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SYDNEY NSW 2000**

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Ms Aditi Coomar  
NSW Department of Planning, Industry and Environment  
320 Pitt Street  
Sydney NSW 2000

Dear Aditi,

## **SANTA SOPHIA CATHOLIC COLLEGE (NEW SCHOOL) (SSD-9772)**

### **RESPONSE TO SSD 9772 DRAFT CONDITIONS V3**

This letter has been prepared on behalf of Catholic Education Diocese of Parramatta (CEDP) in response to SSD 9772 draft Development Conditions v3 provided by NSW Department of Planning, Industry and Environment's (DPIE). It concerns Condition B1 - Design Amendments that states:

*Prior to the issue of any relevant construction certificate, design plans including the following design amendments must be submitted to the satisfaction of the Planning Secretary:*

- *removal of the roof over the walkway decks on Level 5 of the Building Central, Building South and surrounding Knowledge Centre, to create more open spaces at this level;*
- *removal of the roof or provision of retractable / openable roof over the Level 4 open space adjoining the Fitness Centre, on top of Building North; and*
- *provision of 1 -2m wide covered walkways to provide a weatherproof connection between the buildings (where needed) on Level 4 and / or Level 5.*

We request the removal of condition B1. The below sets out the justification and rationale for this request.

#### **1.1. GENERAL RESPONSE TO CONDITION B1 – DESIGN AMENDMENTS**

- The design amendment as proposed would reduce the operability of Santa Sophia Catholic College and negatively impact student learning and play.
- CEDP have developed their Design Principles & Guidelines which are a guide for all new design work. These design principles support comfortable and responsive environments which support educational activities. The requested change contradicts these Principles and Guidelines and compromises their functionality as learning spaces. Outdoor spaces are to be provided with adequate weather protection so that they may be used throughout the year. This includes adequate shade and rain protection. CEDP's design guidelines stipulate:

- Shading devices to outdoor spaces will encourage opportunities for outdoor learning and play, particularly during the warmer months. These can include natural and built shade. Adequate protection from ‘the elements’, avoids poor weather conditions preventing use (wind, heat, rain).
- Santa Sophia Catholic College seeks to maximise the outdoor space opportunities presented by the site. The split level is exploited to provide a public plaza and main entry integration with the Level 01 providing dedicated play space for CELC and primary students. The outdoor decks for the upper levels are tiered, with each one of these specifically designed to cater for its corresponding year groups and provide attractive, active (learning and play) and inviting zones through architectural and landscape design elements.
- The horizontal arrangement of year groups coupled with the verticality of specialist spaces facilitate easy navigation. The position of year groups has been considered in line with CEDP’s pedagogical model and referenced against timetabling to ensure adequate time to access specialist spaces.
- The immediate climate of the site has guided the design of the building. Santa Sophia Catholic College benefits from a predominately northern outlook. The spatial planning has been organised to maximise the learning spaces to the perimeter to capitalise on this aspect of the site. In addition, the massing of the school has been designed to minimise overshadowing to its proposed residential neighbours.
- Reduction of the roof structure would limit the use of these areas for learning. We note the need for shade is particularly important in Santa Sophia’s location in Box Hill in greater Western Sydney which experiences higher upper extreme temperatures than areas closer to the coast.
- A detailed landscape design has been included in the SSDA submission. The landscape elements are shown throughout each level including all decks and these highlight the use of the space for the integration of play and learning.
- The use of dual-purpose areas for both play and learning are enhanced by provision of shade and shelter. The integration of external and internal environments allows for students to be connected to their surroundings and this can occur with the current design in a large spectrum of weather conditions.
- The use of the term “walkways decks” is inconsistent with the design of the school and the use of the space for not only circulation and mass movement but play and learning. The external deck spaces connecting the internal learning environments maintain several uses and to define them as purely a walkway deck belies their multifaceted use and diminishes the importance of these external spaces to the functionality of Santa Sophia Catholic College.
- The requested change contradicts the Department of Education & Communities guidelines for sun safety which prioritise shade in places where students congregate at recess and lunch, where outdoor learning takes place and for physical activities, and sport<sup>1</sup>.
  - The design amendment would compromise the design intent and compromise the architectural language and features of the design.

