ENERGY GENERATION

The development will significantly reduce total peak electricity demand with on-site electricity generation (PV).

Estimated new system capacity will be 25kW and 28kW for the Sports Pavilion and Tennis Pavilion respectively.

8 MINIMISING ENERGY USE

The operational greenhouse gas (GHG) emissions from the proposed buildings will be less than those of the equivalent Benchmark Building, representing a 10% improvement on the Reference Building (per NCC2019 compliance).

The City of Yarra is committed to the transition away from fossil fuels in all council owned/operated buildings.



9 BUILDING REUSE

The proposed development includes significant retention and reuse of existing structures. The existing heritage grandstand will be retained with minor refurbishments, and the existing tennis pavilion will be relocated and reused in the context of new works.

This initiative provides significant reduction in embodied carbon of the proposed development.

10 METERING & MONITORING

Commissioning, handover and tuning activities will be undertaken to ensure the building services operate to their full potential and as designed.

Accessible metering will be provided to monitor building energy and water use both for base building and major uses.

11 CONSIDERED MATERIALS

A hazardous materials survey has been completed for the existing buildings/structures on site.

The building materials will be sourced from a sustainable supply chain including steel from a Responsible Steel Maker (RSM), timber from a certified forest certification scheme or reuse source, and PVC to the GBCE's best practice guidelines for PVC.



12 RAINWATER REUSE

The project will minimise peak stormwater outflows from the site and reduce pollutants entering the public stormwater system.

The development will include significant rainwater harvesting from roof surfaces, with connection to toilets, En-tout-cas tennis court irrigation and landscape irrigation.



13 IRRIGATION

Landscape irrigation will be connected to rainwater harvesting systems, and incorporate water efficiency systems (drip irrigation with moisture sensors).

Tanks of 20kL capacity will be provided to Tennis Pavilion and Sports Pavilion buildings. Further, tennis courts will have a further 100kL+ storage tank for irrigation, which will receive overflow from aforementioned tanks.



14 HEAT ISLAND EFFECT REDUCTION

At least 75% of the total project site area comprises building or landscaping elements that reduce the impact of the heat island effect. This includes light coloured roofing, as specified within the community pavilion and tennis pavilion material palette, and landscape areas.

15 OPERATIONAL WASTE

An operational waste management plan will be produced in accordance with Best Practice methodologies

16 HEAT REJECTION

No water-based heat rejection systems will be specified. AC units will be air cooled refrigerant based systems.

17 WATER EFFICIENCY

Potable water consumption will be minimised by incorporating water efficient fixtures throughout the building and the harvesting of rainwater for use in toilets, tennis court watering, and landscape watering. A minimum WELS 5 star rating for all fixtures and fittings.

