

Your ref
Our ref 225128
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ARUP

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Dear Justin,

The Ribbon, Wheat Road, Sydney
Development Application - Fire Engineering

This letter concerns the fire safety design of The Ribbon development on Wheat Road in Sydney, and specifically those aspects of the fire safety design that impact upon planning and hence are Development Approval related issues for the building.

The proposed building will primarily be an office building consisting of 14 levels of commercial floors situated above a ground level retail area and 4 podium levels consisting of a mix of retail, function space, office space, car parking and cinema. The building will have an effective height of more than 50m (approximately 75m).

A fire engineering review of the conceptual design has been undertaken by Arup based on drawings provided by HASSELL, pmdl and Russell & George Architects.

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 to be developed using performance based fire engineering to achieve compliance with the Performance Requirements of the BCA. The most significant of these are discussed in more detail below.

Interconnection of multiple storeys (office levels)

Whilst the DTS Provisions allow for two stories to be open and interconnected with no additional fire safety measures, for this building there is the possibility that more than two adjacent office levels could be open to one another. The fire engineering strategy will include enclosing the resulting voids at some levels (for example using fire rated construction, fire curtains or glazing with wall-wetting sprinklers), such that in fire mode only 2 occupied levels will be interconnected, as per the DTS provisions of the BCA.

Travel distances

It is probable that there will be extended dead end travel distances for various tenant fit out configurations on the office floor levels. These can be justified by providing options such as fire rated corridors to minimise the travel distance, utilisation of enhanced smoke detection (to AS1670.1-2004) and demonstration of improved egress times as compared to a DTS compliant design, showing equivalence to DTS and hence meeting the Performance Requirements of the BCA.

Mechanical Services Void

The building will be provided with an air intake void on the east and the west sides of the building effectively connecting all office levels. A fire engineering approach will be used to provide fire separation, as necessary, to minimise the risk of fire spread within the building, to an equivalent level as DTS provisions.

Rationalised egress width from Function Space

It is likely that there will be reduced exit width from the function space on Podium Level 2, as compared to DTS provisions. This can be justified by appropriate separation of the function space from the rest of the floor and provision of sprinkler suppression and smoke exhaust to the function space to demonstrate that safe egress of occupants can be achieved before reaching untenable conditions, hence meeting the Performance Requirements of the BCA.

Cinema strategy

A performance based strategy is proposed for the cinema auditorium that minimises mechanical smoke management for acoustic separation purposes. Sprinkler protection and a robust escape strategy will be developed to meet the Performance Requirements of the BCA.

Car stacker

Ground, Level 1 and Level 2 are provided with car parking served by a car stacker. This innovative strategy will be supported through fire engineering so that the egress provisions and risk of fire and smoke spread sufficiently meet the Performance Requirements of the BCA.

Adjacent roadways

The building is bounded by elevated roadways on two sides. Where protection is required under DTS provisions, a performance based fire engineering approach will be used to assess the impact on the building from a fire on the roadways and provide appropriate protection.

Fire Brigade Access

Due to the overhang of the building on the east side, the Fire Brigade booster assembly may need to be provided in an appropriate location accessed from Harbour Street, such that the Fire Brigade will not have pass under the overhang of the building to reach it. A fire engineering approach will be used to show that the location and protection to the surroundings of the boosters and fire brigade access routes will meet the Performance Requirements of the BCA. This will be discussed and agreed with Fire & Rescue NSW (FRNSW).

Conclusion

Based on our review of the project documentation, it is considered that performance based fire engineering can be used to demonstrate compliance with the Performance Requirements of the BCA without major changes to the current design.

It is anticipated that other non-compliances with the DTS Provisions of the BCA may be identified as the design further develops. However, it is considered that there are no significant issues that would affect the building layout arising from fire safety and hence no impediments to the issuing of a Development Approval for the project.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Bruce Kelly', with a long, sweeping horizontal stroke extending to the right.

Bruce Kelly
Associate