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<sup>1</sup> Department of Education & Communities, “Sun Safety for Students”, June 2013

## 1.2. RESPONSE TO SUB-SECTION (A) OF CONDITION B1

We understand the purpose of the requested amendment is as follows:

- Removal of level 06 roof that covers level 05 external spaces to Building Central, Building South and surrounding the Knowledge Centre.
- Reduction of weather protection to promote play spaces and learning environments that are open to the elements.
- The design amendment as proposed would reduce the operability of the school and negatively impact student learning and play.
- Level 05 contains the inquiry hubs for Year 11 and Year 12 along with the senior common room. During break times outdoor play spaces are divided by age group across the levels. These age divisions are associated with the inquiry hubs to each level and support the efficient movement of students throughout the day by reducing the frequency and volume of vertical movements. While students are not restricted from moving throughout the levels it is expected that the senior students will remain on Level 05 due to the qualities of the landscaped space and inclusion of their senior common room.
- Removal of shading to Level 05 would remove shaded area for year 11 and 12 during break times, thus reducing their opportunity to use the outdoor space in unfavourable weather conditions. The reduction of covered spaces during lunch and break times will force greater of numbers of students to lower levels to shelter during unfavourable weather conditions.
- The external decks connecting the inquiry hubs and senior common room to the vertical school access is not only a walkway and as such should not be referred to as a “walkway deck”. The deck on level 05 acts as a learning space, play space, space for lunch, reflection and gathering in addition to an area for mass movement and circulation.
- Energy analysis has been undertaken through JV3 assessment. The modelling considers school holiday profiles and early learning centre operational hours and shows the current building design is of a better performance than the reference building. Changes to fabric performance characteristics will require further modelling to confirm the changes can comply. The reduction of shading through alteration of the deck and roof lines to Level 05 will impact the thermal comfort and indoor environmental quality of the learning spaces.
- The design amendment will increase the amount of direct sunlight into internal general learning areas. The GANSW Manual Environmental Design in Schools (October 2018) reflects the importance of balance between natural light and direct sunlight noting:
  - Good learning spaces need to be comfortable for all staff, students, and visitors. The key considerations are indoor and outdoor air temperature and quality, humidity, air movement, radiant heat and activity levels.

- Daylight or natural light can minimise electricity usage. Direct sunlight is different. This brings unwanted heat gain during warmer times and should be avoided. <sup>2</sup>
- We believe the school design achieves this balance of daylight without direct sunlight.
- An assessment was completed of daylight amenity to outdoor spaces to address submissions during the SSDA process<sup>3</sup>. Results show 80% spatial daylight autonomy (SDA) for all levels which are acceptable levels of daylight. Outdoor spaces are transient, and occupants can move freely to favourable areas to suit their comfort levels. Level 05 achieves a 90% SDA.
- We must maintain covered circulation space to level 05 for all weather scenarios, reduction of the roof line will significantly impact the comfort of students travelling to internal learning areas on this level.
- Natural light is gained using lightwells adjacent to the eastern façade of Building Central extending from the roof (level 06) down to level 02 abutting inquiry hubs. In addition to the lightwells in the building decks there are voids included to allow for light filtration between level 02 and 05 between Building Central and the Knowledge Centre. This use of interesting and different ways to allow light to travel through the centre of external spaces adds to the amenity of each space.
- CEDP has reviewed the lunch time play space provision at existing schools to determine the optimal ratio that achieves student learning outcomes while maximising resource efficiencies. This information was presented in a memorandum on play space provision to the Hills Shire Council during the Response to Submissions open space calculations. <sup>4</sup>
- The design team attended meetings with the State Design Review Panel (SDRP) on the 30/01/19 and 11/04/19. The current design has taken on board the comments from the SDRP and provided the additional information requested. Our Response to Submissions addresses the maximising of light to the general learning spaces, specifically through the light wells and the generosity of the vertical circulation. Comments from SDRP included queries on functionality of the outdoor spaces, including daylight and quality, no issues were raised with the extent of the open spaces.

