DANDARA LTD

Date: 15th May 2026

TECHNICAL NOTE ON MECHANICAL VENTILATION NOISE PARRS WOOD, DIDSBURY

1. INTRODUCTION

1.1. BACKGROUND & OBJECTIVES

E3P provided a Noise Impact Assessment (50-350 R2-2) for the above Site. Following its submission and due to the requirement of mechanical ventilation for the plots, Manchester City Council has sought assurance that noise from the internal units would not exceed BS 8233 internal noise level criteria in habitable rooms.

As such, this Technical Note considers noise level information for the proposed system and its potential internal noise levels. Trickle vents are also noted to be proposed where MVHR is not required and as such the details of these trickle vents will be assessed to ensure compliance with the requirements set out in the original Noise Impact Assessment. The note has been produced by Melissa Bailey, Senior Acoustic Consultant at E3P and full corporate member of the Institute of Acoustics (MIOA).

1.2. PROPOSED BACKGROUND VENTILATORS/TRICKLE VENTS

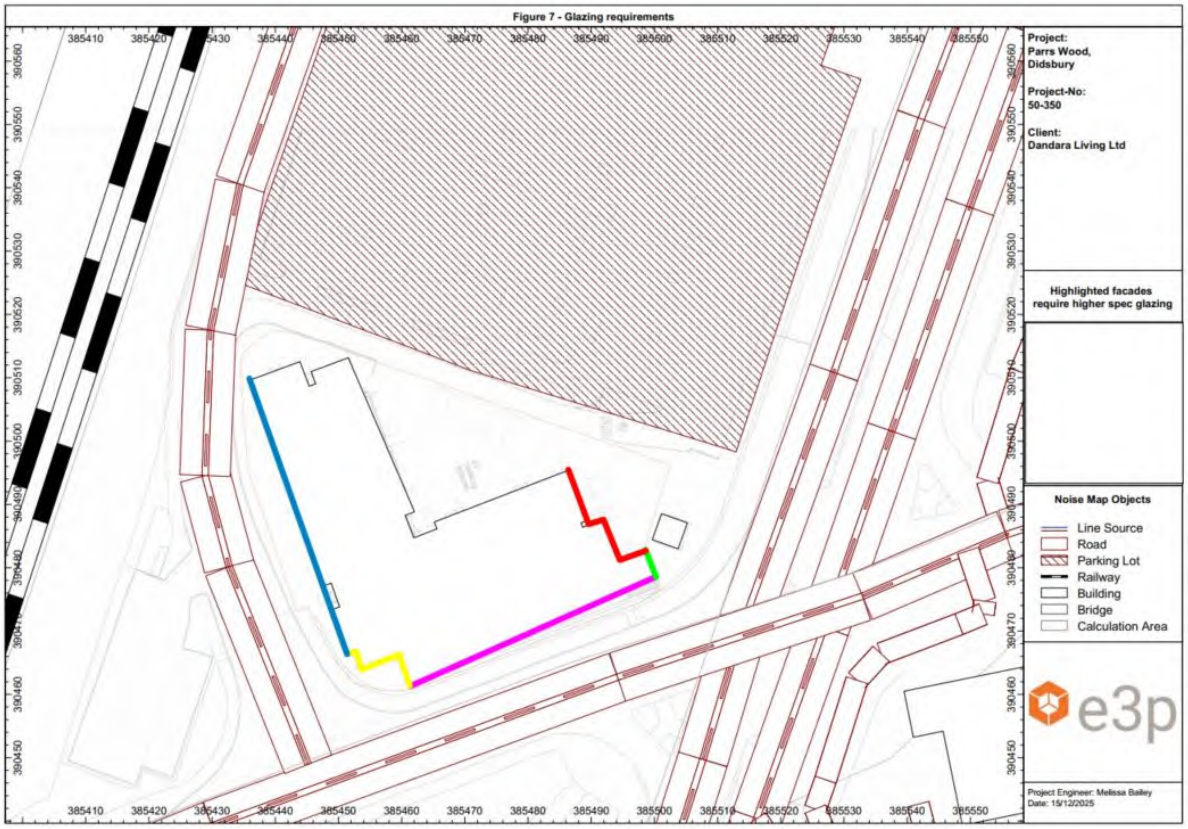
E3P understands that Dandara Ltd intend to install either Vent 5000EA +1 or Vent 5000EA +2 by dBA products along facades for plots not requiring MVHR. The technical sheet is appended to the rear of the report. An overheating assessment undertaken by Consolux demonstrated that MVHR is required in apartments 05, 07, 08 & 09 on the 2nd & 3rd floor. This mechanical system is assessed in section 1.3 below.

