Trinity Grammar School Stage 1 works

SSD 10371 – IPC Questions

Advice in Reply

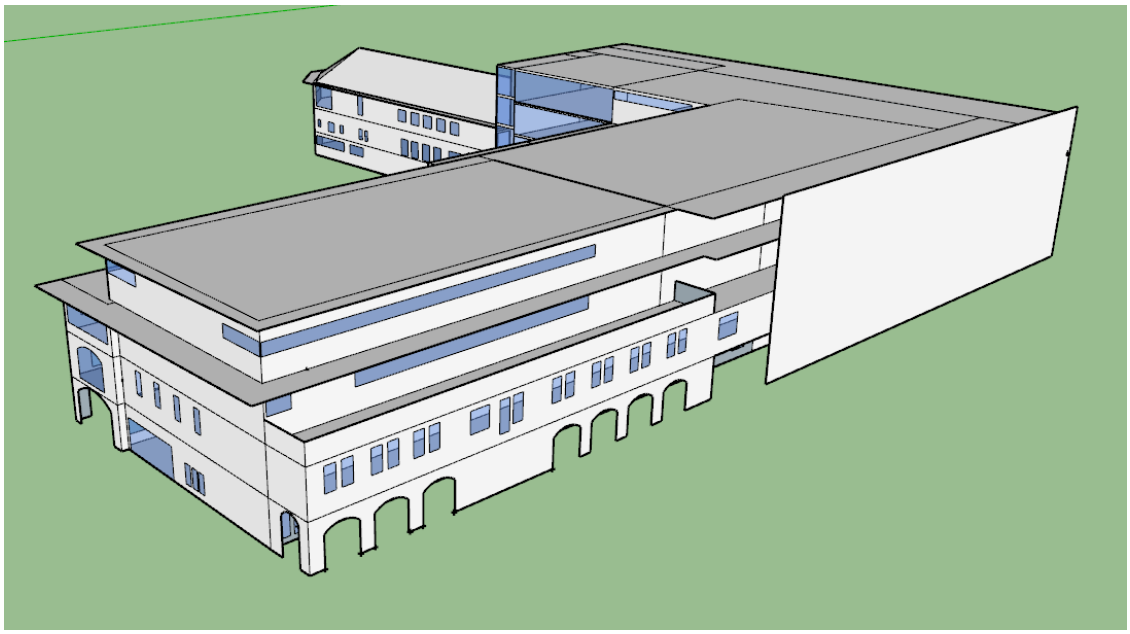
The following advice is in reply to selected matters raised within the NSW Independent Planning Commission letter to Department of Planning, Industry & Environment, dated 6 August 2021, specifically Attachment A, Item 18 (and its subparts as referenced below).

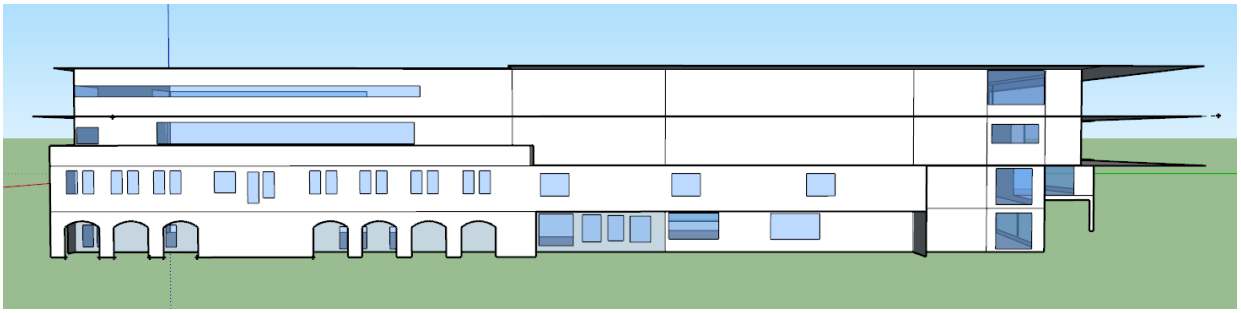
The questions reference "…the Applicant's ESD Report Rev 4, dated 04/02/2020 prepared by ACOR Consulting (ESD Report)".

