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MEMO –RESPONSE TO NSW IPC ITEM 17

PROJECT NAME: Trinity Grammar School Redevelopment
PROJECT NUMBER: 200494
ATTENTION: Peter Brogan / Bloompark Pact
FROM: Tom Hamer / JHA

This memo is written in response to Item 17 of the New South Wales Government Independent Planning Commission response to State significant development application for the Trinity School Redevelopment (SSD 10371), regarding the clarification of the extent of natural and mechanical ventilation provisions.

The Trinity Grammar School Redevelopment is a multi-stage project with different elements including but not limited to:

- New maintenance facility;
- New below ground Oval 3 carpark;
- New teaching and administration facilities;
- New Multipurpose Pavilion;
- Upgraded infrastructure, and
- New landscaping throughout.

In agreement with the project ESD consultant and the project architect the mechanical services design is focussed upon the provision of a natural ventilation strategy to maximise occupant comfort and minimise the need to operate active air conditioning systems. Operable natural ventilation openings, shall at a minimum, be compliant with requirements of NCC2019. Where achievable, cross ventilation strategies will be utilised to maximise the effect of natural ventilation. However, noting increasing ambient temperatures in Sydney, air conditioning systems are to be provided to ensure that comfort conditions are to be maintained for students and staff alike, when natural ventilation mechanisms are unable to provide the required comfort levels and indoor air quality for focussed study and work. This approach aligns with the principle's outlined in the ACOR ESD Report (Rev.04 issued 04/02/2020) submitted as part of the SSD application for the project.

The largest component of the school redevelopment is the new teaching and administration facilities, which encompasses portions of both new spaces (including Library, Teaching & Learning & Performing Arts) and refurbished spaces (including the Founder's Building, Quadrangle Building, Music Building and Assembly Hall). With a particular focus on teaching spaces and similar spaces with high occupancy density, the intention is to provide a mixed mode ventilation strategy. This strategy will be combined with simple controls to allow occupants to either naturally ventilate the space when outdoor conditions allow, or operate air conditioning systems when natural ventilation is no longer suitable.

The mixed mode ventilation strategy will comprise of two systems or modes of operation; natural ventilation via the provision of operable windows and mechanical ventilation (ducted outside air) operating in combination with air conditioning systems. In either mode of operation, occupants will receive adequate fresh air quantities to dilute carbon dioxide levels in order to maintain focus and complete effective work and study. A simple control system is proposed consisting of a traffic light system, comprising illuminated indicators, where occupants are provided with information relating to whether indoor carbon dioxide level are elevated and whether external conditions are suitable for natural ventilation or the operation of air conditioning systems (incorporating mechanical ventilation).

Whilst the project team will endeavour to ensure that a consistent mixed mode ventilation strategy is provided throughout the redevelopment there are limitations, in particular associated with refurbished spaces, where limited ceiling spaces and/or restricted facades can limit the implementation of a mixed mode ventilation strategy. In scenarios where natural ventilation provisions are not achievable, mechanical ventilation airflow rates shall be compliant with the requirements of AS1668.2 and NCC2019, in addition to the use of heat recovery ventilation systems which enable the pre-conditioning of outside air via the recouping of energy from conditioned air to be relieved from the space.

The site plan attached to this memo gives a high level overview of the ventilation strategies proposed across the redevelopment, indicating where opportunities for mixed mode, only natural ventilation and only mechanical ventilation strategies may be achievable.

Yours sincerely,



Tom Hamer

Associate

