Mechanical Services
Ventilation Design

Project	**The HUB** **2 Bachell Avenue, Lidcombe**
Development Application No	**DA2023/0775**
Client	**Raad Property Acquisition No 10 Pty Ltd**
Report No Title	**1748-R1** **Ventilation Design**
Date issued	**28th August, 2024**
Revision	**B**

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Contents

Revision Table

Rev	Date	Description	Prepared By	Signed
A	28.08.2024	For Information	M. Sarkis	 *MIEAust, CPEng, CBSEng, NPER, RPEQ, APREng* *BE. Mech, M. Arch Sc and Building Services* *National Engineering Register (NER)* *Chartered Professional Engineer (EA CPEng)* *DBP Registered Design Practitioner (DEP0000263)* *DBP Principal Design Practitioner (PDP0000095)* *Victorian AMR Registered Design Practitioner (PE0005538)* *QLD Registered Professional Engineer (RPEQ)* *AIRAH Registered Professional Engineer (APREng)* *NABERS Accredited Assessor* *CBD Accredited Assessor* *C9 and C11 Accredited Certifier* *30 Years experience in Building Services*
B	18.09.24	Upgraded report to include: 1. Commercial Kitchen Ventilation 2. Exhaust Discharges locations	M. Sarkis	

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ABBREVIATIONS & REFERENCES

ABCB	Australian Building Codes Board
ACH	Air Change per Hour
AS1668.2-2012	The use of ventilation and airconditioning in buildings Mechanical ventilation in buildings
BCA	Building Code of Australia (version 2022)
CC	Construction Certificate
CFD	Computational Fluid Dynamics
DA	Development Application
DTS	Deemed To Satisfy (refers to the prescriptive method in the NCC)
NCC	National Construction Code Series (NCC-1, Volume 1)
Reference Building	(also referred to as **DTS** building) The Reference Building is a theoretical building based on prescribed criteria as detailed in NCC volume 1 Section J
Proposed Building	The actual building that will be built

NOTES & ASSUMPTIONS

1. This report must be read in conjunction with the referenced documents.

Referenced Documents

1. Arch drawings received on the 27.08.24;
2. BCA 2022 NCC-1;
3. AS1668.2-2012;
4. Council additional information request dated 30 July 2024.

EXECUTIVE SUMMARY

I have been commissioned by the client as the Mechanical Services consultant and have assisted in the planning and spatial consideration for the Mechanical Services.

The purpose of this report is to support council requirements in relation to the additional information request dated 30 July 2024, in relation to the ventilation of the proposed Childcare. The following is an extract from council' letter:

'Environmental Health

2. *Details of mechanical ventilation to be provided to show compliance with AS1668 and childcare ventilation requirements.*

110. Ventilation and natural light	There is insufficient detail on the plans for me to confirm this however my comments are as follows: Playrooms 1 & 2 • Appear to not have any windows, only the doors that lead out onto the outdoor play space. • There are no windows in the children's bathrooms/nappy change area Playroom 3 • No natural light or ventilation in the cot room • No window, only the door leading out to the outdoor play space. • No window in the children's toilet, only the door leading out to the playground

'

The DTS provisions of BCA2022 NCC-1 clause F6D6 requires that ventilation of habitable rooms may be via Natural ventilation complying with clause F6D7, or via mechanical ventilation compliant with AS1668.2-2012.

Proposed Playrooms 1, 2 and 3 for the L5 Childcare as shown on the architectural plans, have direct door openings to outdoor space which allows for natural ventilation. But doors are not kept open because the habitable space is airconditioned. That is why mechanical outside air ventilation is typically added to the space to ensure adequate ventilation that is compliant with AS1668.2-2012 is provided.

It is not unusual for Cot rooms to be located internally where there is no direct connection to outside. In this case, and even if natural ventilation may be compliant, mechanical outside air ventilation is provided in compliance with AS1668.2-2012. This is because the Cot room will be airconditioned and any natural openings are not kept open.

Similarly, the DTS provisions of BCA2022 NCC-1 clause F6D6 requires that ventilation of sanitary compartments may be via Natural ventilation complying with clause F6D7, or via mechanical ventilation compliant with AS1668.2-2012. The bathrooms and nappy change areas are typically always ventilated via mechanical exhaust for effective removal of emissions. Make-up air can be provided directly from outside via louvre intakes or via make-up air from inside that is otherwise discharged to outside as relief air.

The proposed Childcare can be readily ventilated to comply with the DTS requirements of the BCA. The details of the ventilation will be provided during the CC stage.

In relation to council query of food businesses, I confirm that commercial Kitchen ventilation for food and beverage areas have been considered in the planning, and adequate spatials have been incorporated. All commercial kitchen ventilation will be compliant with BCA 2022 NCC-1 clause F6D12 and referenced AS1668.2-2012. Full details will be provided during the CC stage.

In relation to exhaust ventilation discharge locations, I confirm that all exhaust discharges have been considered during the planning stage and provisions made to ensure full compliance with AS1688.2-2012 including part 3.10- AIR DISCHARGES. Full details will be provided during the CC stage.