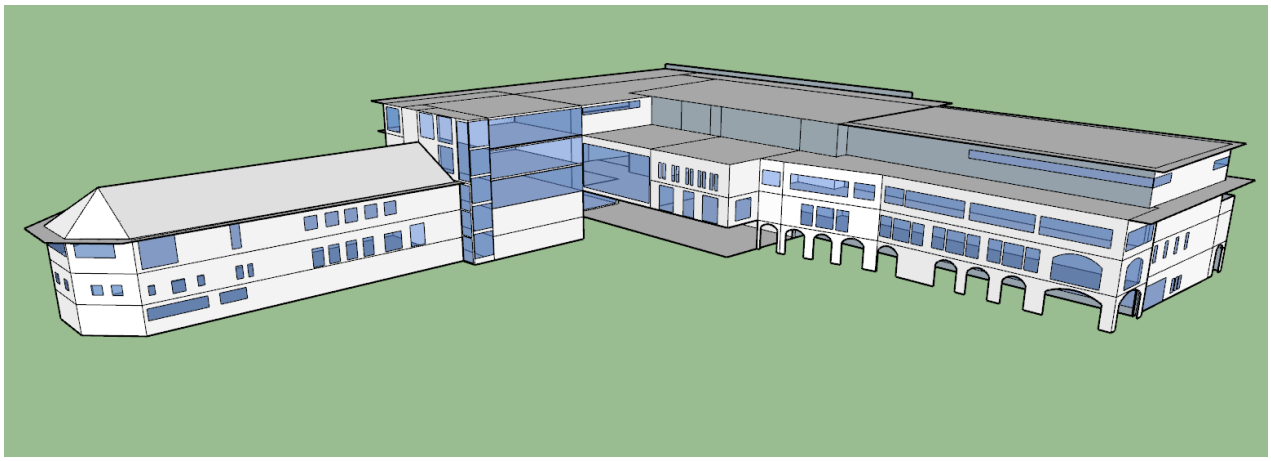
Q:	*18.1. Section 4.4 Shading and Daylight of the ESD Report states: "Preliminary PMDL concept indicates elevation facing Victoria street for west wings are provided with shading element of consisting of perforated mesh. The external shading scheme helps increase natural daylight…."* *Question: If the screens are shading elements how do they increase natural daylight?*
A:	The reference above is incomplete. In full it reads: *Preliminary PMDL concept indicates elevation facing Victoria street for west wings are provided with substantial shading element of 35% to 60% perforated mesh. The external shading scheme helps increased natural daylight whilst minimising unwanted passive solar heat gain and glare for the building. This facilitates maximum use of glazing without tinting treatment that reduces natural light transmission.* The aim of including a shading device is to allow for indirect natural daylight to penetrate into the teaching environment for the entire teaching day whilst providing a restriction against direct solar loads the will impact this western exposure late in the teaching day. This approach was deemed a best for project strategy in lieu of either; tinted glazing (that permanently limits visible light) or operable shading devices for peak time use (which typically fail over time and impose unwanted thermal loads on classrooms) The strategy chosen balances the competing interests of permitting visible light penetration, and exclusion of unwanted solar gains.
Q:	*18.2. "….whilst minimising unwanted passive solar heat gain and glare for the building. "* *Question: How do the screens minimise unwanted passive heat gain noting that perforated mesh does not have any effective thermal mass?*
A:	The reference above is incomplete. In full it reads: *The external shading scheme helps increased natural daylight whilst minimising unwanted passive* ***solar*** *heat gain and glare for the building.* Solar heat gain loads within a classroom are reduced if this radiation is impeded by a shading device prior to it entering the conditioned space. That is their singular function.

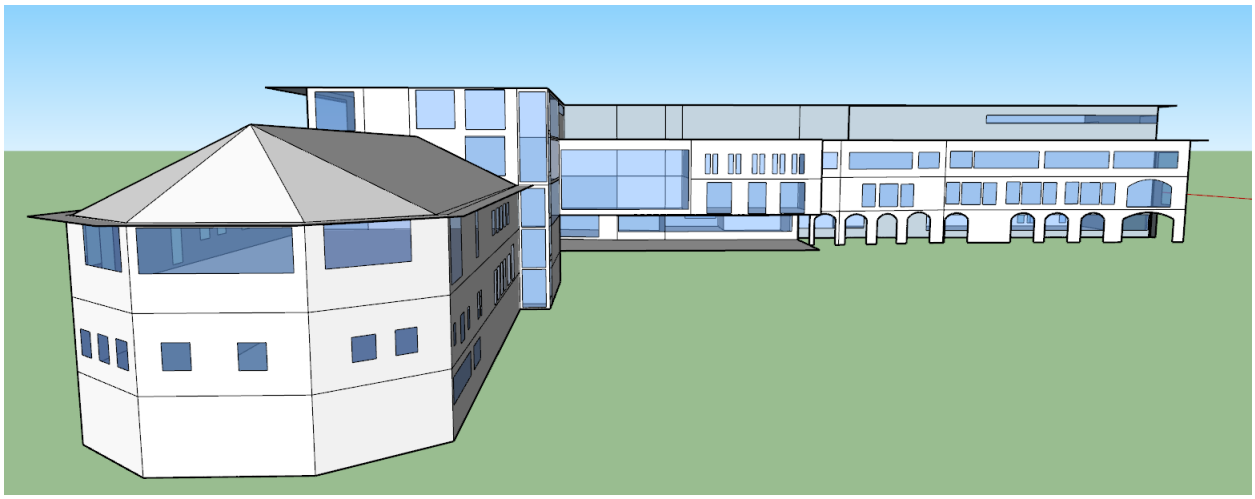
Q:	*18.3. " (the screens) facilitate(s) use of glazing without treatment that reduces natural light transmission".* *Question: How is this the case on the western façade when the screens are applied to limited sections of that façade?*
A:	The performance of a conditioned building envelope is regulated by NCC/BCA 2019. There are minimum performance requirements based on the climatic location of the building. This requires the designer to resolve the components of the envelope – typically walls and glazing – in a manner that best suits their aims and the minimums prescribed by BCA. In evaluating this proposed extension, and having regard for its connection to existing structures, the whole of building assessment approach resolved that a combination of glazing and shading was indeed a valid approach that would be within NCC requirements.
Q:	*18.4. "The new development and existing founders building forming the quadrangle with high façade area provide passive design features, allowing for enriched daylighting and greater access to external views for occupants."* *Question: What are these passive design features? Are they features or systems?*
A:	The proposed development is connected to the Founders Building which was designed in a manner described as "typical" of educational buildings of its day. It included substantial brickwork walls and relatively small amounts of window glazing. These are viewed as "passive design features".
Q:	*18.5. Section 4.19 Climate Change Projected Impacts of the ESD Report states: "The development is aware of the following projected climate change impacts and mitigation of these predicted changes will be addressed during detailed design."* *Question: Referencing the Design Analysis Report Bullet Point 5: Project Objectives, the application is "… seeking detailed built form approval." Could the Applicant please provide details of how the Project will respond to these projected impacts and changes?*
A:	For Author of Design Analysis Report