Trickle vents are proposed in all other apartments. The original noise impact assessment determined that where window mounted trickle vents or through wall vents are proposed, the sound reduction in the open position should be at least that achieved by the glazing. Glazing requirements per façade are as shown below, in table 6.1 from the NIA produced by E3P. Facades are colour codes on figure 7 for ease of reference.

Table 6.1 Glazing requirements

FACADE	GLAZING REQUIRED	EXAMPLE GLAZING (GLASS/AIR/GLASS) (mm)
South facing facade, overlooking Parrs Wood Lane (pink)	36 $R_w + C_{tr}$ (40 R_w)	8 / 12 / 8.4*
South western corner (yellow)	32 $R_w + C_{tr}$ (37 R_w)	8 / 6 / 8.8*
Western facing façade (blue)	30 $R_w + C_{tr}$ (33 R_w)	6 / 10 / 4
South eastern corner (green)	34 R_w + (37 R_w)	8 / 6 / 8.8*
Eastern facing façade (red)	30 $R_w + C_{tr}$ (31 R_w)	8 / 10 / 4

*denotes acoustic glazing



As such and per the figures, the proposed trickle vents will be acceptable for use in habitable rooms on the following facades:

- South facing façade, overlooking Parrs Lane (pink) – Vent 5000EA +2.
- South western corner (yellow) - Vent 5000EA +1.
- Western facing façade (blue) - Vent 5000EA +1.
- South eastern corner (green) - Vent 5000EA +1.
- Eastern facing façade (red) - Vent 5000EA +1.
- Other, non highlighted facades - Vent 5000EA +1.

1.3. PROPOSED MECHANICAL SYSTEM

E3P understands that Dandara Ltd intend to install a Nuaire MRXBOXAB-ECO2B MVHR unit in all plots, the technical sheet of which is appended to the rear of the report.



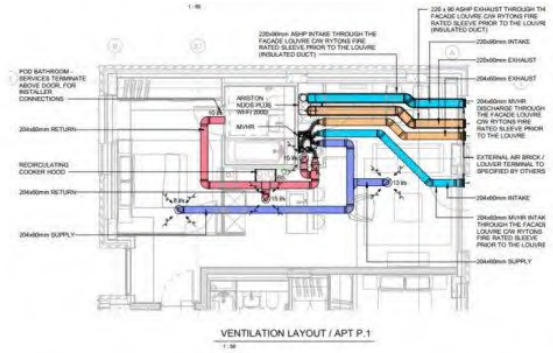
Of note is the below table extracted from the sheet detailing the noise output:

Electrical & Sound

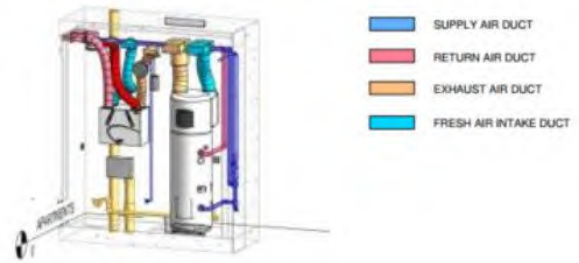
ECO2B Sound Data										
	Maximum power consumption		Sound Power Levels dB re 1pW (Frequency Hz)							dBA @3m
Curve	(Watts)		63	125	250	500	1k	2k	4k	8k	
1	152	Open inlet	47	52	60	59	50	47	34	29	
		Open outlet	58	66	69	71	69	67	58	49	
		Breakout	62	60	59	61	51	48	36	27	42
2	67	Open inlet	43	45	58	52	45	41	27	19	
		Open outlet	55	62	63	67	62	60	51	41	
		Breakout	52	57	53	54	45	41	29	18	35
3	20	Open inlet	40	39	49	43	36	30	<16	<16	
		Open outlet	47	53	54	57	52	49	38	25	
		Breakout	42	48	45	45	36	31	<16	<16	26
4	7	Open inlet	38	33	32	29	20	<16	<16	<16	
		Open outlet	38	36	36	38	31	22	<16	<16	
		Breakout	37	34	29	27	17	<16	<16	<16	<16

E3P will assume the highest ventilation capacity/power consumption, in the absence of detailed information, and assume the sound power level of breakout is at the unit itself without any attenuation of the ducts to the outside or inside. As such, a worst-case sound power level is assumed.