### **1.3. RESPONSE TO SUB-SECTION (B) OF CONDITION B1**

We understand the purpose of the requested amendment is as follows:

- Removal of the roof to the fitness centre external area.
- Potential for replacement of the Fitness Centre roof for the external area with a retractable or openable roof.
- Inclusion of a covered walkway to access the fitness centre from Building Central and Building North main stairs in accordance with sub-section (c).

<sup>2</sup> GANSW, “Environmental Design in Schools”, Issue no. 01 - 2018

<sup>3</sup> Steensen Varming, “Santa Sophia Catholic College Outdoor Decks Daylight Study”, 12<sup>th</sup> September 2019

<sup>4</sup> TSA Management, Santa Sophia Catholic College – Play Space Provision, 22<sup>nd</sup> August 2019

- The design amendment as proposed would reduce the operability of the school and negatively impact student learning and play.
- As noted above in our response to sub-section (a), during break times outdoor play spaces are divided by age groups across each of the levels. Level 04 contains the inquiry hubs for Year 9 and Year 10, Knowledge Centre, Fitness Hub and Basketball Court. While student movement during break times is not restricted between levels, it is considered that Year 9 and 10 will remain on Level 04 thereby reducing the frequency and volume of vertical movements. In addition, it is also expected that due to the basketball court and fitness area, additional students will move to this area for learning, during break times as well as before and after school.
- The covered area adjacent to the fitness centre is designed to provide adequate space for play and learning. Physical education classes will be run at the Fitness Centre and requires an undercover area so that classes can be conducted in all-weather scenarios. The undercover area adjacent to the fitness centre is complimented by the open basketball court on this level.
- Inclusion of a retractable / openable roof to the fitness centre is not practical. There are reduced acoustic properties, less weather protection, increased maintenance cost, a structure that is prone to breakage and an operation that is unlikely to be used due to the restriction on staff operation only.
- Verbal advice from the structural engineer cautions against use of a retractable / openable roof due to the structural implications not just on Level 04 but transferring down Building North. The structure of Building North is complex and is designed to support the upper levels over a large open performance hub on Level 00 through large open truss sections. A change in structure on Level 04 from the currently designed lightweight roof to a retractable / openable structure is expected to have design implications throughout Building North.
- Retractable / openable roof structures provide unsatisfactory waterproofing details and would limit the use of the fitness centre space in adverse weather conditions.
- CEDP have a key focus on the acoustics of all learning spaces and this includes the external walkways, play spaces and learning areas. The acoustics of an operable roof are inadequate and would limit the use as a teaching space. It also provides an uncomfortable environment during play and lunch times.

#### **1.4. RESPONSE TO SUB-SECTION (C) OF CONDITION B1**

We understand the purpose of the requested amendment is as follows:

- A response to sub-section (a) and (b) with the provision for covered walkway to the extent of a maximum of 1-2m to allow for student and staff circulation.
- The design amendment as proposed would reduce the operability of the school and negatively impact student learning and play.
- We do not consider an allowance of 1-2m wide adequate for weather protection for the expected student mass movement. Reducing the covered walkways to this size would compromise the time required for the movement of students in rain events, resulting in delays and congestion.



- The external spaces of Santa Sophia Catholic College do not function solely as walkways. They are multi-use spaces used for learning, play space, space for lunch, reflection and gathering as well as providing weather protected walkways for circulation and mass movement. To limit the weather protection of these Level 04 and Level 05 spaces to only allow for covered circulation reduces the potential of key external spaces and negatively affects learning.
- The change in roof shape to comply with the condition would see the removal of the articulation of the building and compromise the architectural language and features of the design.

We consider the above provides sufficient and robust justification to support the request for the condition to be deleted. If any further information is required please do not hesitate to contact me.

Regards

A handwritten signature in blue ink, appearing to read "Elaine Roff".

Elaine Roff

Associate Director