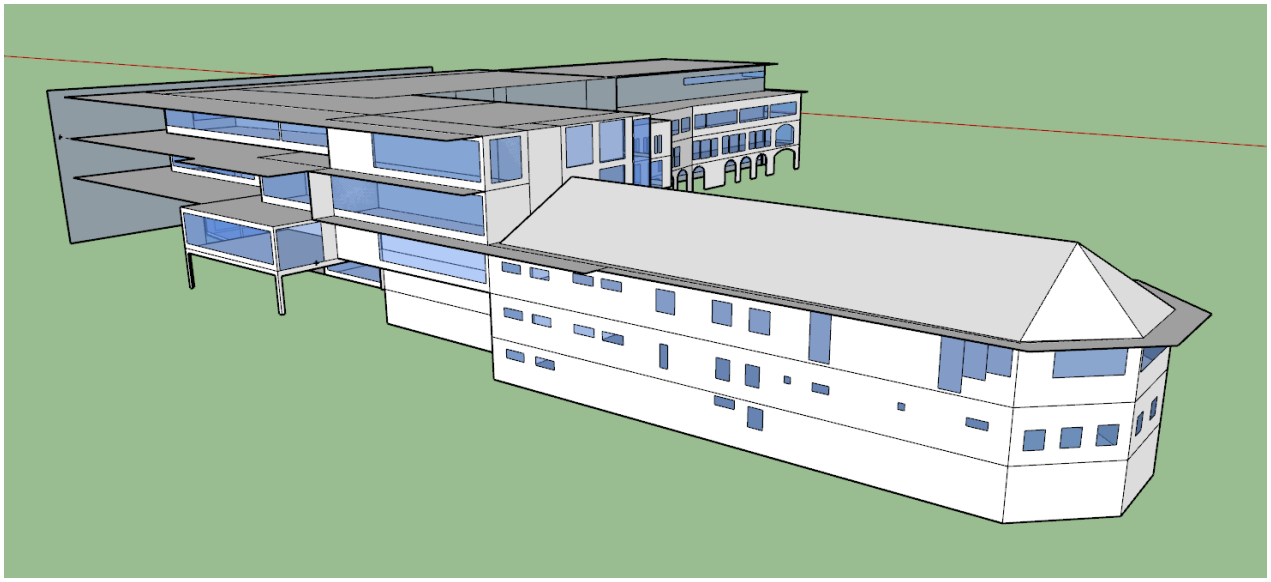
Q:	*18.6. "The development has addressed these items as detailed in the points 3.1 to 3.18 by the use of:* *Maximising natural cross ventilation.* *Drought tolerant landscaping by indigenous species.* *Stormwater and rainwater capture for irrigation reuse.* *Shading and thermal massing."* *Question: Has the Applicant carried out modelling and analysis of the strategic planning and detailed Architectural proposal? If so, could the Applicant please provide a copy of the analysis to the Commission?*
A:	The Applicant engaged ACOR to undertake a detailed analysis of the proposed Architectural façade treatments **prior to** the submission of the Application. This strategy was aimed at establishing a higher level of confidence that the proposed elevations could reliably be engineered to comply with NCC/BCA requirements. ACOR used the ABCB "Façade (beta) 2019" calculator, Version 0.9 to assess Deemed to Satisfy requirements for the proposed development. ACOR also used IES Virtual Environment software to assess the proposed development and evaluate the various façade options available. Extracts from this process are shown below for your reference.











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