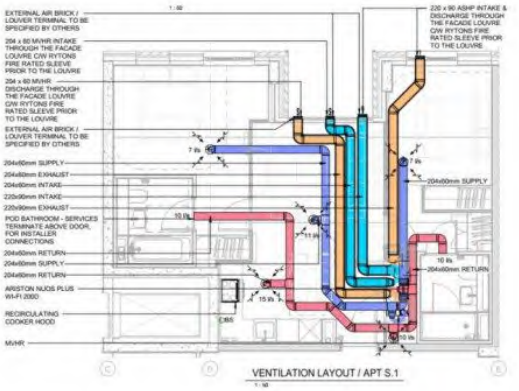
Upon review of drawings provided by the client, it is noted that the unit is to be installed in cupboards in hallways or similar areas and not within habitable rooms. Typical ducting layouts showing intake and extract locations can be seen below:



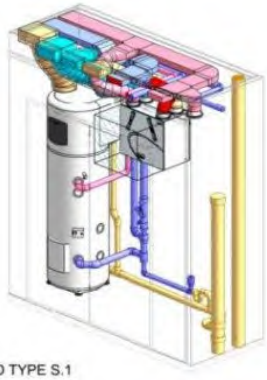
VENTILATION LAYOUT / APT P.1



UTILITY CUPBOARD / APT P.1



VENTILATION LAYOUT / APT S.1



3D - UTILITY CUPBOARD TYPE S.1

CONSIDERATION OF POTENTIAL NOISE IMPACT

Following calculations to consider attenuation through Vent-Axia 475430 ducting (spec sheet attached in appendix), at an assumed distance of 2 m from the cupboard to the closest doorway of a habitable room, this equates to 21 dB. This falls below the required night-time criterion by 9 dB. This also allows for the uncertainty of -/+ 1 dB.

	63	125	250	500	1000	2000	4000	8000	
Plant item 1 (MVHR) Lw on max power consumption	62	60	59	61	51	48	36	27	
Attenuation due to length and elbows									
Duct length (m)	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	
Unlined insertion loss values	6.2	18.2	25.1	28.7	30.9	23.4	21.5	17.3	
Duct length attenuation (length*insertion loss)	7.564	22.204	30.622	35.014	37.698	28.548	26.23	21.106	
Assumed number of bends	2	2	2	2	2	2	2	2	
W - Width of duct	0.0900	0.09	0.09	0.09	0.09	0.09	0.09	0.09	
W/λ *used to select insertion loss data from table	0.02	0.03	0.07	0.13	0.26	0.52	1.05	2.10	
Duct bends (atten.) - *taken from insertion loss data tab*	0	0	0	0	5	5	8	8	
Bend attenuation * number of bends	0	0	0	0	10	10	16	16	
Attenuation due to ERL rectangular ducts									
Duct opening - m^2	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	
Duct opening - d	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	
Calculated - End reflection loss (atten.)	17.8	12.4	7.3	3.4	1.2	0.4	0.1	0.0	
Given silencer attenuation (Vent Axia)	2.825591	1.966598	1.167109	0.545022	0.19517	0.058716	0.016453	0.004509	
DL Total losses from duct	28.2	36.6	39.1	39.0	49.1	39.0	42.4	37.1	
									Lw dB (A)
Sound power level at opening	33.8	23.4	19.9	22.0	1.9	9.0	-6.4	-10.1	34.6
Sound Power level to Sound Pressure level									
Lw	34.6								
Q	2								
r	1		2						
r^2	1		4						
4Pi * r^2	12.56637		50.26548						
Sound Pressure Level dB									
Lp	26.63622	at 1m from opening							
	20.61562	at 2m from opening							

Should the units not be housed in cupboards or sited directly in or above living rooms or bedrooms then additional consideration will be required. Furthermore, E3P have assumed the duct noise levels are the direct ducts into the unit and not the terminus ducts in rooms based on the information provided.

