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Date: August 16, 2024

To: Deicorp Projects (Crows Nest) Pty Ltd

Address: L2, 161 Redfern Street, Redfern NSW 2016

RE: FIVEWAYS, CROWS NEST
NATURAL VENTILATION FOR NOISE IMPACTED APARTMENTS

1 INTRODUCTION

This façade design co-ordination is in response to an RFI from the Department of Planning dated July 9, 2024, in relation to the SSDA proposal for the Fiveways, Crows Nest site. The RFI from the Department of Planning has requested details of;

Ventilation strategies for the apartments facing Pacific Highway demonstrating how natural ventilation can be achieved while mitigating noise. [SDRP]

In response, Windtech and Acoustic Logic were engaged to collaborate with the architects, Turner and Associates to resolve the following façade details to achieve the required minimum natural ventilation for air quality as per AS1668.2 in the noise affected habitable rooms while windows and doors are closed.

2 VENTILATION FOR THE ACOUSTICALLY AFFECTED HABITABLE ROOMS

It is possible to achieve the required ventilation via a single vent that feeds fresh air to the various rooms via a single trickle vent into the ceiling cavity (preferably 900mm wide but can be 600mm wide for 1 bedroom or smaller apartments, and with a 30mm aperture, 25mm acoustic lining over the interior surface.

The minimum length of the aperture was determined by the acoustic consultant as 900mm for this site. It is assumed that the ceiling plenums within the various habitable rooms within an apartment are interconnected. Hence, only one fresh air plenum is required per apartment.

A grill is required within each habitable room, having a minimum **effective** area of 0.014m², and located as far from the internal door of the room as possible.

The detailed section drawings of the proposed acoustically attenuated vents are presented in Appendix A. The passive air intake vents are designed to supply fresh air to each of the noise affected habitable rooms and then be exhausted from either the laundry or bathroom via an extraction fan capable to generating a minimum flow of 40litres per second. Most Φ 150mm inline fans are capable of achieving a flow rate of at least 40litres per second. A system that is able to provide at least 40litres per second of air changes through the apartment is more than sufficient to maintain adequate air quality for 1-, 2- and 3-bedroom apartments. For example, the inline fan model TT Mixflow In Line Fan 150mm provide ample capacity to

achieve more than the above minimum flow rate. A 25mm gap under the door or install a louvre panel into the door or wall of the bathroom or laundry with a gross area 0.045sqm or greater (allowing for flow losses).

To allow flow from the habitable room (e.g. bedroom) to the extraction point, it is recommended that a gap of 9mm to 10mm be provided under the door of that habitable room.

The external air trickle vents detailed in Appendix A will need to be installed to all apartments where **any** the operable sections of the façade fall within the red outline shown in Appendix B.

The list of the apartments that require a trickle vent are provided in Table 1, below.

Table 1: Assessment of Apartments that require the trickle vents

Unit Number	Vent Needed (Y/N)
3.01	N
3.02	N
3.03	N
3.04	N
4.01	N
4.02	Y
4.03	Y
4.04	Y
4.05	Y
4.06	Y
4.07	Y
4.08	Y
4.09	N
4.10	N
4.11	N
4.12	N
5.01	N
5.02	Y
5.03	Y
5.04	Y
5.05	Y
5.06	Y
5.07	Y
5.08	Y
5.09	N
5.10	N
5.11	N

5.12	N
6.01	N
6.02	Y
6.03	Y
6.04	Y
6.05	Y
6.06	Y
6.07	Y
6.08	Y
6.09	N
6.10	N
6.11	N
6.12	N
7.01	N
7.02	Y
7.03	Y
7.04	Y
7.05	Y
7.06	Y
7.07	Y
7.08	Y
7.09	N
7.10	N
7.11	N
7.12	N
8.01	N
8.02	Y
8.03	Y
8.04	Y
8.05	Y
8.06	Y
8.07	Y
8.08	Y
8.09	N
8.10	N
8.11	N
8.12	N
9.01	N
9.02	Y
9.03	Y
9.04	Y
9.05	Y
9.06	Y
9.07	Y

