

23 September 2024

Pacific Planning Pty Ltd

Level G, 16 Leavesden Place
Sylvania NSW 2224

RE: Request for Information | DA2023/0775 | 2 Bachell Avenue LIDCOMBE NSW 2141

Introduction

This document has been prepared in response to the letter from Cumberland City Council dated 30/07/2024 requesting additional information as part of their review of the Development application (Ref: DA2023/0775) at the above listed address.

This statement is specifically relative to the fire safety measures provided to the facility to facilitate the safe evacuation of the childcare tenancy located on Level 5 of the development.

Identified issues with proposed emergency and evacuation procedures

REFERENCE TO PROCEDURE	IDENTIFIED ISSUES
0-2 Room: All educators are to place children inside the emergency cot. Room leader to check all children are out of the room...children and educators are to proceed to the evacuation area.	As the childcare centre is proposed to be located on the fifth floor, and lifts cannot be used in the event of a fire, emergency cots cannot be used down the fire stairs. The lift dedicated to the childcare centre is included in the evacuation plan to accommodate the exit of the youngest children.
2-6 years: all educators are to gather children at appropriate exit in line holding	Lifts cannot be used in the event of a fire.
rope. Room leader to check all children are out of the room...children and educators are to proceed to the evacuation area	Also, the 0-2 Room is furthest away from the location of the dedicated fire stairs which are in the back corner of the 3-5 play space. As above, there are concerns about the placement of the fire stairs, and whether or not 106 children can be evacuated safely and quickly. Young children, including those that are mobile, need assistance in navigating stairs. There would not be enough staff to support 106 children to navigate down five levels of stairs quickly.



Affinity Fire Engineering Response

Affinity fire engineering can confirm that the safe evacuation of the childcare tenancy has been considered during the design development of the development application.

The Building Code of Australia (BCA) outlines various requirements for childcare tenancies, however there is limited required action paths for evacuation. Therefore to ensure an equitable and functional evacuation management design is incorporated it is critical to all projects containing a childcare tenancy, regardless of the tenancy location relative to ground floor level.

In this specific building there are three main components that dictate the evacuation strategy for childcare tenancy staff and children.

Fire-Isolated Stair Dedicated to the Childcare Tenancy (Fire Stair 4)

Having children evacuating down stairs is a slow process, and as such it is critical to ensure that the stair is not used by other building occupants during an evacuation. Should the required egress route also serve general building occupants, the presence of the children will delay the remainder of the building occupants and pose a direct threat to all that use the egress stair.

As such Stair 4 shall be designed as a stair dedicated to the childcare tenancy to prevent the above risks.

A dedicated stair design also ensures that smoke and heat flow into the stair is mitigated through the omission of openings (i.e. doors) to allow for the longer evacuation time required by the children.

To enable the smaller humans to safely and efficiently utilise the Stair 4 during an evacuation, this stair shall be provided with a balustrade that complies with BCA Clause D3D19(1) to protect against fall risks, and also afforded a lower handrail suitable for the age and height of the children in addition to the requirements of BCA Clause D3D22.

Using Lifts During an Evacuation

Due to the presence of cots and younger children that are unable to confidently navigate stairways, there is a necessity to utilise the lifts during an evacuation.

There are two lifts that serve the childcare tenancy, each of which shall be designed as emergency lifts, within fire rated shafts. The larger of the two lifts, the eastern lift that is typically used for movement of goods, shall be programmed for the sole function for the childcare tenancy staff during an evacuation.

Staff will be trained in the use of the lift during emergency evacuations and control functions within the lift cabin will enable them to override all other functions such that it can be used for the transportation of children and/or cots as deemed appropriate by the staff for the given emergency scenario.



While using lifts during a fire emergency has not been commonly adopted in Australia in the past, there are many countries around the world that utilise lifts for emergency evacuation purposes; and it is becoming increasingly required to accommodate disabled and mobility impaired individuals. As such there are various guidelines and studies already existing that can be relied upon for the design and operational requirements of such lifts [1, 2, 3, 4, 5, 6]. Such measures beside the control functions include:

- Mitigating smoke and heat risks from entering the lift shaft through the implementation of smoke lobbies on all levels served by the lifts. This continues to the floors above the childcare tenancy and also in the basement carparking level.
- A fire rated refuge bay would be provided at the childcare level. This refuge bay sits between the two fire compartments such that it can be safely reached by children and staff if the fire was to occur on the childcare level.
- At the ground floor level the lift lobby would be fire separated and the lift lobby is to be provided with direct access to outside to ensure no further travel is required through a potentially fire affected area of the building.

Emergency Management Training

Critical to each of the above evacuation routes is the documentation of the evacuation strategies and ongoing training of staff. This includes adequate staffing numbers and undertaking of regular evacuation drills.

Conclusion

The fire engineered Performance Solution Report will be developed ahead of the relevant construction certificate and subject to FRNSW approval through the Fire Authority referral pathway detailed within the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021. The Performance Solution will specifically address variations from the prescriptive Deemed-to-Satisfy (DtS) provisions of the BCA and include the specific design details and parameters around the use of Stair 4 and the evacuation lifts during childcare evacuation.

1 Australian Building Codes Board, "Lifts Used During Evacuation", Canberra ACT 2013.

2 Kinsey, M. J., Galea, E. R. and Lawrence, P.J. (2010) 'Stairs or lifts? - A study of human factors associated with lift/elevator usage during evacuations using an online survey', in *Pedestrian and Evacuation Dynamics*, pp627-636.

3 Choi, J. H., Hwang, H. S., & Hong, W. H. 2011. Predicting the probability of evacuation congestion occurrence relating to elapsed time and vertical section in a high-rise building. In *Pedestrian and Evacuation Dynamics* (pp. 37-46). Springer US.

4 Heyes, E., & Spearpoint, M. 2009. Human behaviour considerations in the use of lifts for evacuation from high rise commercial buildings. Department of Civil Engineering, University of Canterbury.

5 Bukowski, R.W. and Li, F. 2010. "Use of Elevators in Fires." Consulting Specifying Engineer, February 2010. Kuligowski, E. D., Gwynne, S. M. V., Butler, K. M., Hoskins, B. L., and Sandler, C. R., (in press, available early 2012). *Developing Emergency Communication Strategies for Buildings*. National Institute of Standards and Technology, Gaithersburg, MD.

6 Kuligowski, E. D., & Hoskins, B. L. 2011. *Elevator Messaging Strategies*. Fire Protection Research Foundation.



Affinity Fire Engineering subsequently confirm that the design is capable of compliance with the Performance Requirements of the BCA and will be completed in manner that ensures the safe and equitable evacuation of children from the childcare tenancy on Level 5 of the development.

We trust that the above information is sufficient for Consent Authority's needs with respect to fire safety design and compliance with the relevant building regulations in this regard. Should any further information be required for a determination to be made please contact the undersigned on (02) 9194 0590.

Yours faithfully

A handwritten signature in black ink, appearing to read 'Thomas Newton'.

Thomas Newton

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