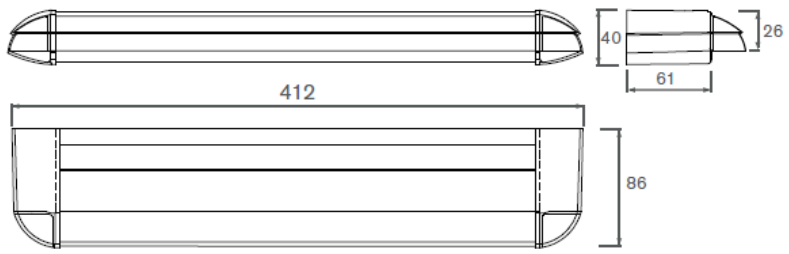
As such, noise from the mechanical ventilation unit is considered acceptable and will not have an adverse impact on the residents in living rooms or bedrooms. No further mitigation/attenuation is required to these areas or pipework.

I trust the information provided in this letter report is satisfactory however if there is anything further, please do not hesitate to contact me.

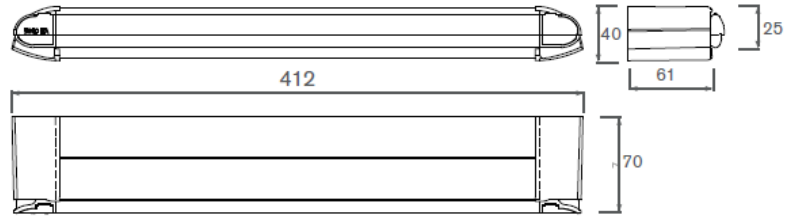
Yours sincerely,
For and on behalf of E3P Ltd

Melissa Bailey
Senior Acoustic Consultant

Specification Data sheet



External



Internal

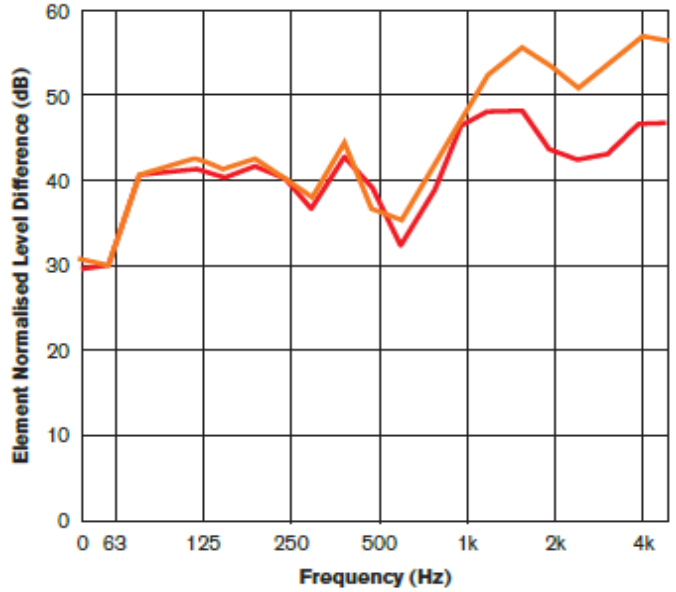
5000EA Acoustic slot size

Height: 13mm

Length	Central gap	Length
172mm	10mm	172mm

In open position

Dba Products
Innovation in acoustics



Product Code	Description	Equivalent Area mm²	Dn,e,w Average Weight Performance	Octane Band Centre (1/1 Oct) Frequency (Hz)					Dn,e,w Ctr A- Weighted Level
				125	250	500	1000	2000	
DB-5000EA AC1	Vent 5000EA + 1 Acoustic Set	5713	39	38.9	38.4	30.6	43.7	43.0	37
DB-5000EA AC2	Vent 5000EA + 2 Acoustic Set	5596	42	39.9	37.9	31.8	46.7	53.3	38

			Acoustic performance			
Product code	Description	Controls	Dn,e,w	Dn,e,w (C)	Dn,e,w (Ctr)	Equivalent area mm²
DB5000EA.AC1	Vent + 1 Acoustic External Module	Front	39dB(A)	38dB	37dB	5713
DB5000EA.AC2	Vent + 2 Acoustic Modules	Front	42dB(A)	40dB	38dB	5596

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Wholehouse Attenuators

- Reduces induct noise
- Variety of sizes to suit specified noise requirements
- Compatible with both 204x60mm and 220x90mm rectangular ductwork
- Rigid galvanized steel construction
- Easy installation
- Suitable for almost any ventilation system
- Low pressure loss



The Vent-Axia Wholehouse Attenuator has been developed to reduce induct noise in both residential and commercial ducting systems.