9.08	N
9.09	N
9.10	N
9.11	N
10.01	N
10.02	Y
10.03	Y
10.04	Y
10.05	Y
10.06	Y
10.07	Y
10.08	N
10.09	N
10.10	N
10.11	N
11.01	N
11.02	Y
11.03	Y
11.04	Y
11.05	Y
11.06	Y
11.07	Y
11.08	N
11.09	N
11.10	N
11.11	N
12.01	Y
12.02	Y
12.03	Y
12.04	Y
12.05	Y
12.06	Y
12.07	Y
12.08	N
12.09	N
12.10	N
12.11	Y
13.01	Y
13.02	Y
13.03	Y
13.04	Y
13.05	N
13.06	N

13.07	N
13.08	N
13.09	N
13.10	N
13.11	N
14.010	N
14.02	N
14.03	N
14.04	N
14.05	N
14.06	N
14.07	N
14.08	N
14.09	N
15.01	N
15.02	N
15.03	N
15.04	N
15.05	N
15.06	N
15.07	N
15.08	N
15.09	N
16.01	N
16.02	N
16.03	N
16.04	N
16.05	N
16.06	N
16.07	N
16.08	N
16.09	N
17.01	N
17.02	N
17.03	N
17.04	N
17.05	N
17.06	N
17.07	N
17.08	N
17.09	N
18.01	N
18.02	N

18.03	N
18.04	N
18.05	N
18.06	N
18.07	N
18.08	N
18.09	N
19.01	N
19.02	N
19.03	N
19.04	N
19.05	N
19.06	N
19.07	N
19.08	N
19.09	N
20.01	N
20.02	N
20.03	N
20.04	N
20.05	N
20.06	N
20.07	N
20.08	N
20.09	N
21.01	N
21.02	N
21.03	N
21.04	N
21.05	N
21.06	N
21.07	N
21.08	N
21.09	N

Prepared by:



