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**RE: PENOLA CATHOLIC COLLEGE – PLANNING APPLICATION ESD STATEMENT**

The following has been prepared by the Architect – McIldowie Partners – to outline the ESD features for the proposed VCE/ VCAL Centre at Penola Catholic College in Broadmeadows consistent with the objectives and strategies of Clause 21.04-2 (Environmentally Sustainable Development and Design).

The proposed VCE/ VCAL Centre at Penola Catholic College in Broadmeadows incorporates the following passive solar design principles.

Response to Clause 21.04-2 Objective 7 Strategy 7.2.

**Optimum solar orientation of the building**

The longest sides of the building and the majority the building spaces are orientated to true north. This provides ideal access to solar gain in the cooler months and solar shade in the warmer months. The latter is achieved by offsetting first floor footprint over the north side of the ground floor spaces and sun shading devises implemented on the north facing glazing to the first-floor spaces.

Siting the longest sides of the building to true north has the added benefit of reducing the extent of difficult and heat load vulnerable east and west facing glazing.

**Optimum building configuration for cross flow ventilation**

The building can be described as two horizontal shaped buildings with the east end infilled with a large internal gathering space over two levels. This horizontally, avoidance of a deep plan and depth reduction in the north-south direction, facilitates tremendous cross flow ventilation along this orientation.

Response to Clause 21.04-2 Objective 7 Strategy 7.4

**Optimum energy efficiency**

The orientation and “thin” horizontal plans of the building reduces the need to mechanically warm the spaces during the cooler months because solar gain has optimum access to the internal spaces as described above. These “thin” plans result in more direct solar access heating more of the habitable learning spaces and thus reducing the reliance on mechanical ventilation only.

The thin fingers of building floor plate also better ensures that operable windows provide easier function for cooling summer breezes to purge the building with cooler air during the warmer months.

**Optimum energy conservation and generation**

The building has 86 number of 350W photos voltaic cells on the roof (approx 30kW system). These cells will provide enough output to power the VCA/ VCAL Centre's needs during operating hours 8.30am – 3.30pm and some administration buildings on campus after hours (until 5.30pm). In other words the VCA/ VCAL Centre is power neutral during operation.



Response to Clause 21.04-2 Objective 7 Strategy 7.5

**Water conservation**

The landscaping incorporates a mixture of hardy trees and shrubs which have low water usage needs. Paving surfaces fall towards permeable garden beds and lawns, providing seasonal moisture, and reducing the volume of stormwater water entering the drainage system. Rainwater will be collected from the 1600m$^2$ roof and stored in water tanks, where it will be used to water garden beds and trees, and to supply water for use in the toilets. The automatic irrigation system uses water-efficient spray heads and sub-surface drippers to provide supplementary watering directly to the plants. All garden beds will be covered with a layer of recycled green waste mulch to minimize moisture evaporation from the soil.

Response to Clause 21.04-2 Objective 7 Strategy 7.7

**Sustainable Building Materials**

The building's interior – often overlooked with regards to sustainable building materials – will employ the use of the following materials:

- Eco-soft carpet tiles which uses discarded PET (polyethylene terephthalate) glass bottles in the make-up of the carpet mix.
- Timber veneer panelling and timber finishes from sustainably grown timber plantations.
- Low VOC paint through out

Please don't hesitate to contact our office should you have any queries on what is provided here.

Yours sincerely,

Tony Di Lorenzo
Associate Director
McIldowie Partners Pty Ltd