Technical Details

The Wholehouse Attenuator is compatible with either 204x60mm^2 or 220x90mm^2 ducting. The Wholehouse Attenuator is designed with an offset spigot, saving the need for additional ducting components which makes for a much easier and quicker installation.

Noise Reduction

Offering excellent sound reduction over a range of frequencies, the Wholehouse Attenuator is available in two lengths depending on the noise suppression requirements. For MVHR systems the attenuator can be fitted on the supply side to habitable rooms, reducing airborne in-duct noise. For MVHR and extract-only systems, the attenuator may be placed on the extract side to limit 'cross-talk' through ductwork between rooms.

Models

Attenuator with Offset Spigot

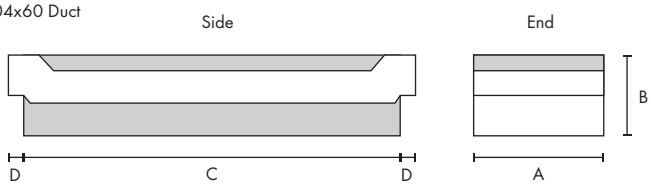
Model	Stock Ref
204x60 Duct 650mm Length	477371
204x60 Duct 950mm Length	475427
204x60 Duct 1220 Length	475428
220x90 Duct 650mm Length	477372
220x90 Duct 950mm Length	475429
220x90 Duct 1250mm Length	475430

Acoustic Flexible Ducting

Model	Stock Ref
125mmØ Duct 1m Length	443793
150mmØ Duct 1m Length	443274

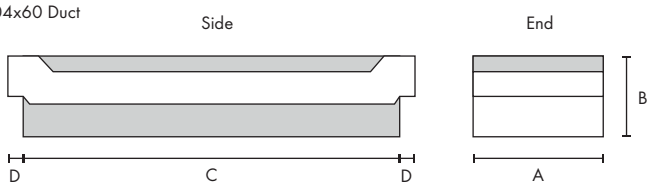
Dimensions (mm)

204x60 Duct



Model	A	B	C	D	kg
204x60 Duct 650mm Length	210	125	600	25	10
204x60 Duct 950mm Length	210	125	900	25	13
204x60 Duct 1250mm Length	210	125	1200	25	17

204x60 Duct



Model	A	B	C	D	kg
220x90 Duct 650mm Length	226	148	600	25	10
220x90 Duct 950mm Length	226	148	900	25	14
220x90 Duct 1250mm Length	226	148	1200	25	17

Acoustic Performance

	Octave Band (Hz) Static Insertion Loss, dB							
Model	63	125	250	500	1k	2k	4k	8k
204x60 Duct 650mm Length	0	3	8	12	25	40	48	32
204x60 Duct 950mm Length	0.3	3.2	11.6	24.2	38	49.1	50.3	36.4
204x60 Duct 1250mm Length	0.3	1.8	14.1	21.3	35.4	46.9	50.4	36.4
220x90 Duct 650mm Length	0	3	8	14	28	40	48	33
220x90 Duct 950mm Length	7.3	10.2	13.1	26.2	34.9	47.6	52.2	38.9
220x90 Duct 1250mm Length	1.2	7.4	18.6	30.2	39.1	51	45.2	38.6
125mmØ Duct 1m Length	5.5	11.5	17	19.9	19.1	25.6	20	21.6
150mmØ Flexible Duct 1m Length	-1.2	10.6	19	16.8	15.7	22.2	15.7	17.6

Pressure Loss

Model	Duct Size (mm)	Volume (l/s)	Pressure Loss (Pa)
Attenuator*	204x60	15	1
		30	4
		60	15
		80	27
Attenuator*	220x90	15	1
		30	4
		60	14
		80	31
Acoustic Flexible Ducting (1m)	125	15	2.8
		30	8.8
		60	19.2
		80	37.5
Acoustic Flexible Ducting (1m)	150	15	1.7
		30	6.4
		60	13.8
		80	28.4

*Data based on 1250mm lengths