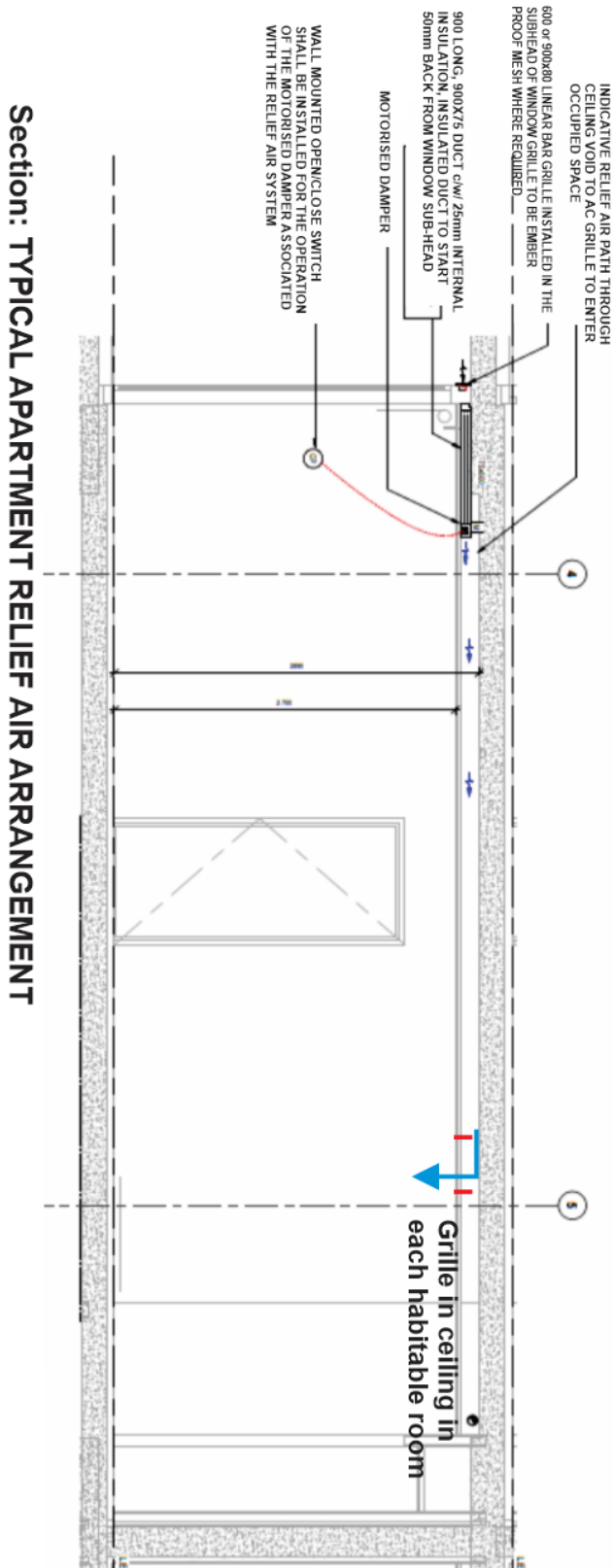
Windtech Consultants Pty Ltd

Tony Rofail

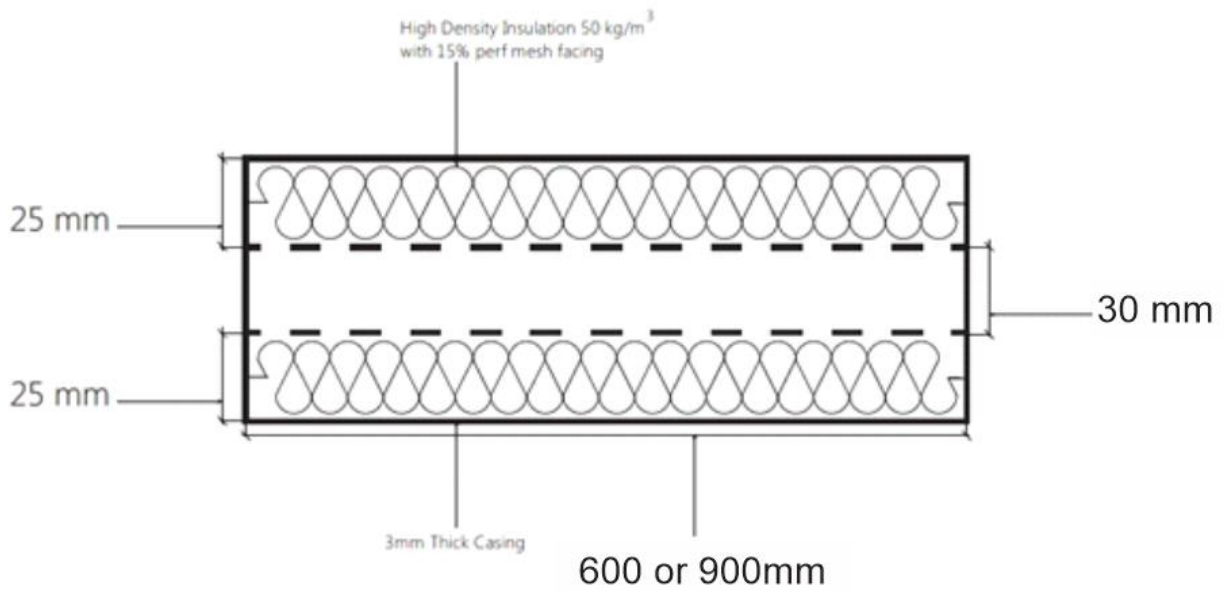
Director

APPENDIX A – PLENUM DETAIL DRAWINGS

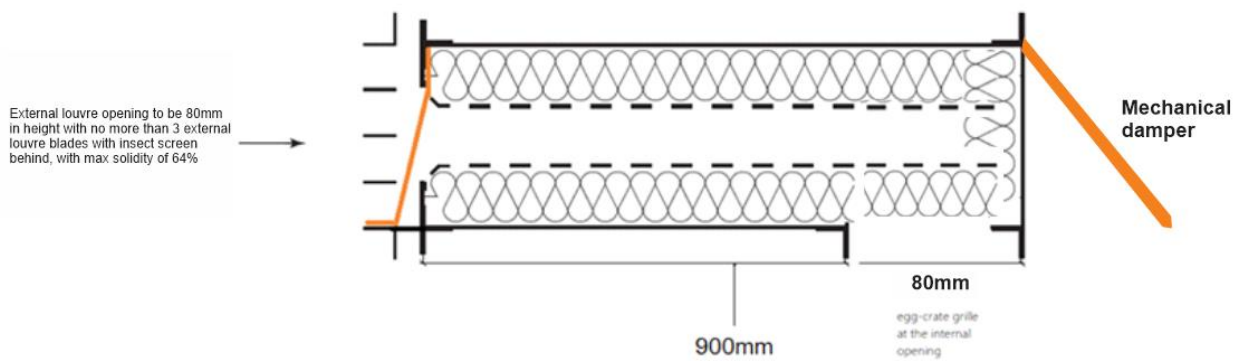
A1 Typical Detail Sections



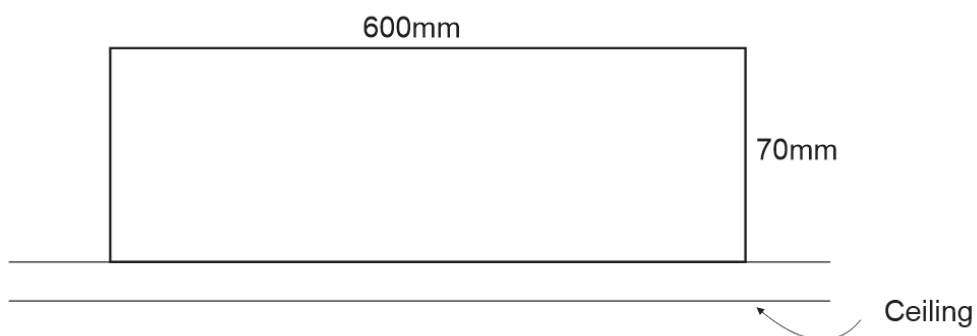
A2 Typical Detail Sections



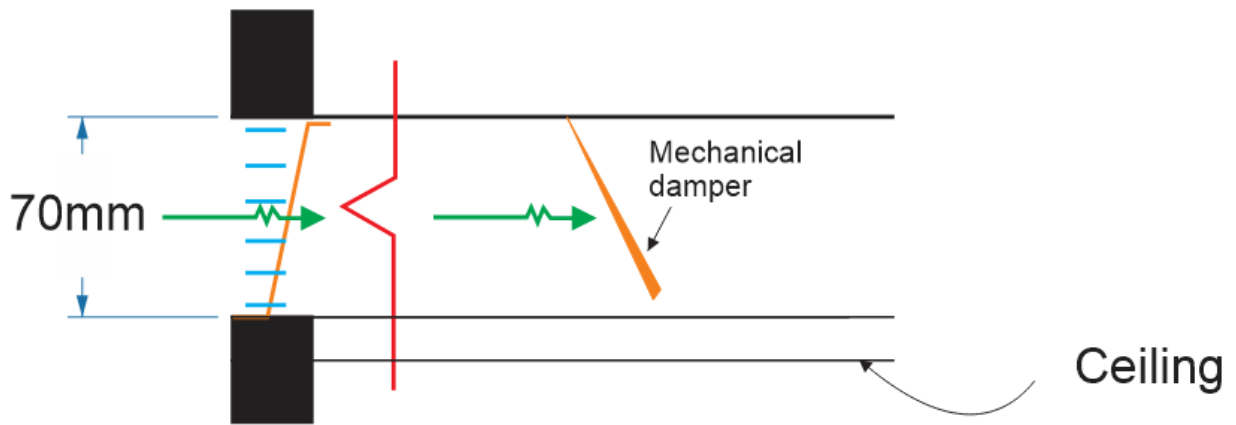
A2.1 Typical Cross Section NTS - Option 1: For Intake from Noise Impacted Façade.



A2.2 Typical Detail Section NTS – Option 2: For Intake from the Central Void.



A3.1 Typical Cross Section – Recessed wall off a balcony NTS



A3.2 Typical Long Section – Recessed wall off a balcony NTS

APPENDIX B – VENTILATION MARK UP CONTOURS

Prepared by Acoustic Logic

Contents:

B1.1 Ventilation Mark Up – Level 03

B1.2 Ventilation Mark Up – Level 04-11

B1.3 Ventilation Mark Up – Level 12-13

B1.4 Ventilation Mark Up – Level 14-21

B1.1 Ventilation Mark Up – Level 03



B1.2 Ventilation Mark Up – Level 04-11



B1.3 Ventilation Mark Up – Level 12-13



B1.4 Ventilation Mark Up – Level 14-21

