

Your ref
Our ref 250250
File ref V01

ARUP

To Whom it May Concern
C/O Andrew Pender at PMDL

Level 10 201 Kent Street
PO Box 76 Millers Point
Sydney 2000
Australia

t +61 2 9320 9320
d +61 2 9320 9344
f +61 2 9320 9321

alan.wilson@arup.com
www.arup.com

30 January 2018

St Aloysius' College: Upper Pitt St – Main Campus, Fire Engineering

This letter considers the fire safety design of the major refurbishment of and extension to St Aloysius' College Upper Pitt St – Main Campus located at 47 Upper Pitt Street, Kirribilli and specifically those aspects of the fire safety design that impact upon planning and hence SSDA issues for the building.

The Building

The building is a senior school consisting of 10 storeys. The school comprises primarily teaching spaces, however, also contains The Great Hall (used for school functions), a chapel and multiple external terraces. The building sits on a sloping site and therefore street access occurs at numerous levels. The lowest level (Lower Ground 3) discharges to the South onto Kirribilli Street and to the West onto Jeffreys Street. There is street level access to the North on Upper Pitt Street at Ground Floor and Level 1. The building has an effective height of approximately 30.05m.

The building is served by numerous fire isolated exits discharging at the various street levels to the North (Upper Pitt Street), West (Jeffreys Street) and South (Kirribilli Street).

The fire safety design of the building will generally satisfy the Performance Requirements of the Building Code of Australia (BCA) by complying with the Deemed-to-Satisfy (DtS) Provisions. However, there are some aspects of the design that are developed using performance based fire engineering to achieve compliance with the Performance Requirements of the BCA. The most significant of these that affect the building layout, and hence the SSDA, are highlighted below.

Performance Based Design

The fire safety strategy for the building focuses on a design that encourages quick and effective egress with multiple choices of exit paths. The fire strategy makes use of the surrounding terrain and the sloping site which allows for multiple levels to have direct street access. Targeted areas of compartmentation are included to help with both

maintaining safe egress paths and to help limit fire and smoke spread accordingly. The building encompasses a feel of indoor / outdoor space which encourages smoke venting and helps occupants' egress. Systems are included as necessary to help support the fire engineering strategy such as stair pressurisation in the main fire isolated stairs to enable safe brigade access to every level within the building.

The fire strategy has been developed through a holistic approach considering egress, firefighting, smoke and fire spread and also the existing site constraints. Considering all these items, a design has been developed that achieves the architectural intent and practical use of the building as well as being safe in the event of a fire. This holistic approach has allowed for the rationalisation of the following items listed below, which are non-compliances with the DtS Provisions as a result of this proposed development. The following items are proposed to be addressed via fire engineering Performance Solutions:

- Rationalisation of compartmentation FRLs;
- Protection of openings within 3m of a boundary;
- Areas of extended travel distance;
- Non-fire isolated required stairs connect > 2 storeys;
- Non-continuous required fire stairs; Omission of zone smoke control;
- Omission of smoke exhaust within the Great Hall;
- Four storey connection is not designed in accordance with the atrium provisions contained within Part G3 and Spec G3.8; and
- Omission of sprinkler system
 - As noted above, the building sits across a site with a steep gradient with multiple levels achieving street level access. As such, the overall building design is equivalent to a building <25m in terms of egress and firefighting. The strategic compartmentation also results in a building design whereby no portion of the building is ever at a height >25m above ground level. Based on this and considering the multiple egress options, strategic fire and smoke compartmentation and targeted fire safety systems throughout the building, it is considered acceptable to omit sprinklers.

Additional minor non-compliances may arise as the design develops, however none that are foreseen to impact on the SSDA submission.

Based on our preliminary review of the architectural drawings issued by PMDL dated January 2018, it is considered that Performance Solutions addressing the non-compliances above will be feasible and compliance with the Performance Requirements of the BCA can be demonstrated.

Conclusion

At this stage of the design, other fire safety aspects of the building appear to comply with the deemed to satisfy provisions of the BCA. It is anticipated that there may be other non-compliances with the DtS Provisions as the design develops, however it is considered that there are no issues that would affect the building layout arising from fire safety and hence no impediments to the relevant consent authority issuing development consent.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Alan Wilson'. The signature is fluid and cursive, with the first name 'Alan' and the last name 'Wilson' clearly distinguishable.

Alan Wilson
Associate